Various aspects of the application have been amended via responses to requests for information (RFIs). Please see the RFI responses of February and May 2025 to obtain an accurate understanding of the proposal.

# Southshore and South New Brighton Park Erosion Protection and Inundation Protection Works Resource Consent Application

Document no: IA271200-NP-RPT-0003
Version: 0

**Christchurch City Council**

**Southshore and South New Brighton Park Erosion Protection and Inundation Protection Works Resource Consent Application**
4 December 2023

# Southshore and South New Brighton Park Erosion Protection and Inundation Protection Works Resource Consent Application

| | | | |
|---|---|---|---|
| Client name: | Christchurch City Council | | |
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# Executive Summary

Christchurch City Council (Council) are proposing upgrade inundation and erosion protection measures at two locations in the Avon/Heathcote Estuary/Ihutai (Estuary), specifically at Southshore and South New Brighton Park. The upgrade of erosion and inundation protection measures is to address the impacts of the Canterbury Earthquake Sequence (CES) on the Estuary edge. The Project aims to protect public and private infrastructure to a level of erosion and inundation protection existing prior to the CES.

As a result of the CES there was subsidence of the land and damage to existing hard protection structures along the edge of South New Brighton Park and Southshore. The lowering of (and damage to) structures has led to more regular overtopping of the coastal edge which has been causing erosion of the estuary edge. The lowering of land also increased costal inundation risk from the estuary.

The community raised concerns to Council about the increased erosion and inundation risk to public and private infrastructure. This resulted in Council investigating options to address the effects of the CES and return a level of service that existed prior to the earthquakes. The Council and community objectives that arose from this process sought to address earthquake legacy issues, included:

- Providing a restored level of inundation protection; and
- Addressing post-earthquake sequence erosion so that no more land was to be lost.

The recommended options that passed Council resolution were:

- An inundation bund located approximately 5m from the estuary edge in Southshore and set further back in South New Brighton Park.
- Estuary edge protection along Southshore to replace failed private structures, protect the bund and stop further erosion comprising sections of cobble beach and rock revetment
- Estuary edge protection along South New Brighton Park to replace failed gabion baskets made up of a mix of gabion baskets and cobble beach.

Council and Community have recognised and acknowledged through this process that once CES legacy issues have been addressed further discussions are required to address the community's long-term approach to climate change adaptation and projected sea level rise. This will be addressed in the future when the council's Coastal Hazards Adaptation Program ('CHAP') works with the local community on adaptation planning for changing coastal hazards with climate change. Resultingly, the Project is limited to a response to rectifying CES related issues. However, the design process has allowed for future climate change adaptation measures.

A comprehensive AEE has been developed to shape the Project. This Assessment of Effects on the Environment (AEE) supports the application for the necessary resource consents from Environment Canterbury and CCC to construct the best designs to achieve the Project objectives. Detailed technical investigations into the existing environment have been undertaken covering, coastal processes, terrestrial ecology, estuarine ecology, avifauna and herpetology (lizards), landscape and visual, recreational values, arboriculture, archaeology and flooding issues. The environmental values identified have led to refinements to designs to manage and reduce potential adverse effects. Through the process council have been engaging with local residents and other stakeholders around the approach. Mana Whenua (Te Ihutai Ahu Whenua Trust) have been engaged with the landscaping elements of the Project.

Overall, after recognising the modified context of the Estuary edge and the nature of the existing infrastructure, as well as taking into account the proposed positive effects of the Project, such as a net declamation of 879 m², as well as the proposed construction methodology and proposed conditions, the effects of the proposal are considered to be no more than minor.

## ⓘ Important note about this report

The sole purpose of this report and the associated services performed by Jacobs is to prepare a resource consent application for erosion protection and inundation protection at Southshore and South New Brighton Park, in accordance with the scope of services set out in the contract between Jacobs and Christchurch City Council (the Client).

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Client and/or from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate, or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

Jacobs derived the data in this report from information sourced from the Client (if any) and/or available in the public domain at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations, and conclusions expressed in this report. Jacobs has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose described above and by reference to applicable standards, guidelines, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report, to the extent permitted by law.

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# Acronyms and Abbreviations

Table 1 Acronyms and Abbreviations

| Acronym | Meaning |
|---|---|
| AEE | Assessment of Effects on the Environment |
| ACM | Asbestos Containing Material |
| BPO | Best Practicable Option |
| CARP | Canterbury Air Regional Plan - Te mahere ā-rohe mō te hau o Waitaha |
| CDD | Canterbury Drainage Datum |
| CEMP | Construction Environmental Management Plan |
| CES | Canterbury Earthquake Sequence |
| CHAP | Coastal Hazards Adaptation Programme |
| CLWP | Canterbury Land and Water Regional Plan |
| CMA | Coastal Marine Area |
| Council | Christchurch City Council |
| CCP | Christchurch City Plan |
| CSMP | Contaminated Soils Management Plan |
| CTMP | Construction Traffic Management Plan |
| DOC | Department of Conservation |
| District Plan | Christchurch District Plan |
| DSI | Detailed Site Investigation |
| ECan | Canterbury Regional Council |
| ESDCP | Erosion Sediment Dust Control Plan |
| Estuary | Ihutai/Avon-Heathcote Estuary |
| FENZ | Fire and Emergency New Zealand |
| HAT | Highest Astronomical Tide |
| LINZ | Toitū Te Whenua Land Information New Zealand |
| MHWS | Mean High Water Spring |

| | |
|---|---|
| NZCPS | New Zealand Coastal Policy Statement |
| NES-CS | Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 |
| NES-F | Resource Management (National Environmental Standards for Freshwater) Regulations 2020 |
| NPS-FM | National Policy Statement for Freshwater Management 2020 (Amended February 2023) |
| NPS-IB | National Policy Statement for Indigenous Biodiversity 2023 |
| NPS-NH | Proposed National Policy Statement for Natural Hazards 2023 |
| ONF | Outstanding Natural Feature |
| PSI | Preliminary Site Investigation |
| RCEP | Regional Coastal Environment Plan for the Canterbury Region |
| RL | Reduced Level |
| RMA | Resource Management Act 1991 |
| RPS | Canterbury Regional Policy Statement |
| SNBP | South New Brighton Park |
| SOP | Saltmeadow Offset Plan |
| SSRA | Southshore Residents Association |
| SQEP | Suitably Qualified and Experienced Person |
| TPMP | Tree Protection Management Plan |
| Yacht Club | Pleasant Point Yacht Club |

# PART A: APPLICATION FOR RESOURCE CONSENT

THIS FORM SUPERSEDED SEE MAY 2025 UPDATE

APPLICATION FOR RESOURCE CONSENT UNDER SECTION 88 OF THE RESOURCE MANAGEMENT ACT 1991

To: Canterbury Regional Council and Christchurch City Council

| Addresses: | Canterbury Regional Council<br>200 Tuam Street<br>Christchurch CBD<br>Christchurch, 8013 | Christchurch City Council<br>53 Hereford Street<br>Christchurch CBD<br>Christchurch, 8013 |
|---|---|---|

Consent Application Form

1) Christchurch City Council applies for the following resource consents:

<u>Christchurch City Council:</u>

i. Land use consent as a restricted discretionary activity for new buildings for flood protection and bank erosion protection works in the Flood Management Area under Rule 5.41.5a of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a restricted discretionary activity.

ii. Land use consent as a non-complying activity for the replacement or repair of buildings (bund and erosion protection structures as defined) in the High Flood Management area under Rule 5.4.6.3 of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a non-complying activity.

iii. Land use consent as a non-complying activity for indigenous vegetation clearance for a new building (erosion protection structures) within a Site of Ecological Significance (LP14) under Rule 9.1.4.1.5 of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a non-complying activity.

iv. Land use consent as a non-complying activity for the construction of buildings (bund and erosion protection structures as defined) in an Outstanding Natural Feature Overlay under Rule 9.2.4.1 Table 1-a of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a non-complying activity.

v. Land use for the construction of a new building (flood bund) in the Natural Coastal Character Overlay and High Natural Character Coastal Overlay under Rule 9.2.6.1 Table 3-a of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a non-complying activity.

vi. Land use consent for the construction of a new building (flood bund) in the Specific Purpose (Flat Land Recovery) Zone under Rule 13.11.4.1.3 RD9 of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a restricted discretionary activity.

vii. Land use for the purpose of flood protection undertaken by Council in Open Space Community Park Zone under Rule 18.4.1.2 of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a controlled activity.

viii. Land use consent as a restricted discretionary activity for indigenous vegetation clearance for flood bund and erosion protection structures in the Open Space Coastal Zone under Rule 18.9.1.3(RD2) of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a restricted discretionary activity.

ix. Land use consent as a non-complying activity for the construction of a flood bund and coastal erosion protection works in the Open Space Coastal Zone under Rule 18.9.1.5 of the Christchurch District Plan, pursuant to section 9(3)(a) of the Resource Management Act 1991. Consent is required as a non-complying activity.

Canterbury Regional Council:

i. Coastal permit as a non-complying activity for the erection or placement of structures within an Area of Significant Natural Value under Rule 8.4c of the Regional Coastal Environment Plan for the Canterbury Region, pursuant to section 12(1)(b) of the Resource Management Act 1991. Consent is required as a non-complying activity.

ii. Coastal permit as a non-complying activity for the disturbance of the seabed in an area of Significant Natural Value under Rule 8.9 of the Regional Coastal Environment Plan for the Canterbury Region, pursuant to section 12(1)(c) of the Resource Management Act 1991. Consent is required as a non-complying activity.

iii. Coastal permit as a non-complying activity for the deposition of more than 100 $m^3$ of any material on the foreshore or seabed at any site within an Area of Significant Natural Value under Rule 8.14 of the Regional Coastal Environment Plan for the Canterbury Region, pursuant to section 12(1)(d) of the Resource Management Act 1991. Consent is required as a non-complying activity.

iv. The occupation of the Coastal Marine Area as a discretionary activity for the enduring occupation of structures at Southshore under Rule 8.23, pursuant to section 12(2)(a) of the Resource Management Act 1991. Consent is required as a discretionary activity.

v. Reclamation of the Coastal Marine Area as a non-complying activity under Rule 8.28, pursuant to Section 12(1)(a) of the Resource Management Act 1991. Consent is required as a non-complying activity.

vi. Land use consent as a discretionary activity for vegetation clearance within, or within a 10 m setback from a natural wetland under Part 3, Subpart 1 – Natural wetlands, pursuant to Regulation 45 of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020. Under Regulation 45(1) consent is required as a discretionary activity.

vii. Land use consent as a discretionary activity for earthworks within, or within a 10 m setback from a natural wetland under Part 3, Subpart 1 – Natural wetlands, pursuant to Regulation 45 of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020. Under Regulation 45(2) consent is required as a discretionary activity.

viii. Discharge permit for the discharge of water (construction-phase stormwater) within, or within a 100 m setback from a natural wetland under Part 3, Subpart 1 -Natural wetlands, pursuant to section 45 of the Resource Management (National Environmental Standards for Freshwater) Regulations 2020. Under Regulation 45(5) consent is required as a discretionary activity.

2) A description of the activity to which the application relates is:

- The construction and enduring occupation of erosion protection works at Southshore in the Coastal Marine Area (CMA).
- The construction and enduring occupation of erosion protection works at South New Brighton Park in the CMA.
- The construction and enduring occupation of inundation protection works (flood bund) at Southshore, predominantly offset from the CMA.
- The construction and enduring occupation of inundation protection works (flood bund) at South New Brighton Park, offset from the CMA.

Supplementary Application Forms are found as Appendix A to this application.

3) The sites at which the activity is to occur is as follows:

Table 2 Legal Description of Sites Where Activities are to Occur

| Site | Legal Description | Area | Owner as on 6/11/23 | Record(s) of Title |
|---|---|---|---|---|
| South New Brighton Park Erosion Protection Works and Inundation Works | | | | |
| South New Brighton Recreation Reserve | RES 4875 LT 416633, SO 9070 | 15.56 ha | Christchurch City Council | CB8K/989 |
| South New Brighton Recreation Reserve | RES 4874 DP 465910, DP 465996, SO 9070 | 12.24 ha | Christchurch City Council | CB8K/989 |
| Southshore Erosion protection Works and Inundation Works | | | | |
| Stopped Road Ebbtide Street to Heron Street | Section 1 SO 563306 | 0.70 ha | Christchurch City Council | 1010022 |
| 2 Godwit Street | Lot 1 DP 71198 | 0.06 ha | Christchurch City Council | CB41B/303 |
| 4 Godwit Street | Lot 2 DP 71198 | 0.07 ha | Christchurch City Council | CB41B/304 |
| 32A Rocking Horse Road | Lot 6 DP 16205 | 0.06 ha | Christchurch City Council | CB627/92 |
| 34A Rocking Horse Road | Lot 7 DP 16205 | 0.07 ha | Christchurch City Council | CB652/89 |
| 36A Rocking Horse Road | Lot 10 DP 16205 | 0.07 ha | Christchurch City Council | CB627/89 |
| 36B Rocking Horse Road | Lot 11 DP 16205 | 0.06 ha | Christchurch City Council | CB7D/432 |

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| 40A Rocking Horse Road | Lot 14 DP 16205 | 0.07 ha | Christchurch City Council | CB618/47 |
| 40B Rocking Horse Road | Lot 15 DP16205 | 0.07 ha | Christchurch City Council | CB677/40 |
| 44A Rocking Horse Road | Lot 18 DP 16205 | 0.09 ha | Luke John William Jamin, Sandra Jane Firth | CB698/69 |
| 46A Rocking Horse Road | Lot 19 DP 16205 | 0.09 ha | Christchurch City Council | CB627/90 |
| 46B Rocking Horse Road | Lot 20 DP 16205 | 0.11 ha | Christchurch City Council | CB624/31 |
| 5 Heron Street | Lot 2 DP 28869 | 0.07 ha | Christchurch City Council | CB10K/521 |
| 3 Heron Street | Lot 3 DP 28869 | 0.06 ha | Christchurch City Council | CB10K/522 |
| 2 Heron Street | Lot 3 DP 26391 | 0.08 ha | Christchurch City Council | CB8B/1002 |
| 6 Heron Street | Lot 1 DP 26391 | 0.06 ha | Christchurch City Council | CB8B/1140 |
| 2A Heron Street | Lot 4 DP 26391 | 0.06 ha | Christchurch City Council | CB8B/1003 |
| 4 Heron Street | Lot 2 DP 26391 | 0.09 ha | Christchurch City Council | CB35A/836, CB35A/837 |
| 2B Heron Street | Lot 5 DP 26391 | 0.06 ha | Christchurch City Council | CB8B/1004 |
| 2C Heron Street | Lot 6 DP 26391 | 0.06 ha | Christchurch City Council | CB8B/1005 |
| 9 Heron Street | Lot 6 DP 37149 | 0.06 ha | Christchurch City Council | CB17F/1147 |
| 11 Heron Street | Lot 7 DP 37149 | 0.05 ha | Christchurch City Council | CB17A/484 |
| 7 Heron Street | Lot 5 DP 37149 | 0.09 ha | Christchurch City Council | CB17F/1146 |
| 62C Rocking Horse Road | Lot 4 DP 24125 | 0.11 ha | Christchurch City Council | CB6A/542 |

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| 62B Rocking Horse Road | Lot 3 DP 24125 | 0.10 ha | Christchurch City Council | CB6B/559 |
| 64A Rocking Horse Road | Lot 2 DP 49643 | 0.06 ha | Christchurch City Council | CB29A/960 |
| 66B Rocking Horse Road | Lot 1 DP 51260 | 0.16 ha | Christchurch City Council | 976922 |
| 66C Rocking Horse Road | Lot 2 DP 51260 | 0.16ha | Christchurch City Council | CB29K/87 |
| 74B Rocking Horse Road | Lot 16 DP 19427 | 0.07 ha | Christchurch City Council | CB32B/721, CB32B/722 |
| 74C Rocking Horse Road | Lot 17 DP 19427 | 0.07 ha | Christchurch City Council | CB33K/833, CB33K/834 |
| 74A Rocking Horse Road | Lot 15 Dp19427 | 0.19 ha | Christchurch City Council | CB31A/457, CB33B/1262 |
| 76A Rocking Horse Road | Lot 2 DP 39313 | 0.09 ha | Christchurch City Council | CB17K/404 |
| 78 Rocking Horse Road | Lot 71 DP 4692 | 0.15 ha | Robert Barry Knowles | CB15K/509 |
| 80A Rocking Horse Road | Lot 2 DP 17112 | 0.08 ha | Christchurch City Council | CB704/90 |
| 82A Rocking Horse Road | Lot 1 DP 36785 | 0.09 ha | Christchurch City Council | CB15K/1273 |
| 3A Penguin Street | Lot 2 DP 37259 | 0.08 ha | Christchurch City Council | CB16B/567 |
| 3 Penguin Street | Lot 1 DP 3259 | 0.09 ha | Christchurch City Council | 976923 |
| Stopped Road at Penguin Street | Section 3 SO 563306 | 0.06 ha | Christchurch City Council | 1010024 |
| 2B Penguin Street | Lot 1 DP 36659 | 0.06 ha | Christchurch City Council | CB42B/55 |
| 2A Penguin Street | Lot 2 DP 36659 | 0.06 ha | Christchurch City Council | CB42B/55 |
| 2 Penguin Street | Lot 3 DP 36659 | 1.137 ha | Christchurch City Council | 977324 |
| 88B Rocking Horse Road | Lot 3 DP 21691 | 1.137 ha | Christchurch City Council | 977324 |

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| 88A Rocking Horse Road | Lot 2 DP 21691 | 1.137 ha | Christchurch City Council | 977324 |
| 90B Rocking Horse Road | Lot 1 DP 57612 | 1.137 ha | Christchurch City Council | 977324 |
| 94A Rocking Horse Road | Part Lot 2 DP 18852 | 1.137 ha | Christchurch City Council | 977324 |
| 96A Rocking Horse Road | Lot 3 DP 18852 | 1.137 ha | Christchurch City Council | 977324 |
| 96B Rocking Horse Road | Lot 4 DP 18852 | 1.137 ha | Christchurch City Council | 977324 |
| 100A Rocking Horse Road /100C Rocking Horse Road (Cross lease) | Lot 1 DP 47440 | 1.137 ha | Christchurch City Council | 977324 |
| 100B Rocking Horse Road | Lot 2 DP 47440 | 1.137 ha | Christchurch City Council | 977324 |
| 104A Rocking Horse Road | Lot 2 DP 16502 | 1.137 ha | Christchurch City Council | 977324 |
| 106A Rocking Horse Road | Lot 3 DP 16502 | 1.137 ha | Christchurch City Council | 977324 |
| 106B Rocking Horse Road | Lot 4 DP 26420 | 1.137 ha | Christchurch City Council | 977324 |
| 108B Rocking Horse Road | Lot 5 DP 26420 | 1.137 ha | Christchurch City Council | 977324 |
| 112B Rocking Horse Road | Lot 21 DP 19427 | 1.137 ha | Christchurch City Council | 977324 |
| 112C Rocking Horse Road | Lot 22 DP 19427 | 1.137 ha | Christchurch City Council | 977324 |
| 5 Plover Street | Lot 3 DP 35785 | 1.137 ha | Christchurch City Council | 977324 |
| 1 Plover Street | Lot 2 DP 35785 | 0.06 ha | Christchurch City Council | CB16A/455 |
| 3 Plover Street | Lot 1 DP 35785 | 0.06 ha | Christchurch City Council | CB16A/454 |
| Stopped Road at Plover Street | Section 4 SO 563306 | 0.09 ha | Christchurch City Council | 1010025 |

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| 2 Plover Street | Lot 2 DP 557654 | 0.08 ha | Christchurch City Council | 977325 |
| 4 Plover Street | Part Lot 2 DP 18140 | 0.10 ha | Christchurch City Council | 1067916 |
| 122A Rocking Horse Road | Part Lot 3 DP 18140 | 0.30 ha | Christchurch City Council | 1067916 |
| 124A Rocking Horse Road | Lot 1 DP 27447 | 0.11 ha | Christchurch City Council | CB9B/220 |
| 126A Rocking Horse Road | Lot 1 DP 33062 | 0.07 ha | Christchurch City Council | CB13A/1260 |
| 126B Rocking Horse Road | Lot 2 DP 33062 | 0.07 ha | Christchurch City Council | CB13A/1262 |
| 128A Rocking Horse Road | Lot 3 DP 33062 | 0.10 ha | Christchurch City Council | CB13K/179 |
| 132A Rocking Horse Road | Lot 2 DP 28790 | 0.10 ha | Christchurch City Council | CB10K/338 |
| 132B Rocking Horse Road | Lot 2 DP 58641 | 0.07 ha | Christchurch City Council | CB36B/79 |
| 134B Rocking Horse Road | Lot 2 DP 40548 | 0.06ha | Christchurch City Council | CB46A/100 |
| 1/134A, 2/134A Rocking Horse Road (Cross Lease) | Lot 2 DP 40820 | 0.08 ha | Christchurch City Council | CB24F/181, CB24F/182 |
| 136B Rocking Horse Road | Lot 3 DP 30759 | 0.06 ha | Christchurch City Council | CB12F/290 |
| 136A Rocking Horse Road | Lot 2 DP 30759 | 0.08 ha | Christchurch City Council | CB12F/289 |
| 140 Rocking Horse Road | Lot 3 DP 51138 | 0.08 ha | Christchurch City Council | CB30B/341 |
| 140A Rocking Horse Road | Lot 2 DP 51138 | 0.06 ha | Christchurch City Council | CB30B/341 |
| 142B Rocking Horse Road | Lot 1 DP 37183 | 0.06 ha | Christchurch City Council | CB15K/937 |
| 142A Rocking Horse Road | Lot 2 DP 37187 | 0.08 ha | Christchurch City Council | CB15K/938 |

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| 144B Rocking Horse Road | Lot 3 DP 21048 | 0.05 ha | Christchurch City Council | CB2D/1392 |
| 144A Rocking Horse Road | Lot 2 DP 21048 | 0.09 ha | Christchurch City Council | CB2C/538 |
| 146B Rocking Horse Road | Lot 25 DP 19427 | 0.05 ha | Christchurch City Council | CB748/91 |
| 146A Rocking Horse Road | Lot 23 DP 19427 | 0.09 ha | Christchurch City Council | CB40A/759, CB41A/1291 |
| 148B Rocking Horse Road | Lot 3 DP 19246 | 0.05 ha | Christchurch City Council | CB729/24 |
| 148A Rocking Horse Road | Lot 2 DP 19246 | 0.09 ha | Christchurch City Council | CB730/37 |
| 1A Tern Street | Lot 7 DP 30898 | 0.06 ha | Christchurch City Council | CB13K/816 |
| 1 Tern Street | Lot 6 DP 30898 | 0.06 ha | Christchurch City Council | CB13K/815 |
| 3 Tern Street | Lot 5 DP 30898 | 0.06 ha | Christchurch City Council | CB13K/814 |
| 5 Tern Street | Lot 4 DP 30898 | 0.06 ha | Christchurch City Council | CB13K/813 |
| Stopped Road at Tern Street | Section 6 SO 563306 | 0.12 ha | Christchurch City Council | 1010027 |
| 2 Tern Street | Lot 4 DP 26246 | 0.05 ha | Christchurch City Council | CB8B/609 |
| 4 Tern Street | Lot 3 DP 26246 | 0.05 ha | Christchurch City Council | CB8B/590 |
| 156B Rocking Horse Road | Lot 3 DP 27962 | 0.08 ha | Christchurch City Council | CB10F/712 |
| 160B Rocking Horse Road | Lot 2 DP 360074 | 0.25 ha | Christchurch City Council | 974036 |
| 162B Rocking Horse Road | Lot 3 DP 25957 | 0.25 ha | Christchurch City Council | 974036 |
| 162A Rocking Horse Road | Lot 2 DP 25957 | 0.1 ha | Christchurch City Council | CB36B/712, CB38A/435 |

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| 164B Rocking Horse Road | Lot 3 DP 40227 | 0.25 ha | Christchurch City Council | 974036 |
| 166B Rocking Horse road | Lot 2 DP 37175 | 0.08 ha | Christchurch City Council | CB16K/1213 |
| 166C Rocking Horse road | Part Lot 51 DP 6001 | 0.01 ha | Christchurch City Council | N/A |
| 168A Rocking Horse Road | Lot 2 DP 21876 | 0.13 ha | Alistair Neil Bowie | CB6D/1472 |
| 1/168B Rocking Horse Road, 2/168B Rocking Horse Road | Lot 3 DP 21876 | 0.07 ha | Christchurch City Council | CB38A/1118, CB39A/1118 |
| 170 Rocking Horse Road | Lot 4 DP 75827 | 0.11 ha | Christchurch City Council | CB43C/872 |
| 172B Rocking Horse Road | Lot 3 DP 23008 | 0.09 ha | Christchurch City Council | CB6C/511 |
| 172C Rocking Horse Road | Lot 4 DP 23008 | 0.06 ha | Christchurch City Council | CB6C/512 |
| 172D Rocking Horse Road | Lot 5 DP 19113 | 0.11 ha | Kenneth Dale Green, Maureen Green | CB8K/483 |
| 172J Rocking Horse Road | Lot 3 DP 351497 | 0.06 ha | Christchurch City Council | 210881 |
| 172H Rocking Horse Road | Lot 4 DP 351497 | 0.07 ha | Christchurch City Council | 210882 |
| 178B Rocking Horse Road | Lot 3 DP 20543 | 0.13 ha | Christchurch City Council | CB19B/1294, CB19B/1295 |
| 178D Rocking Horse Road | Lot 4 DP 20543 | 0.06 ha | Christchurch City Council | CB25K/297 |
| 180C Rocking Horse Road | Lot 2 DP 38882 | 0.14 ha | Christchurch City Council | CB17B/189 |
| 182C Rocking Horse Road | Lot 4 DP 46272 | 0.10 ha | Christchurch City Council | CB26B/350 |
| 184B Rocking Horse Road | Lot 28 DP 19427 | 0.15 ha | Craig Peter Johnson, Michael Harold Johnson, Ian Lindsay Johnson, Lindsay | CB34C/379, CB35B/1149 |

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| | | | Harold Johnson, Reader Investments Limited | |
| 184C Rocking Horse Road | Lot 29 DP 19427 | 0.08 ha | Christchurch City Council | CB822/69 |

Records of Title are attached as Appendix B to this application.

4) The full name and address of the owner and occupier of the site to which the application relates is as follows:

Christchurch City Council are owner of all the sites identified as relevant to this application (refer to Appendix B), apart from the following addresses:

- 44A Rocking Horse Road owned by Luke John William Jamin, Sandra Jane Firth;
- 78 Rocking Horse Road owned by Robert Barry Knowles;
- 168A Rocking Horse Road owned by Alistair Neil Bowie;
- 172D Rocking Horse Road owned by Kenneth Dale Green, Maureen Green; and
- 184B Rocking Horse Road owned Craig Peter Johnson, Michael Harold Johnson, Ian Lindsay Johnson, Lindsay Harold Johnson, Reader Investments Limited

5) The other activities that are part of the proposal to which the application relates are as follows:

- A full description of the proposal is provided in the Section 4 of this application.

6) The other Resource Management Act consents required in relation to this activity:

- All consents required for this activity are made under this joint application to Christchurch City Council and Canterbury Regional Council.

7) Attached is an assessment of the proposed activity's effects on the environment that –

- Includes the information required by clause 6 of Schedule 4 of the Resource Management Act 1991; and
- Addresses the matters specified in clause 7 of Schedule 4 of the Resource Management Act 1991; and
- Includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.

8) Attached is an assessment of the proposed activity against the matters set out in Part 2 of the Resource Management Act 1991.

9) Attached is an assessment of the proposed activity against any relevant provisions of a document referred to in section 104(1)(b) of the Resource Management Act 1991, including the information required by clause 2(2) of Schedule 4 of that Act.

Lodgement Fees:

To be directly invoiced to Christchurch City Council.

Contact Details:

Katerina Brichtova

Aurecon o.b.o Christchurch City Council

Katerina.Brichtova@aurecongroup.com

53 Hereford Street, Christchurch CBD, 8013

Date: 4/12/2023

Signature:

Andrew Henderson

Principal Planner

Jacobs New Zealand Limited

Authorised Agent for Christchurch City Council

Contact Details and Address for Service:

Wynn Williams Building – Level 2

47 Hereford Street

Christchurch Central, 8013

Christchurch, New Zealand

Email: Andrew.Henderson@jacobs.com

# PART B: ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

# 1. Introduction and Project Background

## 1.1 Brief Summary of Works

Christchurch City Council ('the Council') seek resource consent from Canterbury Regional Council ('ECan') and the Council to undertake the Southshore and South New Brighton Park Erosion Protection and Inundation Protection Works Project ('the Project') along the estuarine margins of South New Brighton Park ('SNBP') and the Southshore Spit (Figure 1). At both locations, the Council propose to establish inundation and erosion protection features. The erosion barrier works will be along the existing coastline in proximity to Mean Highwater Spring ('MHWS') with inundation protection landward of the estuary edge. These works require a variety of resource consents, including land use consents from the Council and resource consents (including coastal permits) from ECan. Further detail of these works is provided in Section 4 of this Assessment of Effects on the Environment ('AEE').

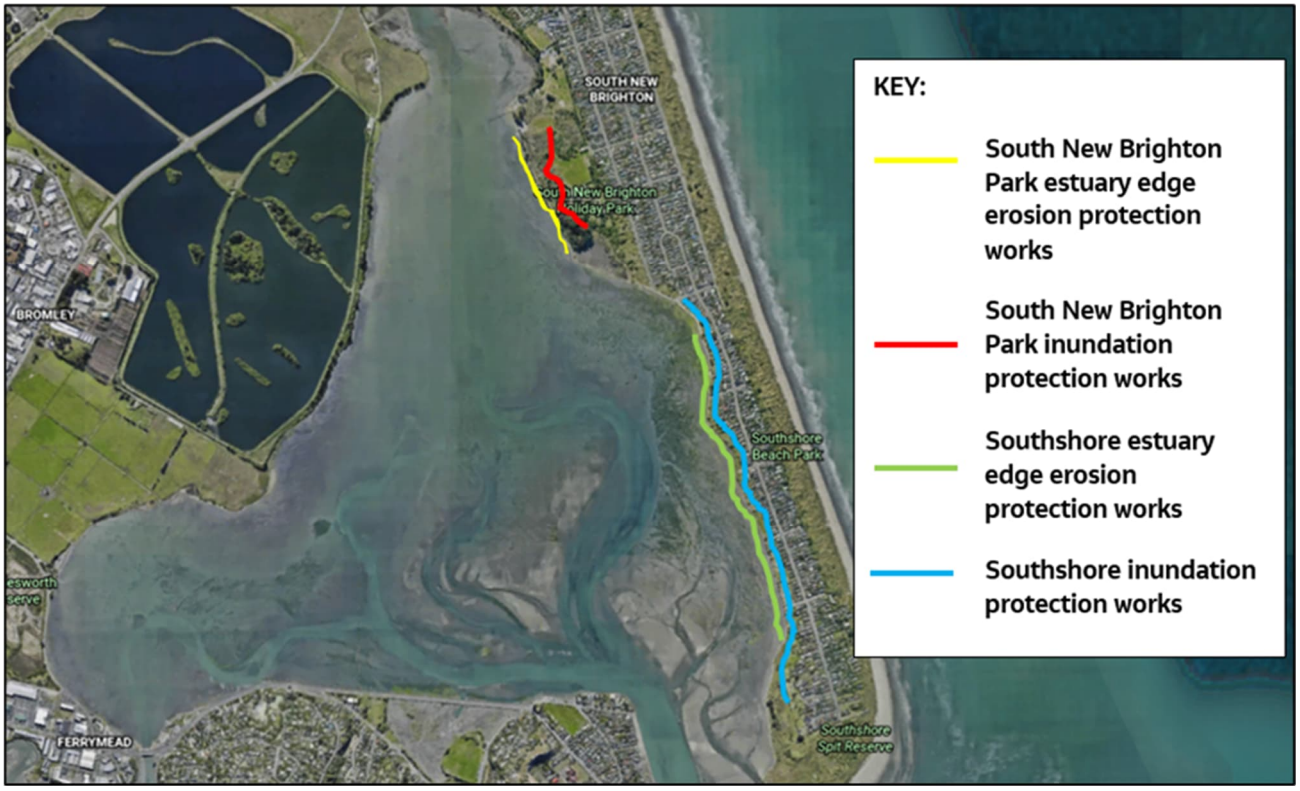


Figure 1 Indicative Locations of the Project

## 1.2 Background

### 1.2.1 Southshore

The 2010 Canterbury Earthquake Sequence ('CES') caused widespread damage to properties and infrastructure in Southshore, resulting in the red zoning of almost all properties along the estuary edge between Ebbtide Street, South New Brighton and the Southshore Spit. Prior to the CES, many of the properties within the project area had established their own piecemeal hard coastal protection on the shoreline. This protection included a mixture of seawalls, concrete debris, rubble and fill. Some sections of coastal protection also included small ramps and entrance features to enable access to and from the estuary itself.

These informal coastal protection structures were damaged during the CES. Subsequently, the land associated with this coastal protection was red zoned and the associated dwellings were removed. The red

zone demolition works left the coastal protection in-situ, albeit damaged. Subsequently, erosion and subsidence over the past 12 years has resulted in frequent failures of the coastal protection structures and erosion of the land behind. This has allowed for inundation by seawater and overtopping of the structures. In some locations these structural failures have allowed for saltmeadow habitat to establish on previously dry land. Some examples of damage and subsequent erosion and subsidence are identified below.

Figure 2 Example of failed erosion protection structure along red zoned land in Southshore (photo taken January 2022)

Figure 3 Low lying structure in Southshore overtopped in a high tide with erosion scarp behind (photo taken 2022)

Figure 4 Erosion behind low lying failed structure in Southshore estuary edge area (Jacobs, 2019)

### 1.2.2 South New Brighton Park

In SNBP, prior to the earthquakes the estuary edge was protected from erosion by a mixture of gabion baskets and reno mattresses (wire baskets full or rounded rocks). These slumped and failed during the CES. This has led to overtopping of the structures and erosion of areas of the park in places. While remnants of the gabion baskets are present, they are no longer providing an adequate level of protection against erosion and inundation from the estuary.

Figure 5 Example of failed gabion baskets/reno mattress in South New Brighton Park showing areas of broken wires and erosion occurring (photo taken January, 2022)

Figure 6 Example of erosion behind slumped reno mattresses in South New Brighton Park impacting the existing coastal path in the park (photo taken January, 2022)

Figure 7 Another example of erosion behind slumped reno mattresses in South New Brighton Park impacting the existing coastal path in the park (photo taken January, 2022)

### 1.2.3 Land Subsidence

An underlying issue generated by the CES has been land subsidence across Southshore and South New Brighton. This subsidence has affected numerous infrastructure assets, not least stormwater drainage with subsequent impacts on the efficiency of the area's stormwater network. The subsidence also resulted in the Southshore and South New Brighton areas being more exposed to inundation risk from the estuary during storm tides than they had been prior to the CES. To reduce this estuary inundation risk, Toitū Te Whenua Land Information New Zealand (LINZ), as owner of red zoned land, established an inundation bund between the estuary and retained housing. This bund was constructed from topsoil present at the site and formed a linear

inundation protection feature along the whole Southshore edge that is still visible. While the bund provides some protection to less intense storm events, current tidal statistics indicate that the bund will be subject to overtopping during a 50-year return period storm event in some locations. As such, there is a need to establish a more robust and resilient flood protection structure.

### 1.2.4 History of Community and Council Inputs Since the CES

The damage to coastal protection structures was raised by the Southshore community to Council after the CES, given the elevated erosion and inundation risks to local communities. Based on consultation with the community, the Council passed a resolution in 2019 to further investigate, or design, potential options and actions that would mitigate earthquake legacy issues on the estuary edge of Southshore and South New Brighton.

The Council and community objectives that arose from this process sought to address earthquake legacy issues, included:

- Providing a restored level of inundation protection; and
- Addressing post-earthquake sequence erosion so that no more land was to be lost.

It was from this resolution that the Project was established.

Council and Community have recognised and acknowledged through this process that once CES legacy issues have been addressed further discussions are required to address the community's long-term approach to climate change adaptation and projected sea level rise. This will be addressed in the future when the council's Coastal Hazards Adaptation Program ('CHAP') works with the local community on adaptation planning for changing coastal hazards with climate change. Resultingly, the Project is limited to a response to rectifying CES related issues. However, the design process has allowed for future climate change adaptation measures.

The Council resolution and objectives resulted in Council undertaking assessment work and optioneering along with considerable community engagement throughout the process. The community engagement process included a Collaborative Working Group, in which the Southshore Residents Association ('SSRA') had a technical expert working with Council and their consultants to develop options. Key outputs of the assessment/optioneering work were:

- *Avon-Heathcote Ihutai Estuary Edge Condition Inventory* (Jacobs 2019[1]). This assessed the current condition of the structures on the estuary edge and identified areas of existing erosion.
- *Erosion Management Options Report Southshore, Ihutai/Avon-Heathcote Estuary* (Jacobs, 2020[2]). This report presented an investigation into the immediate (earthquake legacy) options to minimise further erosion and "make safe" the structures on the estuary edge in the Southshore Residential Red Zone (RRZ) from Godwit Street to south of Tern Street. The output was concepts for preferred 'Unit Approaches' to erosion protection.
- *South New Brighton Park – Erosion Control Concept Design* (Council, 2020[3]). This report presented options (and a preferred approach) for the management of erosion in SNBP.
- Lastly, Council internally developed three strategies for a replacement inundation bund, with the recommended option being the construction of a new bund on the existing alignment. The SSRA strongly support a bund alignment nearer to the estuary edge.

[1] Jacobs New Zealand Limited, *Avon-Heathcote Ihutai Estuary Edge Condition Inventory,* (2019).

[2] Jacobs New Zealand Limited, *Erosion Management Options Report Southshore, Ihutai/Avon-Heathcote Estuary,* (2020).

[3] CCC, *South New Brighton Park – Erosion Control Concept Design – DRAFT,* (2020).

In 2020 the internal Council Southshore and South New Brighton Earthquake Legacy Project Team presented the preferred approaches to erosion management, which were supported by the community to councillors. The Council approved the recommended approaches in the briefing paper[4], these being:

- *Southshore estuary edge erosion issues:*

  *1. The unit approach to replacement or encapsulation based on the physical characteristics of the edge.*

- *Southshore estuary edge inundation issues:*

  *2. A new engineered bund to 11.4m RL near to the current 'LINZ bund' alignment.*

- *South New Brighton estuary edge erosion issues:*

  *3. A cobble beach with existing reno mattress as core as the preferred method of implementing a restoration of the edge, as per the Council's previous resolution, subject also to a review of the South New Brighton Reserves Management Plan and Development Plan.*

- *South New Brighton estuary edge inundation issues:*

  *4. A new engineered bund to 11.4m RL set 25-100m back from the estuary edge within South New Brighton Park between the Jetty near Beatty St and the southern end of the campground on Halsey St. Southshore.*

Jacobs were engaged in 2021 to undertake concept designs for these structures and develop the related resource consent applications. Part of this work has been technical investigations of local environmental values. These investigations have included the preparation of technical reports, as attached to this AEE.

Considerable work has been undertaken to characterise the existing environments to support this AEE. Through this work specific environmental constraints have been identified that have led to modifications of the design to avoid or minimise potential adverse effects.

### 1.2.5 The Southshore and South New Brighton Park Erosion and Inundation Protection Approach

Within Southshore and South New Brighton Park while the general approach identified above has been maintained, the design approach has been refined and modified at an early stage to avoid or minimise impacts on key features. Key among these has been avoiding key estuarine salt marsh and seagrass habitats. This refined process has resulted in the following design approaches:

<u>Inundation Protection at Southshore:</u>

- An inundation bund at a design elevation of 11.5m (Christchurch Drainage Datum) to provide protection in a 50-year return period extreme estuary water level event. The bund will be approximately 0.3 m to 1.0 m high above the existing ground level. The level of RL 11.5 m was increased from RL 11.4 m CDD as it will provide a consistent level of protection from tidal inundation across the Southshore Spit when considered together with other recently constructed flood protection structures, including the Jellicoe Marsh and Bridge Street bunds.
- The design height of the bund is increased 100 mm from other recently constructed bunds as additional tolerance was desired to respond to observed issues of settlement and survey/construction tolerances.
- A path will be provided on top of the bund for walking and cycling.

[4] Agenda of Council - 12 November 2020 (infocouncil.biz)

- The inundation bund will be set back approximately 5m from the crest of the erosion protection structures. This seeks to achieve the community's desire for an alignment near the estuary edge and not close to houses to avoid overlooking houses and gardens.

Erosion Protection at Southshore:

- Erosion protection structures include two approaches at differing locations along the shoreline, cobble beach and rock revetment. These have been chosen due to the existing erosion risk environment and current landforms. These options seek to achieve the project objective of addressing erosion post the CES so that no more land is lost. Both will be constructed to a 11.3m elevation.
- The cobble beach is a low angle loose stone structure that will be placed with its toe in the edge of the estuary and then grade back up to its design crest height. Its positioning has taken account of the existing salt marsh habitats in front of the cobble beach. Through the cobble beach area the intent is to limit projecting the new structures out into the estuary bed and avoiding impacts on the mudflat (where possible), salt marsh or seagrass.
- The rock revetment is a steeper structure made of larger rock material. Due to the presence of seagrass habitats in the estuary the rock revetment design has been moved landwards in places so that the toe of the new structure only projects a short way into the estuary in places and not at all in others. This is to avoid impacts on the seagrass habitats. This results in some encapsulation of structures and others will be excavated and removed. This design seeks to maintain the coastal edge as close to the existing structure edge as can be done to meet the project objectives given the other environmental values and constraints.
- The new rock revetment structure will occupy some small areas of estuary bed/mudflat. Overall more areas will become available for new mudflat resulting from the removal of existing failed structures, especially those that protrude further into the estuary like old boat ramps. Overall, a net declamation of estuary bed occurs at Southshore.

Inundation Protection at South New Brighton Park:

- The inundation bund is set further back as there is more land available and no close houses to risk impacting. Its design elevation of 11.5m (Christchurch Drainage Datum) will provide protection in a 50-year return period extreme estuary water level event. The bund will be approximately 0.3 m to 1.0 m high above the existing ground level.
- A walking path will also be provided in proximity to the edge to maintain the coastal walkway, which is very important to the community.

Erosion Protection at South New Brighton Park:

- Erosion protection will comprise of approximately 180m of gabion baskets, with the rest being cobble beach. The gabion baskets were chosen for their small footprint to protect identified existing middens without occupying large areas of estuary bed. The protection of middens will involve the removal of trees at SNBP. As noted in the Ecological Assessment (Appendix M) the removal of trees will avoid impacts on 'at risk' coastal birds.
- The cobble beach will be set back such that its toe is at or behind the existing line of failed reno mattresses/gabions. This is to minimise impacts on the estuary below MHWS.

Overall, there is an estimated net declamation of 879m² estuary bed across the whole project extent.

Landscaping is proposed through the Landscaping Masterplan Footprint to enhance the ecological, landscape, recreational, amenity and cultural values of the area.

Further detail regarding the Project's design is presented in Section 4 of this AEE.

## 1.3 Structure of this AEE

This Assessment of Effects on the Environment (AEE) has been prepared in accordance with the Fourth Schedule of the Resource Management Act 1991 and the following parts of Section 88 of the Act:

- Section 88(2)(b) of the Resource Management Act 1991 requires that any application for a resource consent should include an assessment of any actual or potential effects that the activity may have on the environment and the ways in which any adverse effects may be mitigated.
- Section 88(2)(b) also requires that any assessment shall be in such detail that corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment and shall be prepared in accordance with the Fourth Schedule to the Resource Management Act 1991.

Form 9 as required by Section 88 of the Resource Management Act 1991 is provided above.

This report to support the application has been structured as follows:

- An explanation of the background to the project;
- A description of the existing environment;
- A description of the proposed activities and their activity status;
- An assessment of alternatives in relation to coastal discharges;
- The reasons for consent;
- A description of consultation and engagement undertaken;
- An assessment of the actual and potential effects on the environment as a result of the proposed activities; and
- An assessment of the proposed activities again the relevant statutory documents, including:
  - The New Zealand Coastal Policy Statement ('NZCPS')
  - The National Policy Statement for indigenous Biodiversity 2023 ('NPS-IB')
  - The National Policy Statement for Freshwater Management 2020 (Amended February 2023) ('NPS-FM')
  - Resource Management (National Environmental Standards for Freshwater) Regulations 2020 ('NES-F')
  - Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ('NES-CS')
  - The Canterbury Regional Policy Statement ('RPS')
  - The Canterbury Land and Water Regional Plan ('CLWP')
  - The Canterbury Air Regional Plan - Te mahere ā-rohe mō te hau o Waitaha ('CARP')
  - The Regional Coastal Environment Plan for the Canterbury Region ('RCEP')
  - Christchurch District Plan ('District Plan');
  - The Christchurch City Plan ('CCP') and
  - The Mahaanui Iwi Management Plan 2013.

## 1.4 Proposed Consent Duration

A consent duration of 10 years is sought for all construction-phase related consents, while a 35 year consent duration is sought for all enduring occupation of all proposed structures. The design life of the proposed

structures is for a shorter period than the consent duration but importantly they will still be operational at the end of their design life. The only distinction above and beyond their design life is that structures may need more maintenance to allow them to endure. Given that we do not know the long-term future of adaptation strategies at this point in time, the maximum duration is sought to allow for ultimate flexibility.

# 2. Site Location

Figure 1 in Section 1.1 provides a high-level indication of the Project location. This section provides the details of the Project location.

## 2.1 Key Terminology

The AEE and the attached technical reports refer to the Project site, structure footprints and landscaping extents which occupy different areas. As such, the following terminology has been adopted:

- The Project Site – the area of the proposed project inundation and erosion protection works including the construction footprint (on the attached drawings this is the red line construction boundary). All activities associated with the construction and enduring occupation of the erosion and inundation protection structures will be located within the Project Site.
- Construction Boundary - the construction boundary/footprint of the inundation and erosion protection works – this is the area needed during construction for vehicle movements, stockpiles and temporary construction works. It is the same area as the Project Site.
- Structure Footprint – the footprint the erosion and inundation protection structures will have once constructed.
- Landscaping Masterplan Footprint – an area of proposed landscaping of SNBP and Southshore red zone land that is larger than and encompasses the Project Site.

## 2.2 General Location of Works

As identified in Section 1.1 works are proposed across two discrete sections in the Southshore residential red zone and SNBP (Figure 1), These are separated by Jellicoe Marsh and a portion of Ebbtide Street where inundation and edge protection works have already been reinstated following the CES.

An overview of the proposed Project Site showing the Construction Boundary and Structure Footprint is provided for SNBP (Figure 8) and Southshore (Figure 9).

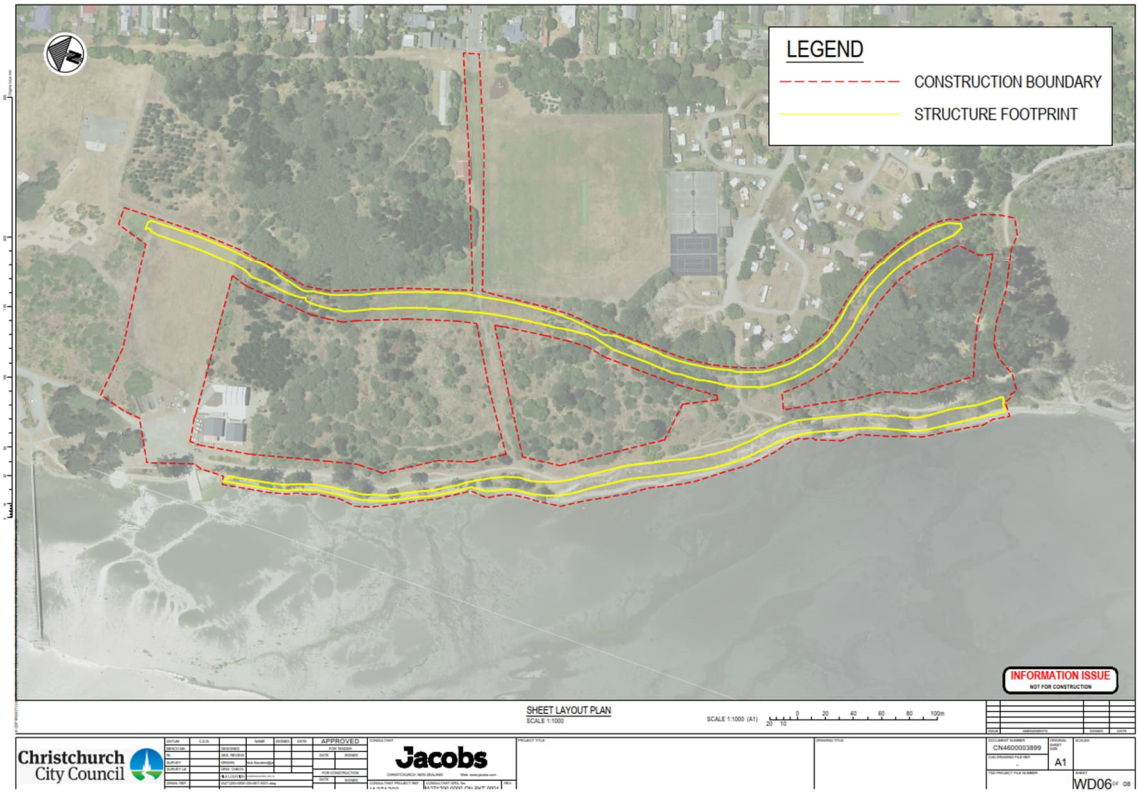


Figure 8 Location of South New Brighton Park Estuary Edge Erosion and Inundation Protection Works (structure footprints in yellow and construction boundary in red)

Figure 9 Location of Southshore Estuary Edge Erosion and Inundation Protection Works (structure footprints in yellow and construction boundary in red)

The wider Landscaping Master Plan identifying additional planting programmes in the Landscape Master Plan Footprint beyond the Project site is attached as Appendix E.

## 2.3 Property Details

Property details are found in Part A of this Application.

# 3. Description of the Environment

The following Section is a description of the Project area's existing environmental characteristics and relies, in part, on the technical assessments undertaken to support the resource consent applications.

## 3.1 General Site Description

The Project area sits within a wider area of low-lying coastal land lying between the Estuary and the Pacific Ocean. Much of the Southshore area is characterised by low-lying residential areas, which are protected from the open sea by a high dune ridge along the coastal (eastern) shoreline. Ground levels along the estuary (western) shoreline are much lower than the dunes. Levels at SNBP are around 0.5 m to 1.0 m higher than Southshore. Rocking Horse Road follows the lowest ground levels running north to south. Ground levels at the southern end of Southshore Spit rise to around 4 m above sea level, providing protection from inundation. To the north of SNBP, ground levels rise by around 1 m before falling towards Bridge Street[5].

As stated in Section 1 of this AEE, the Project is located across two discrete sections of estuarine shoreline. The northern section is located at SNBP a large recreational open space serving Christchurch's eastern suburbs. This Project site sits between residential properties along Estuary Road and the intertidal flats. The site is generally flat, with a mix of new and established vegetation. Also present are facilities for the Pleasant Point Yacht Club ('Yacht Club'), including the boat ramp. The location of works within SNBP is shown in Figure 8 in Section 2.2.

The southern section of the Project is located within a narrow strip of red zoned land between Godwit Street and Tern Street, Southshore. This land was cleared as part of the CES recovery phase, with this land left grassed and available to the public for recreation activities. The Project works at Southshore are shown in Figure 9, Section 2.2.

Currently, erosion mitigation structures throughout the Project consist of a piece-meal collection of structures. In Southshore, private structures have been left behind in various states of disrepair since the demolition and clearance of properties following the CES. In SNBP, council structures have failed following the CES. These structures have experienced overtopping and erosion, resulting in pockets of erosion behind them.

## 3.2 Existing Resource Consents

The following existing resource consents are within proximity of the proposed activities in this current resource consent applications. These include:

- CRC193248 – Erection and placement of structures at Jellicoe Marsh, SNBP and Southshore Spit
- CRC145555 – Undertake repair and construction work in the Coastal Marine Area ('CMA') CMA for stormwater outfall structures on the foreshore and seabed at Southshore
- CRC156492 – To construct a boat launching ramp and pontoon and to occupy the coastal marine area at the Yacht Club
- CRC191613 – To erect a structure, disturb the foreshore and seabed, deposition of material on the foreshore or seabed and occupation of the common marine and coastal area at 74 Beatty Street, South Brighton (i.e. the Yacht Club)

It is considered that none of the activities authorised by these consents will be adversely affected by the proposed works.

"[5] Refer to Appendix F - *Flood Risk Assessment*

The following global resource consents will be relied on for the Project:

- RMA/2021/2094 - A global resource consent under the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health Regulations 2011 ('NES-CS'); and
- RMA/2021/2059 – A global resource consent enabling tree removals in parks and trees under the District Plan.

It is our assessment that no resource consents are required from ECan under the CLWRP. However, if ECan take an alternative view Council hold a suite of global consents that may be applicable for the Project.

## 3.3 Zoning

The following section identifies the relevant planning overslays and statutory planning characteristics of both South New Brighton Park and Southshore.

### 3.3.1 South New Brighton Park

South New Brighton Park has the following zoning overlays under the relevant statutory documents:

#### 3.3.1.1 Christchurch District Plan:

(a) District Plan Zoning

The Project's landward works at SNBP are located on land zoned Open Space Community Parks Zone and Open Space Coastal Zone (refer to Figure 10 and Figure 11) The District Plan describes the purpose of the Open Space Community Parks zone as:

*"These spaces enable formal and informal recreation activities, while complementing and enhancing neighbourhood and Central City amenity values and ensure provision of:*

- *Small public spaces with landscaping and seating located and designed to promote interaction within the local community;*
- *Accessible neighbourhood parks with a predominance of open space and relatively flat topography capable of accommodating amenity tree planting, landscaping, small scale public amenities, playground equipment and informal playing fields;*
- *Large parks accommodating sports fields and smaller-scale recreation facilities, public amenities, landscaping, large trees and potential capacity for multifunctional use …"*[6]

Similarly, the District Plan's description of the Open Space Coastal Zone is:

*"This zone protects the natural environment of the sandy beaches and rocky shorelines of the Christchurch City coast from Waimakariri River to Taylors Mistake, while providing for:*

*a) restoration and enhancement of indigenous vegetation and habitats of indigenous fauna, including the extensive network of dunes along the open coast;*

*b) compatible coastal recreation activities, public access to the coast and natural hazard defences; and*

*c) existing surf lifesaving, yacht club and coastguard facilities that contribute to the social and cultural wellbeing and health and safety of the community."*[7]

[6] Table 18.2.2.1 of the Christchurch District Plan.

[7] *Ibid.*

Figure 10 District Plan Zoning Map for SNBP (northern end)

Figure 11 District Plan Zoning Map for SNBP (southern end)

(b) District Plan Hazard overlays

SNBP is subject to several hazard overlays. The footprint of these overlays is shown in Figure 12 and Figure 13 and identify the following hazard overlays:

- High Floodplain Hazard Management Area
- Fixed Minimum Floor Level overlay within a Flood Management Area
- Flood Management Area
- Liquification Management Area.

Figure 12 District Plan Hazard Overlays Map SNBP (northern end)

Figure 13 District Plan Hazard Overlays Map SNBP (southern end)

(c) District Plan Natural and Cultural Heritage Overlays

SNBP is subject to several natural and cultural heritage overlays. The footprint of these overlays is shown in Figure 14 and Figure 15 and identify the following overlays:

- Coastal Environment;
- Avon Heathcote Estuary/Ihutai and Environs Site of Ecological Significance (Site reference SES/LP/14 in Appendix 9.1.6.1);
- ONF36.0 Outstanding Natural Landscape - Te Ihutai / Avon-Heathcote Estuary (ONF-36:0, as defined in Appendix 9.2.9.1.1(a)(viii));
- Area of at least High Natural Character in the Coastal Environment - Avon-Heathcote Estuary/ Te Ihutai (HNC34:0 as identified in Appendix 9.2.9.8 of the District Plan);
- Natural Character in the Coastal Environment (NCCE1.0 as identified in Appendix 9.2.9.2.9 of the District Plan);
- Ngā Wai Coast ID 78;

- Ngā Wai Coast ID 96; and
- Ngā Tūranga Tūpuna

Figure 14 District Plan Natural and Cultural Heritage Overlays Map SNBP (northern end)

Figure 15 District Plan Natural and Cultural Heritage Overlays Map SNBP (southern end)

### 3.3.1.2 Canterbury Land and Water Regional Plan

The Canterbury Land and Water Regional Plan ('CLWP') applies on the landward side of the Mean High Water Springs Level. This level has been provided as being indicative only on relevant planning maps and some remedial works will encroach above the Mean High Water Springs Level.

Table 3 identifies the various zones and overlays that the project areas are subject to under the CLWP.

Table 3 Canterbury Land and Water Regional Plan Zoning

| Parameter | Classification |
|---|---|
| Sub-Regional Chapter Boundary | Christchurch – West Melton |

| | |
|---|---|
| Catchment Boundary | Heathcote/Avon River/Estuary |
| Planning Zone | Open Space Coastal Zone/Open Space Community Parks Zone |
| Aquifer Zone | Confined Aquifers |
| Archaeological Sites | Various |

### 3.3.1.3 Regional Coastal Environment Plan for the Canterbury Region

The Regional Coastal Environment Plan for the Canterbury Region ('RCEP') applies to the CMA (i.e. seaward of MHWS). Under this RCEP, the South New Brighton Park section is located beside:

- Area of Significant Natural Value (Ihutai)
- Coastal Water Quality Area (Ihutai).

The footprint of both these overlays are shown in Figure 16.

Figure 16 Overlays under RCEP (Area of Significant Natural Value Ihutai (zigzag area) and Coastal Water Quality Area Ihutai (black dotted area)

#### 3.3.1.4 Canterbury Air Regional Plan

The purpose of the Canterbury Air Regional Plan ('CARP') is to manage discharges to air in the best practicable manner. The CARP applies the following features/overlays to the South New Brighton Park section:

- Christchurch / Ōtautahi Clean Air Zone
- Christchurch Airshed

The footprint of these overlays under the CARP is demonstrated in Figure 17

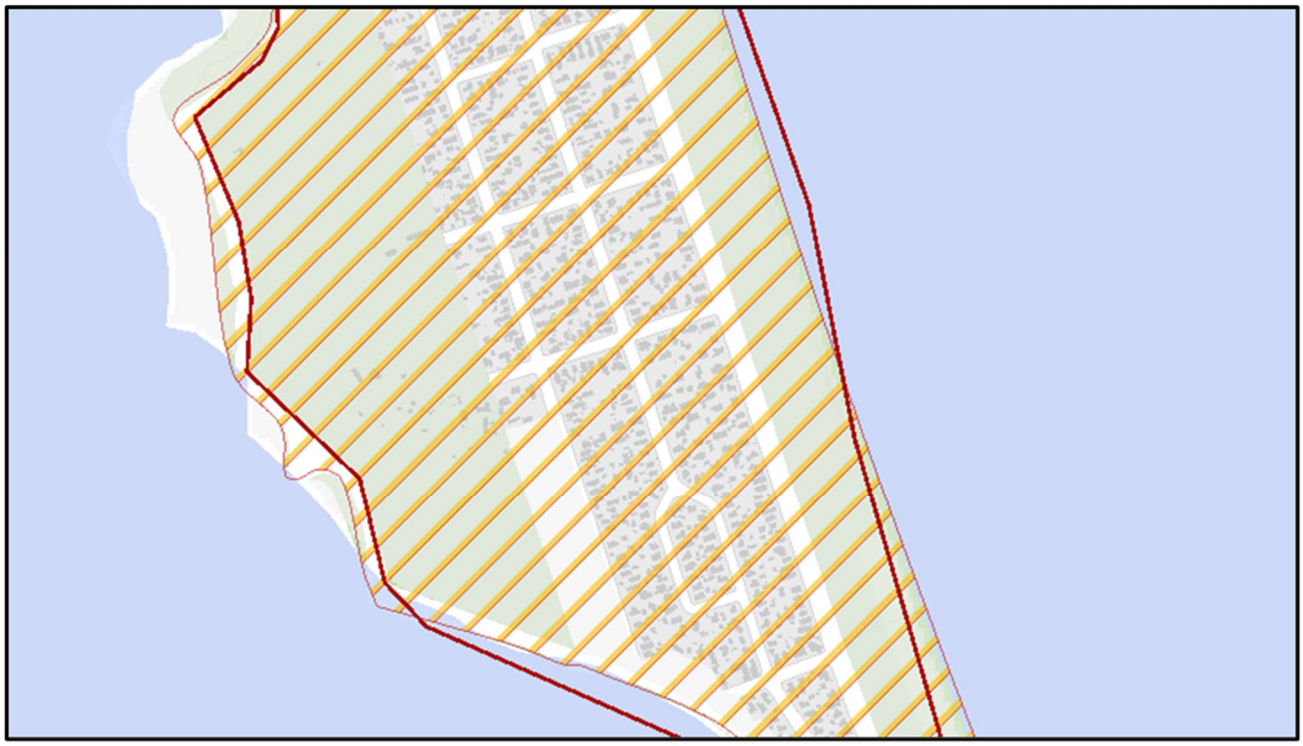

Figure 17 CARP - Clean Air Zone (red outline) and Christchurch Airshed (orange diagonal lines)

### 3.3.2 Southshore

Southshore has the following zoning overlays under the relevant statutory documents:

#### 3.3.2.1 Christchurch District Plan

(a) District Plan Zoning

The Project's landward works at Southshore are located on land zoned Open Space Coastal and Specific Purpose (Flat Land Recovery) as shown in.

The purpose of the Open Space Coastal Zone has already been detailed in Section 3.3.1.1 of this AEE, the District Plan details the following objective for the Specific Purpose (Flat Land Recovery) Zone[8]:

*"A largely open environment with a very low density of residential and non-residential activities, that:*

*a) reflects the changes in land uses in the area, including building clearance;*

[8] Objective 13.11.2.1 of the Christchurch District Plan.

*b) recognises the natural hazard risks affecting many properties;*

*c) recognises the infrastructure limitations of the area;*

*d) acknowledges the interim nature of this Zone; and*

*e) maintains the longer-term potential of the area to contribute to the recovery and future enhancement of Christchurch."*

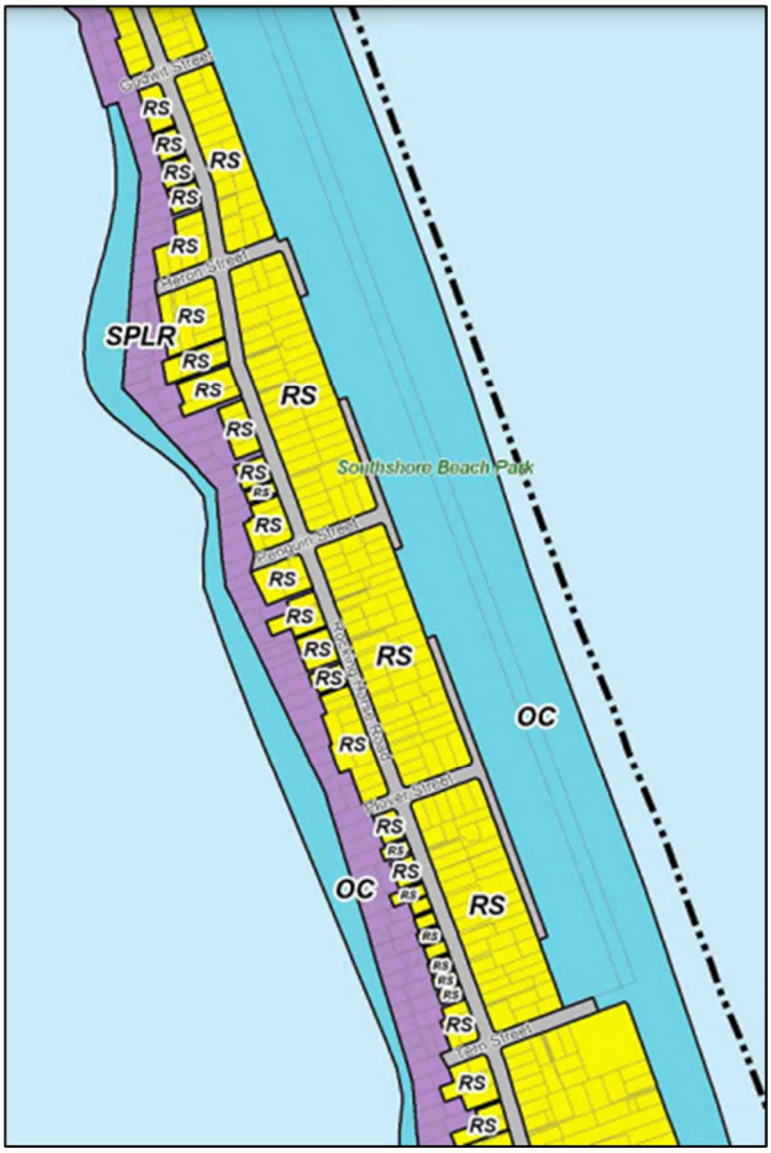


Figure 18 District Plan Zoning

(b) District Plan Hazard overlays

Southshore is subject to several hazard overlays. The footprint of these overlays are shown in and identify the following hazard overlays:

- High Flood Hazard Management Area
- Fixed Minimum Floor Level overlay within a Flood Management Area
- Flood Management Area
- Liquification Management Area.

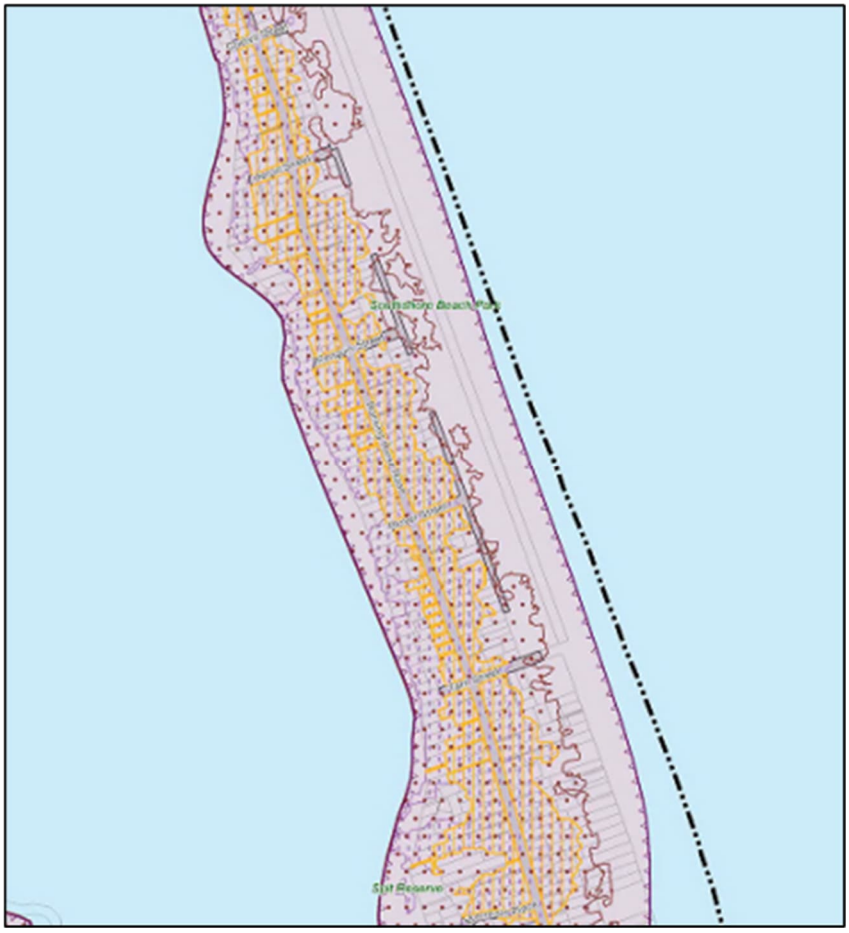

Figure 19 District Plan Natural Hazard Overlays Southshore

(c) District Plan Natural and Cultural Heritage Overlays

Southshore is subject to several natural and cultural heritage overlays. The footprint of these overlays is shown in Figure 20, which identifies the following overlays:

- Coastal Environment;
- Avon Heathcote Estuary/Ihutai and Environs Site of Ecological Significance (Site reference SES/LP/14 in Appendix 9.1.6.1);
- ONF36.0 Outstanding Natural Landscape - Te Ihutai / Avon-Heathcote Estuary (ONF-36:0, as defined in Appendix 9.2.9.1.1(a)(viii));
- Area of at least High Natural Character in the Coastal Environment - Avon-Heathcote Estuary/ Te Ihutai (HNC34:0 as identified in Appendix 9.2.9.8);
- Natural Character in the Coastal Environment (NCCE1.0 as identified in Appendix 9.2.9.2.9);
- Ngā Wai Coast ID 78;
- Ngā Wai Coast ID 96; and
- Ngā Tūranga Tūpuna.

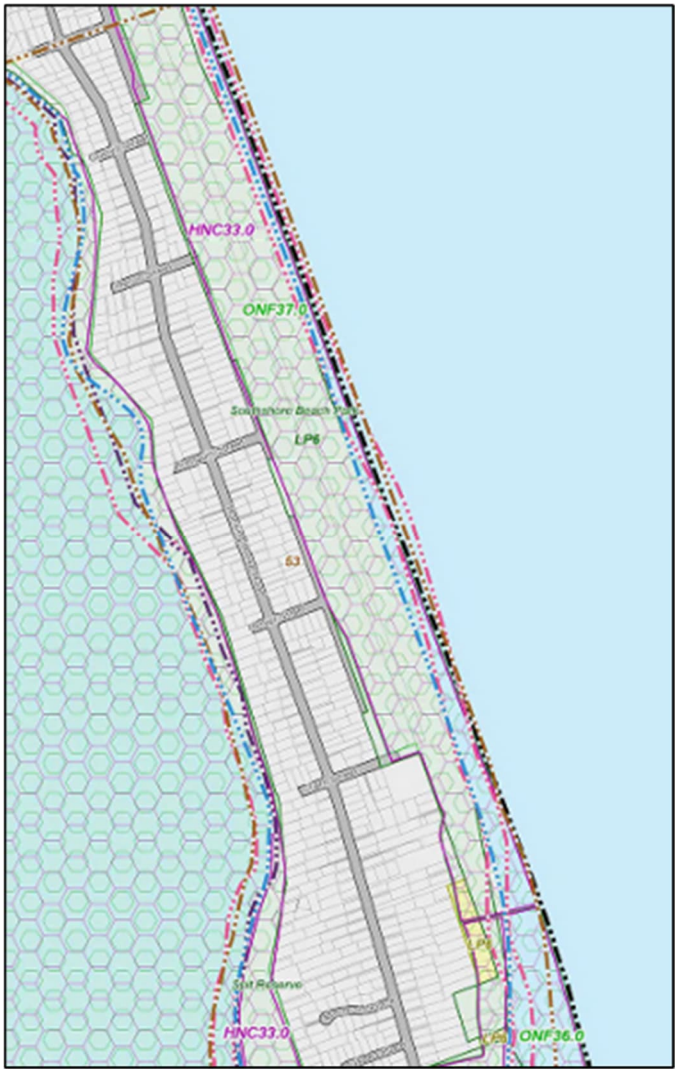


Figure 20 District Plan Natural and Heritage Cultural Overlays Southshore

### 3.3.2.2 Canterbury Land and Water Regional Plan

Table 4 identifies the various zones and overlays that the project areas are subject to under the CLWP for Southshore.

Table 4 Canterbury Land and Water Regional Plan Zoning

| Parameter | Classification |
|---|---|
| Sub-Regional Chapter Boundary | Christchurch – West Melton |
| Catchment Boundary | Heathcote/Avon River/Estuary |
| Planning Zone | Specific Purpose (Flat Land Recovery) Zone/Open Space Coastal Zone/Open Space Community Parks Zone |
| Aquifer Zone | Confined Aquifers |
| Archaeological Sites | Various |

#### 3.3.2.3 Regional Coastal Environment Plan for the Canterbury Region

The Southshore section of the Project is subject to the same RCEP layers as detailed in Section 3.3.1.3.

#### 3.3.2.4 Canterbury Air Regional Plan

The Southshore section of the Project is subject to the same CARP layers as detailed in Section 3.3.1.4.

## 3.4 Environmental Values of the Wider Area

The Project is located in the margins of the Estuary, along the western edge of the South Brighton Spit / Te Kōrero Karoro ('Spit') that separates the Estuary from the Pacific Ocean. The Spit has been subject to historical urban development of residential sites organised around a road grid and local neighbourhoods (like South New Brighton).

On a wider landscape scale, the Spit lies within Pegasus Bay, a gently curved sweep of predominantly sandy coastline extending broadly from the Waipara River mouth in the north to Sumner in the south. Pegasus Bay is broken into numerous individual sections by river mouths, like those of the Ashley River / Rakahuri and the Waimakariri River.

Associated with these river mouths are sandspits, coastal wetlands and lagoons including the South Brighton Spit / Te Kōrero Karoro and the Estuary.

The Estuary is recognised as a dynamic coastal environment, with high landscape values based on its biophysical values, cultural importance and public use. It is those values that contribute to its sensitivity to change.

The following sub-sections delineate the various environmental values of the wider area that are specific to each of the following matters:

- Arboriculture;
- Recreation;
- Cultural values;
- Historic heritage;
- Transport;
- Coastal processes;
- Hydrogeology;
- Susceptibility to surface water flooding;
- Seismology;
- Ecology; and
- Contaminated land.

### 3.4.1 Arboriculture

The Arboricultural Impact Assessment (Appendix G) identified a total of 3,910 trees as potentially affected by the Project works. These trees are a mixture of native and exotic species and are varied in both age and health. Common species present include:

- *Eucalyptus* sp.
- *Metrosideros* sp. (Pōhutukawa)

- *Podocarpus totara* (Totara)
- *Cordyline australis* (Tī Kōuka)
- *Magnolia grandiflora*
- *Camellia* sp.
- *Myoporum laetum* (Ngaio).

These trees are located across different land zoning (refer to Section 3.3) across the Project. Forming part of the existing environment from a planning perspective RMA/2021/2059 is operative as a global resource consent enabling tree removals in parks and trees under the District Plan.

### 3.4.2 Recreation

A Recreational Assessment has been undertaken for this AEE and is attached as Appendix L.

There is no Reserve Management Plan for the Southshore Estuary Edge as it is not classified as a public reserve under the Reserves Act 1977, although it is accessible for passive recreational activities. The current recreational values are at Southshore a direct result of the CES as this land was cleared of the damaged dwellings and accessory structures that were present. This land sits between two reserves, South New Brighton Park and Southshore Spit Reserve (which are protected by the Reserves Act 1977), providing largely uninterrupted public access to Estuary's shoreline.

The proposed Southshore works sit outside of the area covered by the Reserve Management Plans. However, a range of recreational activities do take place there, including:

- Walkway (on track) and (at low tide within the foreshore of the estuary edge);
- Cycleway (on track);
- Community events (Penguin Street, street end);
- Play – nature play (children's activities and fairy doors);
- Kayaking, canoeing, paddle boarding, swimming, fishing, bird watching; and
- Quiet enjoyment, reflection and resting.

To the north, SNBP has strategic importance to the local community, as well as being afforded protection under the Reserves Act 1977. The South New Brighton Park Concept Plan was developed and consulted on during 2021. The Plan endorsed the use of a bund through the area with a shared use track for walking and cycling located on top of the bund. The concept plan also includes other recreational activities such as a bike track near the playground, an events space and new picnic areas along the track (Figure 21).

Figure 21 South New Brighton Park Concept Plan

The objectives of the South New Brighton Reserves Management Plan[9] seek to increase public participation in community, recreation, and sport activities compatible with the estuary edge environment. The Park is in the 'Active' area defined by the recreation zones in the Management Plan. The Management Plan identifies sports, jogging, and picnicking as examples of key activities located within this zone.

### 3.4.3 Cultural Values

An Archaeological Assessment has been provided and is attached as Appendix H. Also, engagement with Te Ihutai Ahu Whenua Trust has also been undertaken consistently since 2022, which has helped the Project team understand the cultural values of the area. From discussions with Mahaanui Kurataiao Limited it was confirmed that Te Ihutai Ahu Whenua Trust (the Trust) had mana over the Project area and were the relevant mana whenua representatives to discuss the Project with and consider cultural effects.

The Archaeological Assessment notes that[10]:

*Traditional Māori accounts relate successive migrations to Te Wai Pounamu (the South Island) from Te Ika a Māui (the North Island). The earliest groups noted in oral traditions include Kāhui-Tipua, Hawea and Te Rapuwai, and Ngāi Tahu scholars have considered these groups as at least semi-mythical, as traditions regarding them are typically aetiological narratives explaining the origins of such things as kūmara or the Moeraki Boulders. Traditions regarding later groups (Waitaha, Ngāti Mamoe, and Ngāi Tahu) are by contrast primarily related to human events, rather than supernatural.*

[9] The South New Brighton Reserves Management Plan covers Blighs Garden, Bridge Reserve and South New Brighton Park.

[10] Archaeological Assessment found at Appendix H.

*The first human settlers of Te Wai Pounamu for which traditional accounts and whakapapa are clear, were Waitaha, descendants of the explorer Rākaihautū who arrived in the waka Uruao. They were followed by Ngāti Māmoe, who migrated from Te Ika a Māui around the late 16th/early 17th centuries. The relationship between Waitaha and Ngāti Māmoe was complicated, with periods of peace and intermarriage as well as conflict, but Ngāti Māmoe gradually came to establish mana whenua over much of Te Wai Pounamu. In the early to mid-17th century another North Island group, Ngāi Tahu, migrated to the South Island. As with their predecessors, Ngāi Tahu came to establish mana whenua over most of Te Wai Pounamu through both conflict and intermarriage.*

*Te Karoro is the name for the long, narrow spit that extends between the sea on the east and Te Ihutai (Avon-Heathcote Estuary) on the west, which is today known as Southshore or the South New Brighton Spit. It is an area of cultural significance to Māori, as it provided ready access to Te Ihutai (Avon Heathcote Estuary) and connected to Ōtākaro (Avon River), and Ōpāwaho (Heathcote River) which was part of a larger fishery and river network used by Māori, famous for its abundance and variety of fish and shellfish. Te Ihutai remains an area of immense cultural and historical importance to Māori today. Te Karoro was also part of a network of ara tawhito (traditional travel routes) that connected Kaiapoi pā in the north and Horomaka/Te Pātaka-a-Rākaihautū (Banks Peninsula) in the south.*

*The main settlement area on Te Karoro was the Te Kai a Te Karoro pā located at what is today the South New Brighton Park (Figure 5 1). Karoro is the Māori name for seagulls in general and also specifically refers to the southern black-backed gull which is prevalent in the area. Te Kai-a-Te-Karoro was one of several interconnected Ngāi Tahu settlements located near Te Ihutai which took advantage of the estuary's rich mahinga kai resources (Te Rūnanga o Ngāi Tahu, 2022). One of the first European explorers to the area who left a written record, James Robinson Clough known as Rapahina to local Māori, is recorded seeing the pā during a trip up the Ōtākaro in the late 1830s/1840. Remains of the pā were still clearly visible in the early 1900s and archaeological remains have been identified there during the latter 20th century.'*

Early in the design process, the Project team met with representatives of Te Ihutai Ahu Whenua Trust to understand issues of significance to mana whenua. At the outset, the history of Te Ihutai and the wider landscape within which it sits was explained.

This area formed part of the significant mahinga kai gathering area in and around the Estuary. It was abundant with eels, lamprey, inaka, Patiki and pipi. Edible plants such as kūmara and aruhe (edible fern roots) were grown in the sandy soils at the mouth of the Ōtākaro River, and during times of eel migration, weirs were in place around the mouth of the river. Swampy forest areas around the river also provided access to valuable food sources, such as waterfowl and forest birds.

Many families became specialised in tasks such as seeding shellfish along the coast, or making fishing implements and nets, and these families were the guardians of many trails that existing through the swampy areas around what is now Christchurch.

Following European settlement, mana whenua became increasing alienated from their land and access to the food sources previously abundant in the estuary and wider area was largely lost. Mana whenua were no longer able to fulfil the role of kaitiaki in the area, which is important as kaitiakitanga is the exercise of guardianship by mana whenua according to Tikanga Māori. Tikanga Māori are the customs and traditions that have been handed down through many generations and have become accepted as a reliable and appropriate way of achieving and fulfilling cultural objectives and goals. Tikanga Māori, and accompanying protocols, are integrated into the Ngāi Tahu systems of standards, values, attitudes and beliefs.

The obligation to safeguard the wellbeing and mauri of ancestral lands, water, sites waahi tapu, flora and fauna, and other taonga in Ngāi Tahu's rohe for future generations is themed throughout the settlement process, as enshrined in the Ngāi Tahu Claims Settlement Act 1998.

Through the discussions with mana whenua, it was clear that restoration of mahinga kai is an important driver. The ability to have access and control over mahinga kai is an expression of Māori customary rights. Mahinga

kai, and increased access to these resources, are of fundamental importance to mana whenua for a number of reasons, including:

- The opportunity for Māori to participate in the food gathering practices of their tipuna (ancestors);
- Strengthening whanaungatanga (kinship relationships) among iwi, hapu and whanau;
- The ability to maintain ahi kaa rights.
- Recognition of the importance of expression of manaakitanga (hospitality). Tradition demanded that hosts prepare local foods for their guests, and districts came to be recognised and their mana linked to their ability to provide these local specialties.

Restoration of mahinga kai values is therefore of importance to mana whenua as part of this project. A range of potential design steps and outcomes were identified through engagement with mana whenua, including:

- Including mahinga kai species in the landscape design;
- Utilising place names, markers and art works as part of the way finding to be developed for the area in the landscape design;
- Inclusion of gardens (māra) with native plantings suitable to the area's geography and landscape, as well as well as plants with use edible and medicinal (rongoā) or weaving (raranga) qualities;
- Finding ways to enable users of the area to interact with the Estuary and environment, including through using the proposed jetties to enable people to access panoramic views of the landscape; and
- Considering methods to inform users of the area about the cultural history of the area.

Through the Project, Council have continued to engage and work with the Trust in developing the landscape approach to reflect their values and interest in the area. This process is outlined further in Section 7.

### 3.4.4 Historic Heritage

An archaeological assessment has been prepared for the Project and is attached as Appendix H. The assessment has employed cultural histories, aerial photography study, previous field studies and site visits to detail and describe the Project area's current historic heritage values.

Aerial photography shows that Southshore was largely free of any development as late as 1940 (Figure 22). While some development had occurred at South New Brighton, including the construction of Rocking Horse Road, it was only from the 1950s onwards that Southshore was developed into the residential properties present today.

Figure 22 Aerial photograph of Southshore (1940)

A review of recorded archaeological sites within the Project area found numerous sites as detailed in the Archaeological Assessment. These sites include middens, ovens and horticultural remains highlighting the importance of the Southshore Spit to Māori and the potential for undiscovered archaeological sites to be present within the Project area.

Table 5 Summary of Recorded Archaeological Sites in SNBP and Southshore Areas

| Archaeological site | Site type | Location | Description |
|---|---|---|---|
| M35/294 | Midden/oven | Jellicoe Domain, Christchurch | The location of the Te Kai O Te Karoro pā site. Midden shell is reported to have been present on the ground surface and bleeding through the sand dunes in the 1960s. |
| M35/916 | Midden/oven | 36B Rocking Horse Road, Christchurch | Shell midden comprising pipi, cockle, mudsnail and venus shell over an area of about 4 m. |
| M35/925 | Māori horticulture | 2b Penguin Street, Christchurch | Buried charcoal-rich topsoil at 0.4 m below modern ground surface. |
| M35/927 | Unclassified – occupation layer | 380a Estuary Road, Christchurch | Buried charcoal-rich topsoil at 0.2 m below modern ground surface. |

| | | | |
|---|---|---|---|
| M35/1059 | Unclassified – occupation layer | 7 Kingfisher Lane, Christchurch | A charcoal-stained soil at 0.3 m below modern ground surface. |
| M35/1088 | Unclassified – occupation layer | 90b Rocking Horse Road, Christchurch | A dark stained sand containing charcoal at 0.35 m below modern ground surface. |
| M35/1211 | Unclassified – occupation layer | 7 Malta Crescent, Christchurch | A buried topsoil layer that may be associated with pre-European occupation. |
| M35/1323 | Unclassified – occupation layer | 34 Malta Crescent, Christchurch | A buried topsoil layer that contained shell fragments and traces of charcoal at 0.2 m below modern ground surface. |
| M35/1618 | Unclassified – occupation layer | 8 Caspian Street, Christchurch | A charcoal-rich modified ground surface 0.2 m below modern ground surface. |
| M35/1749 | Midden/oven | 371/373 Estuary Road, Christchurch | A layer of black, charcoal-stained sand containing shell (largely pipi) and small fragments of oven stones at 0.65 m below ground surface. |
| M35/1801 | Midden/oven | 81 Rocking Horse Road, Christchurch | A midden consisting of charcoal-stained sand and shellfish (cockle and mudsnail) at 0.19-0.24 m below ground surface. |
| M35/1867 | Midden/oven | 370 Pine Avenue, Christchurch | A charcoal rich soil with fragments of shell 0.37 m below ground surface. |
| M35/2146 | Māori horticulture | 368 Estuary Road, Christchurch | A brown sandy loam with charcoal fleck inclusions at 0.17-0.25 m below ground surface. |
| M36/260 | Artefact find | 164 Rocking Horse Road, Christchurch | A buried topsoil layer with shell fragment and fire cracked rock and a small quartz flake at 0.3 m below ground surface. |
| M36/263 | Māori horticulture | 111a Rocking Horse Road, Christchurch | A buried charcoal-rich topsoil at 0.2 m below ground surface. |
| M36/264 | Māori horticulture | 1a Tern Street, Christchurch | A buried charcoal-rich topsoil layer at 0.8 m below ground surface. |
| M36/274 | Māori horticulture | 148b Rocking Horse Road, Christchurch | A buried charcoal-rich topsoil with corroded iron fragment and sheep bone at 0.2 m below ground surface. |
| M36/348 | Māori horticulture | 178 Rocking Horse Road, Christchurch | A buried topsoil layer at 0.3-0.35 m below ground surface. |

| | | | |
|---|---|---|---|
| M36/353 | Unclassified – occupation layer | 100c Rocking Horse Road, Christchurch | A buried topsoil layer at 0.45 m below ground surface, believed to be associated with vegetation burn-off immediately prior to or during pre-European occupation in the Southshore area. |
| M36/544 | Unclassified – occupation layer | 143b Rocking Horse Road, Christchurch | A charcoal-rich topsoil layer at 0.45-0.60 m below ground surface. |
| M36/649 | Midden/oven | 192b Rocking Horse Road, Christchurch | A lens of shell midden 50-80 mm thick, located 0.57 m below ground surface. |

The Project area was visited by the Project archaeologist during March 2022. The archaeologist walked over the accessible sections of the Project area, noting that some locations were inaccessible, primarily due to overgrown vegetation. In addition, the site visits were timed at low tide to enable viewing of any archaeological materials within the Estuary itself.

The Archaeological Assessment noted that in general, only post-1900 materials were observed. This included the materials used in the current coastal protection works (e.g., concrete debris), while the Project area was crossed by modern infrastructure assets (stormwater pipes) and walkways.

The site survey of the Southshore project area began on Ebbtide Street at the intersection with Estuary Road and continued south along the estuary walkway to approximately 184c Rocking Horse Road around 2.14 km in length.

A midden investigation was conducted around SNBP. On 9 December 2022 a sub-surface archaeological survey was carried out along an approximately 5 m wide corridor of the South New Brighton estuary coast from SNBP to Jellicoe Marsh. A total of 58 test puts were excavated during the sub-surface survey, seven of which contained archaeological material, as identified in Figure 23.

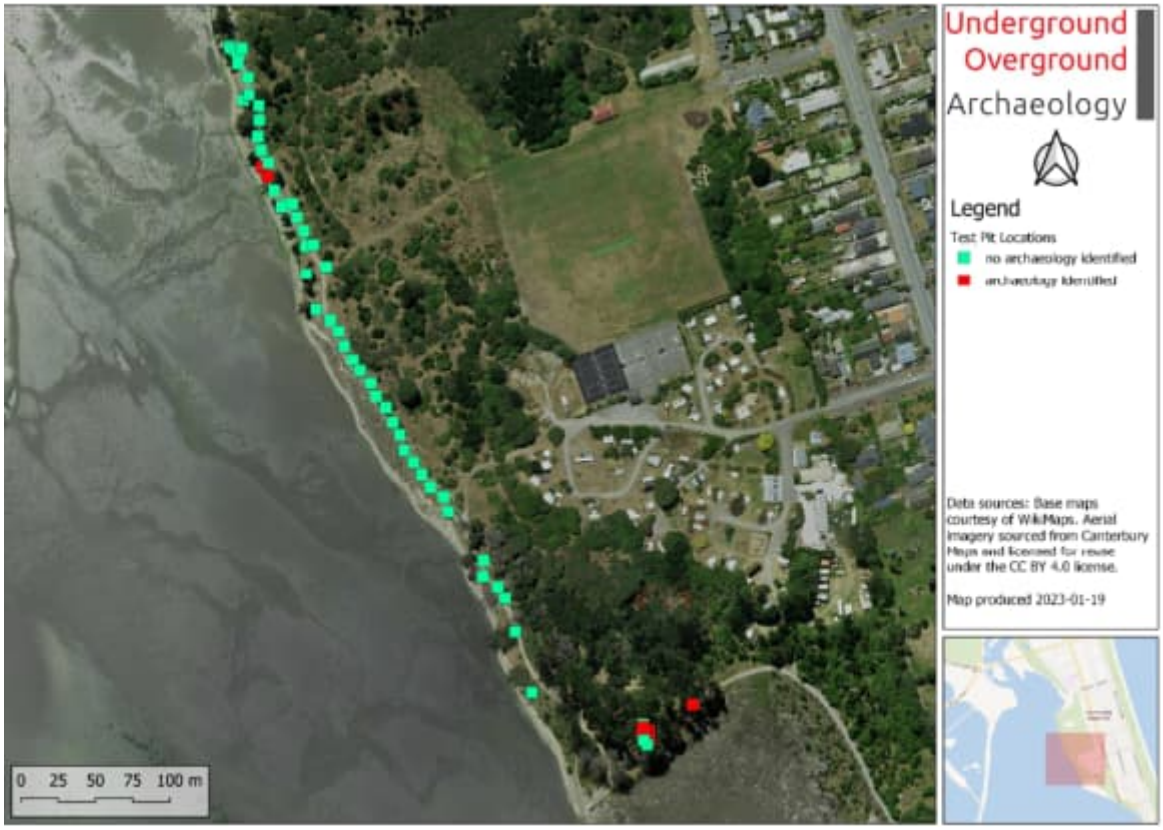


Figure 23 Map showing location of test pits at SNBP

Overall, while site visits did not note any exposed archaeological sites, the Project area is rich in previously recorded sites. While historic development of the Spit and more recent red zone clearance may have disturbed archaeological materials within proposed work areas, there is still potential for previously unrecorded sites to be present.

### 3.4.5 Transport

South New Brighton and Southshore are organised around a grid style road network. At South New Brighton both Estuary Road (local collector road) and Pine Road provide for traffic movements in and out of the area, while Rocking Horse Road provides the same function at Southshore. These roads feed traffic towards Bridge Street, which then connects to State Highway 74 (SH74) and Breezes Road.

Within South New Brighton and Southshore, the roads have a 50 km/h speed limit, while SH74 has a 70 km/h speed limit. In general, local roads in the Project area feature on-street parking and the use of 'Give Way' signage to control traffic flows. The Project area is served by the Route 60 (Hillmorton / Southshore) bus, while no formal cycleways are currently present.

### 3.4.6 Coastal Processes

A Coastal Processes and Natural Hazards Effects Assessment has been undertaken and is attached as Appendix I. The following is a summary of that assessment's description of the Project area's current coastal processes.

#### 3.4.6.1 South New Brighton Park – General Conditions

In the CES, the SNBP area suffered lateral spread, liquefaction, and lowering of land elevations by between 0.3 and 1 m. Post-CES this has exposed the land in the park more frequently to high water levels and reduced

the effectiveness of the existing erosion control structures, resulting in an acceleration in areas of erosion. There was an average shoreline retreat of -3.5 m over the 550m length between February 2011 and May 2019. Maximum erosion has occurred along a 180 m stretch of reno mattresses that had slumped to elevations below MHWS (Figure 24 below) with up to 13.4 m of erosion occurring between 2011-2019. This is now eroding into the walkway through SNBP, as shown in Figure 25.

Figure 24 Erosion behind low lying reno mattress structures in SNBP (ECan, 2019)

Figure 25 Submerged reno mattresses in a spring tide with walkway through the park eroding (June, 2021)

### 3.4.6.2 Southshore – General Conditions

Currently, much of Southshore's shoreline consists of the remains of damaged former private protection structures, which still provide variable protection against erosion and inundation. Many of the structures have either failed or have been almost totally lost so that they provide very little protection, resulting in erosion and overtopping of the estuary edge in these locations.

Historically between February 2011 and May 2019 erosion along the Southshore area was generally isolated to areas where walls had low crest elevations and could be overtopped in extreme water level events (Figure 26). This has resulted in 37% of the land behind structures within the Project area as having significant shoreline recession and erosion scarping, as well as a loss of terrestrial vegetation and related dieback.

Figure 26 Erosion behind low lying structures in Southshore (2019)

### 3.4.6.3 Estuary Morphology

Southshore and SNBP form part of the eastern edge of the Estuary, where the Avon River/Ōtakaro and Heathcote River/Ōpāwaho discharge into the Pacific Ocean. There are two main channels in the Estuary from the Avon and Heathcote Rivers, with the Avon River/Ōtakaro channel running mostly parallel to the Spit, and the Heathcote River/ Ōpāwaho running along the south-west to south-east edges of the estuary. The main channel where the two river channels currently meet was established prior to the 1940s and has been stable since. The general morphology of the Estuary is shown in Figure 27, including the meandering channel of the Avon River/Ōtakaro that runs between 100 m to 350 m from MHWS.

The mouth of the Estuary is between the tip of the Spit on the northern edge and Rapanui (Shag Rock) on the southern edge. The mouth of the estuary is located 1 km south of the Project's southernmost extent. Due to the hard volcanic rock on the southern side at Rapanui, Estuary mouth migration is the result of a particularly dynamic area of coast.

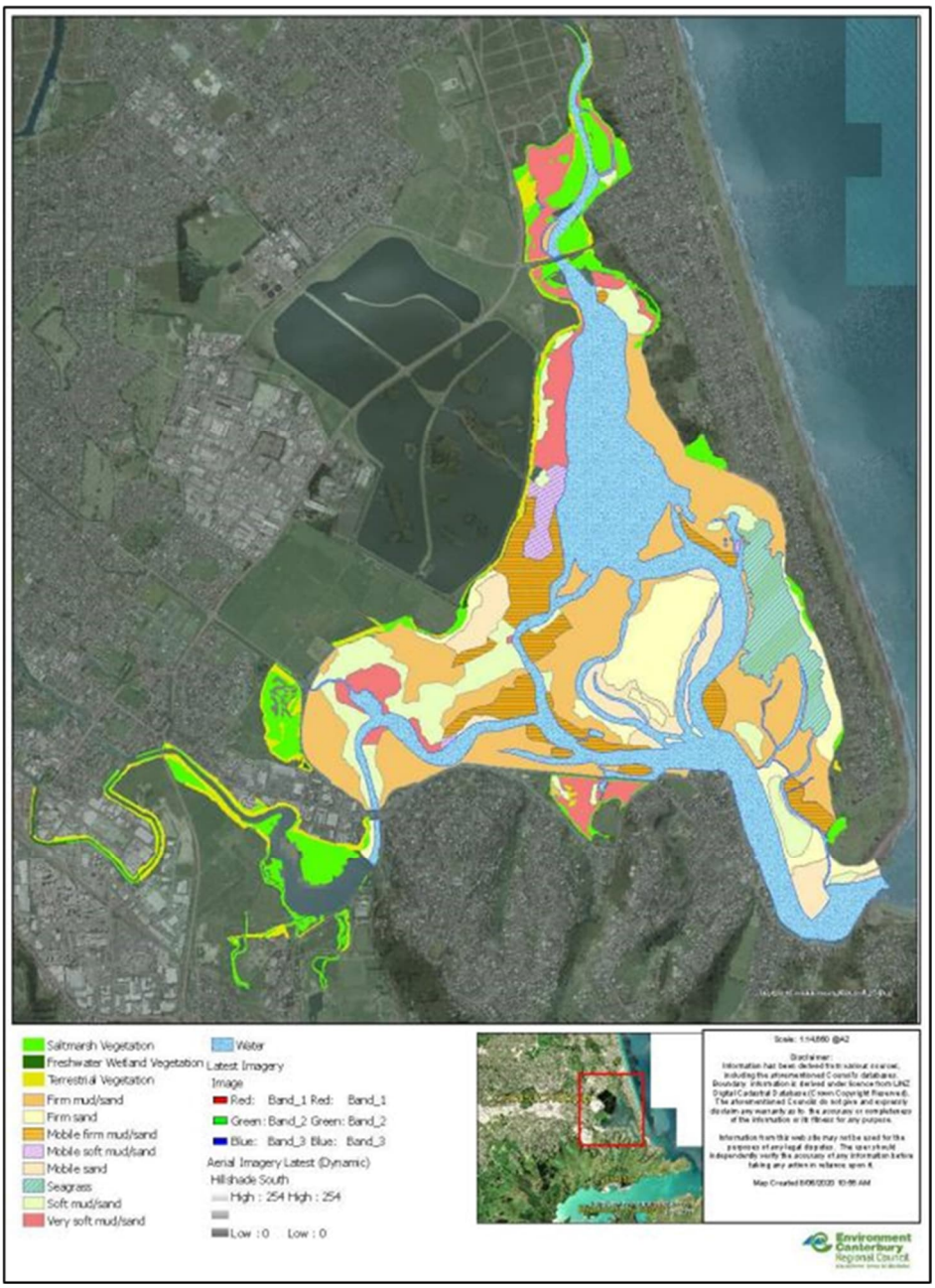


Figure 27 Map of vegetation and estuary bed sediments (Avon Heathcote Estuary Ihutai Trust, 2020)

In general terms, the intertidal areas at Southshore feature firm sand interspersed with small discrete areas of saltmarsh. Moving closer to the Avon River/Ōtakaro, the Estuary bed changes to seagrass and mudflats. While the wider Estuary's substrate is predominately mudflat, sand ingresses from Pegasus Bay to feed and refresh the Estuary's sandy areas. In more recent times, temporary increases in sediment deposition have likely occurred as a result of liquefaction of estuary bed.

### 3.4.6.4 Tidal flows

Tidal range in the Estuary can be up to 2.1m. During mid-low tide, the Estuary's extensive firm mud and sand flats are exposed (Figure 28), while at high tide coastal water reaches up to the base of existing coastal structures. In general, the Estuary is best described as a shallow coastal water body.

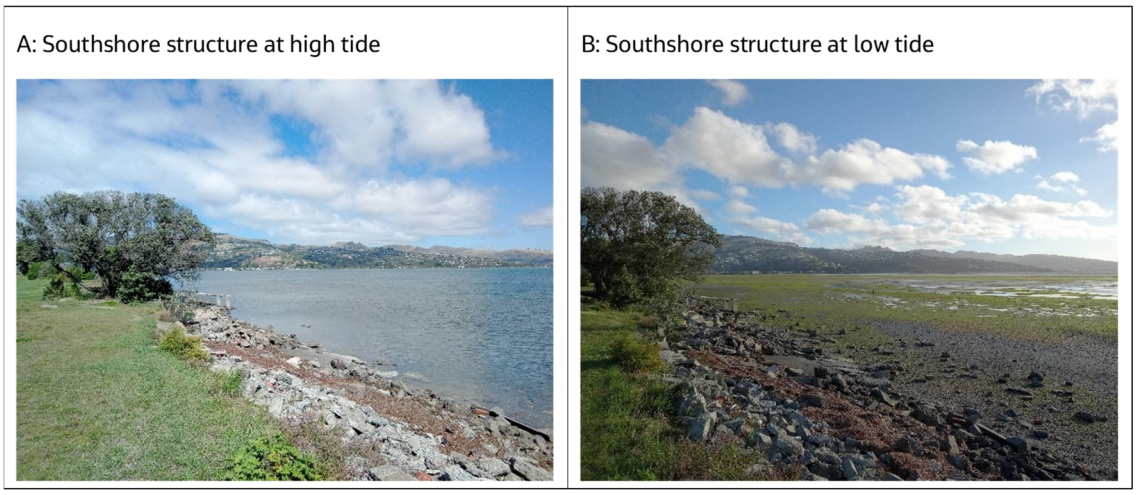


Figure 28 Variation at high and low tides at Heron St, Southshore

### 3.4.6.5 Sediment Transport Conditions

Appendix I details the existing currents present within the Estuary. These currents are the strongest within the channels leading from the rivers, and this is where most of the sediment transport occurs through the Estuary. Hydraulic modelling shows that on the outgoing ebb tide, the currents are strongest along the Estuary's Redcliff edge, where the channels from the Avon River/Ōtākaro and Heathcote River/Ōpāwaho join. This edge is protected from erosion by a seawall to help sustain the size and position of the main channel.

Sedimentation occurs around the intertidal fringes where salt marsh is located at Southshore, due to the surface roughness from marine vegetation reducing water movements and wave energies.

Uplift created by the CES resulted in an increase of 18% of the Estuary seabed that is exposed at mid-tide, as shown by Figure 29. Appendix I details how the increased area of exposed estuary affects wave energy distributions throughout the Estuary. This results in less wave energy across a greater area of shallow depths and reduced tidal inundation periods. Ultimately, this creates conditions for reduced sediment transport beyond the Estuary.

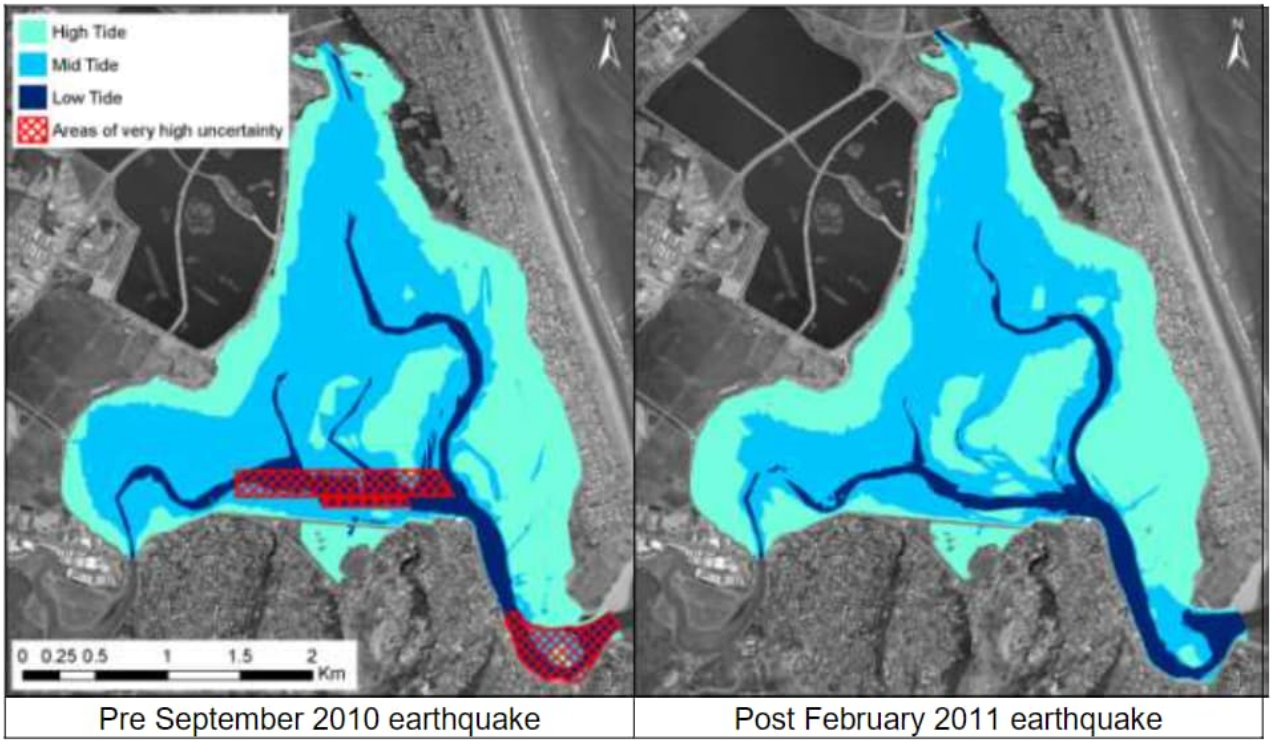


Figure 29 Tidal water surface extents pre- and post- earthquake (from Measures et al., 2011)

### 3.4.6.6 Extreme Water Levels

The Estuary is subject to extreme water levels[11] during storm events, where astronomical tide, storm surge and wave setup combine to generate flooding and erosion in areas not protected by coastal structures. In the last 10 years (since 2012) storm events have included:

- Five events which had close to a 1-year ARI;
- Three events which had an approximate 1 to 2-year ARI;
- Two events which had an approximate 2 to 5-year ARI;
- Two events which had an approximate 5 to 10-year ARI; and
- Two events which measured above a 10-year ARI; with the highest water level recorded in Feb 2018 which ranked as a 20 to 50-year ARI.

High water levels in the Estuary seem have become more frequent since 2014, with the highest water level on record (11.08 m) occurring on 2 February 2018 (calculated to be approximately 20–50-year ARI), the second highest (10.96 m) occurring in the July 2017 storms and the third highest (10.9 m) occurring during the March 2014 storms.

This increased frequency of extreme events has been linked to the natural 18.6-year lunar nodal tidal cycle, which peaked 2016/2017 and which resulted in the highest possible astronomical tides (which have a greater effect on extreme water levels during events).

[11] Extreme water levels are water levels that are above the Highest Astronomical Tide (HAT).

The existing (damaged) coastal edge protection structures vary in crest elevation, with some structures currently being overtopped in spring tides (10.257 m Canterbury Drainage Datum ('CDD'). A survey of these structures indicated that:

- Between Godwit and Penguin Street, crest elevation of existing structures is generally below the 10-year flood level (10.95 m);
- Between Penguin and Plover Street, crest elevations were generally below 10.7 m CDD (e.g., 2-year flood level);
- Between Plover and Tern Street, the elevation of existing structures ranges from 10.4-10.6 m (e.g., below 1 year flood level), with existing vertical walls reaching up to 11.4-11.5 m CDD; and
- South of Tern Street, crest elevations are generally below the 5-year return period flood levels.

This indicates that while the existing damaged structures provide a level of protection that prevents erosion during normal daily to monthly tidal cycle processes, they do not have sufficient crest elevations to withstand extreme water levels in significant events. This overtopping results in the shoreline erosion visible within the Project area.

#### 3.4.6.7 Storm Surges and Waves

Extreme water levels within the Estuary are influenced by storm surge events from low atmospheric pressure and high south-south westerly winds. A detailed analysis of storm surges and waves is found in Appendix I.

The Estuary edge at Southshore is generally orientated to the south-west and is therefore exposed to winds from the south-west through to north-west. Waves generated from southerly winds tend to blow alongshore, so they have a reduced effect on water levels at Southshore. The southern sections from Penguin Street to Tern Street have westerly fetch of more than 3km, although winds from this direction are less extreme that from the south-west.

#### 3.4.6.8 Current Estuary Edge Erosion at South New Brighton Park

The Estuary edge at SNBP has protected historically protected by gabion baskets. Since the CES these baskets have begun to fail through the shedding of stone and/or slumping, enabling erosion to occur behind them (see Figure 30).

Figure 30 Erosion at SNBP (2022)

### 3.4.6.9 Current Estuary Edge Erosion at Southshore

Erosion along the Estuary edge at Southshore is primarily driven by overtopping of the shoreline structures, causing back scour behind the damaged protection structures. This scouring has caused erosion of natural sand deposits and topsoil located behind the structures. This erosion is primarily located in proximity to failed or damaged protection structures.

Along the Southshore Estuary edge, coastal erosion is concentrated around failed or damaged structures which no longer have sufficient elevation to prevent wave overtopping, such as the structure shown in Figure 3.

Appendix I identifies that approximately 37% of the shoreline behind existing structures has experienced erosion since the CES. This erosion is generally limited to less than 4 m due to limited protection provided by the remnant structures, although it can reach up 8m since the CES in places. Some of this erosion has been addressed through informal deposition of fill.

Erosion is prominent around ‘hot spot’ areas where there are gaps between the remnant structures where wave energy can penetrate further during extreme water level events, and overtopping can reach further inland to erode the exposed bare land behind the structures. In some instance, these hotspots have been informally filled with loose rubble and other material to prevent any further erosion.

A reduction in the elevation of the Estuary bed near Penguin Street has also been observed. While this reduction could be a result of natural processes, it could also have been generated by wave reflection off protection structures.

### 3.4.7 Hydrogeology

Observations from the summaries of geotechnical / geological investigative wells installed in the South New Brighton locality in 2021 indicate that the water table (coastal confined gravel aquifer) is expected to be relatively shallow and generally within 0.0 – 2.0 metres of the ground surface[12]. Groundwater level data obtained from Canterbury Maps indicates that several artesian wells are present within 50 m of the site.

### 3.4.8 Susceptibility to Surface Water Flooding

The current flood risks associated with SNBP and Southshore area are addressed in detail in the Flood Risk Assessment (refer to Appendix F). The report identifies that the existing main sources of flood risk for these areas are storm tides in the Estuary and heavy rainfall over the catchments on the spit. It also explains that ponding could occur through runoff from heavy rainfall when this exceeds the capacity of the gravity stormwater network. The drainage capacity of the network is limited by the tidal water level in the estuary which, in Southshore, also results in ingress of water through some of the duck-bill valves. This has the effect of exacerbating flooding, necessitating additional pumping of stormwater during flood events. Council has been addressing this by adding new raised manholes fitted with non-return valves to many of the mains. The objective of this is to eliminate the ingress of seawater. The Project will not modify the risk of flooding from rainfall ponding behind the new bunds, also noting that the Landscape Master Plan creates localised low points to increase capacity and further reduce the likelihood of flooding.

### 3.4.9 Seismology

The geotechnical assessment is appended to the Design Report in Appendix D. It identifies that the Southshore and SNBP primarily consists of Holocene stable dune deposits (Pakihi Supergroup). The ground investigation (hand augers, dynamic cone penetration tests and soil sample) and CPT results from the New Zealand Geotechnical Database show that the site is mainly estuarine sand with some areas of silty sand/sandy silt near the surface.

Static slope stability assessments have shown that the inundation bunds and revetments at Southshore, SNBP, Ebbtide Street, and 44a Rocking Horse Road, and the gabion baskets at SNBP meet the required factor of safety (≥1.5).

Under Serviceability Limit State (SLS) seismic conditions (peak ground acceleration of 0.19g), the Southshore and 44a Rocking Horse Road inundation bunds and revetments do not meet the required factor of safety (≥1.0), while the Ebbtide Street path, SNBP inundation bund and the SNBP gabion baskets do meet the required factor of safety. If an Ultimate Limit State (ULS) seismic event (peak ground acceleration of 0.35g) were to occur, it is likely that significant damage would occur across all structures.

Lateral spreading analysis (Bray & Travasarou (2007)) showed that for a magnitude 6 earthquake, expected displacements would occur, as identified in Appendix D. Observed lateral displacements during the Canterbury Earthquake Sequence ranged between 0 mm – 1 m across Southshore and SNBP.

### 3.4.10 Ecology

The current ecological values of the area have been comprehensively assessed for the project. This included desktop analysis and field surveys of terrestrial vegetation and habitats, estuarine ecology, herpetofauna

[12] Canterbury Maps, *WERI (Wetlands of Representative Importance) database, Department of Conservation, updated 2017* (accessed December 2021).

(lizards) and avifauna (birds). This work is reported in the Ecological Impact Assessment (Appendix M). An overview of the key ecological values of the existing environment is presented here.

### 3.4.10.1 Terrestrial Vegetation and Habitats

The Project site adjoins residential areas and council-managed reserves, and is located within the Low Plains Ecological District (ED) in the Canterbury Plains Ecological Region. The Canterbury Plains Ecological Region is now among one of the most modified regions in New Zealand, with much of the natural, pre-Polynesian vegetation having been cleared. The original vegetation of the Low Plains ED has been substantially depleted by human induced fire and land clearance for agriculture and settlement.

#### 3.4.10.1.1 South New Brighton Park

##### 3.4.10.1.1.1 Ecological Context

At SNBP, mixed age native plantings, an older stand of tall exotic conifer species, and park and grassland areas separate residential areas from the Estuary. None contain originally remnant or naturally occurring regenerating indigenous vegetation.

##### 3.4.10.1.1.2 Vegetation Types and Ecological Value

The following vegetation types were identified on site in SNBP. A brief description is provided here with a conclusion on their ecological value (refer to Appendix M for more detail).

*Exotic Grassland:*

*Exotic grass grassland* – SNBP and environs including the track edges are generally mown and maintained exotic grasses.

*Indigenous shrubs / exotic grass grassland or shrubland* – Located at SNBP west of the cricket field, and in other small community planting areas near the Yacht Club. Some track edge areas near the Estuary comprise grasslands with scattered shrubs or small trees including ngaio species or non-local indigenous species such as karo and taupata. Exotic tree lupin is patchy. Between the Estuary and a cricket field, community plantings have been undertaken in recent years.

These vegetation types are considered of negligible ecological value.

*Exotic Forest:*

a. *Radiata Pine/tree lucerne treeland* - To the east of the Estuary walkway an area of treeland is dominated broadly either by patchy tree lucerne (tagasaste) or radiata pine.
b. *Radiata pine / exotic grass treeland, radiata pine / Tasmanian ngaio - taupata treeland* - Estuary edge areas of SNBP / Jellicoe Marsh. At the Estuary edge, scattered large radiata pine (and some macrocarpa) trees have a patchy understory of ngaio species, and non-local taupata and karo.
c. *Radiata pine - macrocarpa / karo - taupata forest* - South of South New Brighton Holiday Park, a tall forest of radiata pine and macrocarpa has been established for many decades.

These vegetation types are considered to be of moderate ecological value.

*Other vegetation types:*

*Exotic herb cobblefield ('sparsely vegetated backshore')* - Along much of the Estuary edge extent, the banks and backshore areas above the regularly inundated mudflat contain various (often eroding) debris and are sparsely vegetated with couch grass, herb species including exotic mallow, beet, orache, and indigenous species including glasswort and sea blite. This is considered of low ecological value.

*Saltmarsh herbfield (saltmeadow) - Saltmarsh ribbonwood / couch / sea blite - buckshorn plantain shrubland* SNBP near Jellicoe Marsh footbridge. A very small backshore area dominated by salt-tolerant herbs and couch grass and fringed by saltmarsh ribbonwood occupies the Estuary edge landward of a reno mattress (coastal armour) near the Jellicoe Marsh footbridge. This is considered to be of moderate ecological value.

*Saltmarsh rushland - Sea rush rushland and glasswort - bonking grass herbfield* - At Jellicoe Marsh, pure stands of sea rush grades to saltmarsh herbfield. These areas are overall diverse, with herbs including glasswort, bonking grass, and sueda forming a turf among and above the sea rush zone. This is considered of high ecological value.

Figure 31 Vegetation Types in the SNBP (from the Ecological Impact Assessment Report)

#### 3.4.10.1.2 Southshore

##### 3.4.10.1.2.1 Ecological Context

At Southshore between existing residential areas and the estuary mudflat, the narrow coastal margin that includes the project site is a modified habitat altered by former residential use (following the CES it is now referred to as 'residential red zone' or 'RRZ' land). Based on analysis of historic aerial imagery, prior to residential development in the mid-20th century, small areas of saltmarsh habitats naturally occupied parts of the estuary edge along Southshore and to the north (in South New Brighton). However, with the exception of Jellicoe Marsh and two remaining areas near Penguin Street and 172 Rocking Horse Road, these have never been extensive. None were as large as the very large areas of saltmarsh that still persist further up the Estuary, above Bridge Street.

##### 3.4.10.1.2.2 Vegetation Types and Ecological Value

The following vegetation types were identified on site in Southshore. A brief description is provided here with a conclusion on their ecological value (refer to Appendix M for more detail). These are mapped in Figure 32.

*Exotic Grassland/Tree land* – The RRZ is mainly mown grass and former garden plantings. This is considered to be of negligible ecological value.

*Exotic herb cobblefield ('sparsely vegetated backshore')* - Along much of the project site's estuary edge extent, the banks and backshore areas above the regularly inundated mudflat contain various (often eroding) debris and are sparsely vegetated with couch grass, herb species including exotic mallow, beet, orache, and indigenous species including glasswort and sea blite. This is considered of low ecological value.

*Saltmarsh ribbonwood / marram grass grassland* – There are two different sub-types identified, both at the southern end of the Project site, near mermaid place.

d. Saltmarsh ribbonwood / marram grass shrubland - This shrubland occurs on low sand dunes comprising saltmarsh ribbonwood, taupata and occasional exotic shrubs / small trees (e.g., macrocarpa, elder, sycamore) largely among exotic marram grass.

e. Iceplant - marram grass grassland - This grassland is much like the shrubland described above, except that it occupies the area closest to the mudflat and lacks saltmarsh ribbonwood.

These are considered to be of moderate ecological value.

*Saltmarsh herbfield ('saltmeadow')* - Several small (c.5 m x 20 m areas) saltmarsh herbfield patches are present in the RRZ behind (landward of) the hard edge of existing ad hoc coastal armour structures. These are estuarine marsh wetlands entirely above MHWS. Many areas have been deliberately and inappropriately planted into with sea rush, but the underlying herbfield has very likely arisen naturally. Many areas have an almost entirely indigenous cover, typically in lower areas that are more frequently inundated. This saltmeadow vegetation appears to have naturally established since the CES in former residential areas, in areas where slumping of (or breaks in) the existing ad hoc coastal armour permits inundation, and / or where episodic wave conditions allow for splash inputs above MHWS. Overall the saltmarsh herbfield (saltmeadow) areas are of Moderate ecological value.

*Saltmarsh rushland* -Saltmarsh rushland areas in the Southshore area are dominated by sea rush, and are partly or wholly inundated by high tides. They are estuarine marsh wetlands mostly below MHWS, but some areas at or just above MHWS. The vegetation pattern is highly natural for the area, despite the small size of this vegetation patch. These areas of saltmarsh rushland are, therefore, of High ecological value overall.

Figure 32 Vegetation Types in the Southshore Area (from the Ecological Impact Assessment Report)

### 3.4.10.2 Estuarine Species and Habitats

#### 3.4.10.2.1 South New Brighton Park

##### 3.4.10.2.1.1 General Description

At SNBP, the estuary edge is occupied by cobble material retained by reno mattress in various states of disrepair. There are also large amounts of cobbles no longer retained by reno mattress. Cobbles dot the seabed adjacent to the estuary edge along with finer rock fractions likely released from the eroding estuary edge. Where the erosion is more pronounced, the estuary edge has receded by several meters and new areas of seabed have developed behind the damaged reno mattresses. In these areas, the seabed is slightly higher compared to the surrounding mudflat habitat located in front of the mattresses, and the eroding Estuary edge is characterised by an unstable, near-vertical bank and exposed tree roots. Geotextile sand containers have been deployed in places to protect the adjacent pathway, but several of these have washed onto the seabed. A few meters away from the Estuary edge, the seabed is generally uniform and populated by mud snails, with very sparse macroalgal cover.

##### 3.4.10.2.1.2 Habitat Substrate/Grain Size

The artificial structures present along the estuary edge provide hard-bottom habitat with some interstitial space for intertidal organisms. On the estuary seabed, medium and fine sand make up the largest proportion of the grain size composition of the soft-bottom habitat.

##### 3.4.10.2.1.3 Sediment Contaminants

Results of the contaminant analyses showed that concentrations of copper, lead and zinc and high molecular weight polyaromatic hydrocarbons (PAHs) within the seabed were below the default guideline values (DGV) in all samples.

##### 3.4.10.2.1.4 Species Composition

*Epibenthos* - The results of our field surveys showed that the damaged reno mattresses in proximity of the edge at SNBP host benthic communities characterised by very low diversity (average of two taxa per quadrat at both locations, with a total of 9 taxa identified at SNBP. Macroalgae were scarcely abundant and represented only by common, stress-tolerant green algae. The beaked barnacle Austrominius modestus and the little black mussel Limnoperna pulex were the only sessile invertebrates colonising the hard substrate, always in small aggregations. Common estuarine mobile invertebrates like limpets of the genus Notoacmea and Onchidella, and the snails Cominella glandiformis, Littorina amphipodum and Micrelenchus tenebrosus all had average densities of less than one individual per quadrat. Sand hopper amphipods were found in aggregations of several tens of individuals in some of the plots.

In the soft-bottom habitat, the organisms living on the surface of the seabed comprised 12 taxa at SNBP. SNBP had very low cover of green (Ulva spp.) and red algae (Gracilaria chilensis) along all transects.

The epibenthic fauna was similar at SNBP and Southshore. Animals found on the surface of the seabed along most transects included bivalves (mostly small cockles - Austrovenus stutchburyi), crabs (Austrohelice crassa), limpets, (Notoacmea sp.), and snails (mostly Amphibola crenata, Diloma subrostratum and Micrelenchus tenebrosus). Patterns of abundance of these taxa were variable across transects.

*Infauna* - The macroinvertebrate infauna (i.e., the macroinvertebrates living amongst the estuary bed materials, below the estuary bed) inhabiting the seabed comprised 35 taxa. The infauna was dominated by stress-tolerant polychaete and oligochate worms (58% of the total number of animals). The most abundant polychaete was Scolecolepides benhami, a species tolerant to poor habitat quality, with an average of 12 individuals per core. Other polychaete taxa found in large numbers included Capitella sp., Ledomas cylindrifer

and nereid worms. The stress-sensitive polychaete Aonides sp. was present in very low numbers (less than one per core).

The stress-tolerant bivalve Arthritica bifurca accounted for about 75% of the total number of bivalves at SNBP. Gastropods included both tolerant (e.g., the mud snail Amphibola crenata) and sensitive species present (e.g., limpets of the genus Notoacmea).

The remaining infaunal organisms included stress-tolerant nemertean and nematod worms and crabs mostly the stress-tolerant crab Austrohelice crassa). The most abundant organisms in the “Other taxa” group were mites and fly larvae.

All transects had moderate levels of abundance, richness and diversity with cores collected within 1m of the estuary edge having the lowest abundance and richness.

#### 3.4.10.2.1.5 Ecological Value

The hard-bottom habitat along the estuary edge is artificial and the result of significant habitat modification. It is occupied by tolerant species common in estuarine environments. There are no invasive or Threatened / At Risk species. There is little diversity of macroalgae, which provide minimal habitat for native fauna. The benthic invertebrate community also has low species diversity and abundance. The ecological value of the hard-bottom habitat that would be affected by the project is assessed as Low.

The soft-bottom habitat is characterised by mostly medium and fine sand, low levels of contaminants and some habitat modification in proximity of the estuary edge due to the release of rock material from the armouring structures. Infaunal communities have moderate species richness, diversity and abundance, with both tolerant and sensitive taxa present. At SNBP the seabed is mostly unvegetated. The ecological value of the soft-bottom habitat that would be affected by the project is assessed as moderate for the areas of mudflat habitat (i.e., the soft-bottom habitat that is ether unvegetated or presents limited cover of macroalgae).

### 3.4.10.2.2 Southshore

#### 3.4.10.2.2.1 General Description

The Estuary edge along the project site is occupied by the remaining of a variety of structures, which formed part of former residential properties. These include seawalls, revetments, boat ramps and jetties. Debris from these structures litter the adjacent seabed, along with finer rock fractions likely released from the eroding estuary edge. Small pockets of estuary edge without shoreline hardening are found only in the saltmarsh area around Penguin Street. In addition to the saltmarsh, the vegetation growing on the estuary seabed at Southshore includes macroalgae and seagrass, which have a patchy distribution across the project site.

#### 3.4.10.2.2.2 Habitat Substrate/Grain Size

The artificial structures present along the estuary edge provide hard-bottom habitat with some interstitial space for intertidal organisms. On the estuary seabed, medium and fine sand make up the largest proportion of the grain size composition of the soft-bottom habitat.

#### 3.4.10.2.2.3 Sediment Contaminants

Results of the contaminant analyses showed that concentrations of copper, lead and zinc and high molecular weight polyaromatic hydrocarbons (PAHs) within the seabed were below the default guideline values (DGV) in all samples.

#### 3.4.10.2.2.4 Species Composition

*Epibenthos* - The results of our field surveys showed that the artificial structures present along the estuary edge host benthic communities characterised by very low diversity. Macroalgae were scarcely abundant and represented only by common, stress-tolerant green algae. The beaked barnacle Austrominius modestus and the little black mussel Limnoperna pulex were the only sessile invertebrates colonising the hard substrate, always in small aggregations. Common estuarine mobile invertebrates like limpets of the genus Notoacmea and Onchidella, and the snails Cominella glandiformis, Littorina amphipodum and Micrelenchus tenebrosus all had average densities of less than one individual per quadrat. Sand hopper amphipods were found in aggregations of several tens of individuals in some of the plots.

In the soft-bottom habitat, the organisms living on the surface of the seabed comprised 15 taxa. The benthic vegetation included macroalgae (mostly green algae of the genus Ulva), seagrass and saltmarsh. Patterns of abundance of macroalgae, seagrass and saltmarsh were variable across the project. Animals found on the surface of the seabed along most transects included bivalves (mostly small cockles - Austrovenus stutchburyi), crabs (Austrohelice crassa), limpets (Notoacmea sp.), and snails (mostly Amphibola crenata, Diloma subrostratum and Micrelenchus tenebrosus.

*Infauna* - The macroinvertebrate infauna (i.e., the macroinvertebrates living amongst the estuary bed materials, below the estuary bed) inhabiting the seabed comprised 40 taxa. The infauna was dominated by stress-tolerant polychaete and oligochate worms (70% of the total number of animals). The most abundant polychaete was Scolecolepides benhami, a species tolerant to poor habitat quality, with an average of 10 individuals per core. Oligochaete worms were present in similar numbers (average of 9 per core). Other polychaete taxa found in large numbers included Capitella sp., Ledomas cylindrifer and nereid worms. The stress-sensitive polychaete Aonides sp. was present in very low numbers (less than one per core).

Amphipods (mostly Paracalliope novizealandiae) were the second most abundant taxonomic group (10% of the total number of animals), followed by gastropods and bivalves (both representing approx. 5% of the total number of animals).

Gastropods included both tolerant (e.g., the mud snail Amphibola crenata) and sensitive species present (e.g., limpets of the genus Notoacmea). Bivalves consisted mostly of the stress-tolerant species Arthritica bifurca and the stress-sensitive cockle Austrovenus stutchburyi, which were equally represented.

The remaining infaunal organisms included stress-tolerant nemertean and nematod worms and crabs mostly the stress-tolerant crab Austrohelice crassa). The most abundant organisms in the “Other taxa” group were mites and fly larvae.

Almost all transects had moderate levels of abundance and richness.

*Seagrass Distribution* - A large seagrass meadow is present close to the Southshore estuary edge, and from there it extends westward into the Estuary. To inform our assessment, we mapped the eastern boundary (closest to the Southshore estuary edge) of the meadow in March 2022 and again in April 2023. Dense cover of seagrass is present west of the mapped boundary of the meadow. Small patches or isolated plants of seagrass separated from the main meadow are displayed in the figure in the ecological report as isolated shapes and dots, respectively.

#### 3.4.10.2.2.5 Ecological Value

The hard-bottom habitat along the estuary edge is artificial and the result of significant habitat modification. It is occupied by tolerant species common in estuarine environments. There are no invasive or Threatened / At Risk species. There is little diversity of macroalgae, which provide minimal habitat for native fauna. The benthic invertebrate community also has low species diversity and abundance. The ecological value of the hard-bottom habitat that would be affected by the project is assessed as Low.

The soft-bottom habitat is characterised by mostly medium and fine sand, low levels of contaminants and some habitat modification in proximity of the estuary edge due to the release of rock material from the armouring structures. Infaunal communities have moderate species richness, diversity and abundance, with both tolerant and sensitive taxa present. The surface of the seabed is colonised by epibenthic communities typical of estuarine habitats. The vegetation comprises a mosaic of macroalgae, seagrass and saltmarsh. The ecological value of the soft-bottom habitat that would be affected by the project is assessed as:

- Moderate for the areas of mudflat habitat (i.e., the soft-bottom habitat that is ether unvegetated or presents limited cover of macroalgae);
- High for the areas of seagrass habitat, with the seagrass being an At Risk- Declining species;
- High for the areas of saltmarsh habitat.

### 3.4.10.3 Herpetofauna

#### 3.4.10.3.1 South New Brighton Park and Southshore

##### 3.4.10.3.1.1 Lizard Habitats

Five major lizard habitats were identified across the project site: Rank exotic grassland, exotic grassland with saltmarsh ribbonwood, marram grassland, estuary edge lyme grass grassland and abandoned gardens with greywacke river cobble mulch and occasional rocks.

##### 3.4.10.3.1.2 Lizard Captures and Sightings

Southern grass skink (Oligosoma aff. polychroma clade) was the only lizard species detected over the survey area, and a mix of striped and speckled patterned skinks were captured. Southern grass skinks are currently classified as an At Risk – Declining species. Skinks were sighted very rarely at the project site (n=6), despite suitable weather for skink activity occurring during the survey period. A total of 29 skinks were captured from sites within the Project site. Overall captures and sightings are shown in Figure 33.

Figure 33 Overview of skink captures & sightings and perceived relative abundances (based on captures, sightings, and quality/extent of habitat present) across sites (from Ecology Impact Assessment)

#### 3.4.10.3.1.3 Ecological Value

The habitats present within the project site support southern grass skink, an At Risk – Declining species. This species is considered to be of High ecological value. Southern grass skinks are protected under the Wildlife Act (1953), administered by the Department of Conservation (DOC). A Wildlife Act permit from DOC will be applied for to carry out the proposed works

### 3.4.10.4 Avifauna

#### 3.4.10.4.1 South New Brighton Park and Southshore

#### 3.4.10.4.1.1 Terrestrial Birds

The terrestrial avifauna species recorded during the survey very much reflect the modified and exotic habitat that dominate the area, with the majority of species recorded being common native (Not Threatened) or introduced species . Those species recorded form the counts conducted within the project site are provided in Table 6. In addition it was anticipated that NZ pipit may be expected to occur within the project area but was not sighted.

Table 6 Avifauna species recorded during the surveys within the Project site

| Species | NZ Threat Classification | South New Brighton | Southshore |
|---|---|---|---|
| Red-billed gull | At Risk - Declining | ✓ | |

| | | | |
|---|---|---|---|
| Bellbird | Not Threatened | ✓ | |
| Fantail | Not Threatened | ✓ | |
| Grey warbler | Not Threatened | ✓ | |
| Kereru | Not Threatened | ✓ | |
| Kingfisher | Not Threatened | ✓ | ✓ |
| Silvereye | Not Threatened | ✓ | ✓ |
| Welcome swallow | Not Threatened | | ✓ |
| White-faced heron | Not Threatened | ✓ | |
| Blackbird | Introduced & Naturalised | ✓ | ✓ |
| Chaffinch | Introduced & Naturalised | ✓ | ✓ |
| Dunnock | Introduced & Naturalised | ✓ | ✓ |
| Goldfinch | Introduced & Naturalised | ✓ | |
| Greenfinch | Introduced & Naturalised | ✓ | |
| House Sparrow | Introduced & Naturalised | ✓ | ✓ |
| Magpie | Introduced & Naturalised | ✓ | |
| Starling | Introduced & Naturalised | ✓ | ✓ |

Along the Southshore end, kingfisher (Not Threatened) were recorded perching on trees and coastal structures, including the existing rock revetment. Several Phoenix palms were observed to have crevices that are likely to be used by nesting kingfisher, the majority of these palms are located outside of the design footprint but on the edge of the earthworks zone. While NZ pipit (At Risk – Declining) were not detected during the survey, they have been recorded on the eastern shoreline of the Estuary and are likely to be present within the project site. Pipit were not observed breeding during the November 2023 site visit when the area was surveyed for breeding birds.

In comparison, the terrestrial habitat within SNBP comprises a tall forest of radiata pine and macrocarpa that has been established for many years. The survey within that habitat detected several native species (Not Threatened) that were not recorded in the Southshore part of the project site, including bellbird, kereru, fantail and white-faced heron. Kereru have been recorded attempting to nest within the South New Brighton domain by the car park on the east side of the track towards Bridge Street. In addition, a written submission on this project identifies areas of trees at the southern end of SNBP (north and east of Jellicoe Marsh) as breeding habitat for kereru. This area was included in the nesting survey on 26 November 2023, during which kereru were not observed. Nevertheless, it is possible other indigenous forest bird species (e.g. fantail, grey warbler) are breeding within the project footprint, but based on the habitat present, likely in low numbers.

On the coastal margins of that forest during the April 2022 survey, a number of little shag (At Risk - Relict) were recorded roosting in a macrocarpa tree, while white-faced heron (Not Threatened) were recorded roosting in a radiata pine. However, during November 2023 site visit, the shag roost tree was found to no

longer have branches, while the white-faced heron roost tree had been removed completely. In fact during the November 2023 survey, no roosting or breeding birds were observed in the coastal trees along SNBP.

#### 3.4.10.4.1.2 Coastal/Estuarine Birds

The Estuary and its immediate surroundings are a nationally important area for coastal, estuarine and wetland birds. The Estuary regularly supports peak numbers of upwards of 30,000 waterfowl, wading, and other wetland birds, and 3,000 or more individuals of other species (including shags, gulls, terns, swallows, spoonbills, herons, kingfishers, coots and pūkeko) feeding on the estuary mudflat and adjoining habitats that include the Linwood Paddocks and the Bromley Oxidation Ponds.

A total of 26 species were recorded during the 2022 surveys, 13 of which have Threatened or At Risk classifications (Table 7). The species assemblage comprised gulls, terns, shags, oystercatcher, stilt, heron, spoonbill, waterfowl and kingfisher. The predominant groups comprised oystercatchers, gulls and waterfowl Overall, the most abundant species recorded during the survey period was South Island Pied Oystercatcher (n=22,071), followed by red-billed gull (n=13,247). The highest density of birds was recorded in count zone 3 (213 birds / ha) and the lowest in count zone 1 (92 birds / ha).

The Ecological Impact Assessment (Appendix M) contains graphical representations of the distribution and abundance of the species recorded.

Table 7 Avifauna species and numbers recorded during the 2022 Estuary surveys (see ecology impact assessment report for more details)

| SPECIES | NZ THREAT CLASSIFICATION | Zone 1 | Zone 2 | Zone 3 | Zone 4 | TOTAL | MAXIMUM COUNT |
|---|---|---|---|---|---|---|---|
| SIPO | At Risk - Declining | 239 | 1,964 | 11,806 | 8,062 | 22,071 | 1,000 |
| Red-billed gull | At Risk - Declining | 1,927 | 2,914 | 6,165 | 2,241 | 13,247 | 3,450 |
| Black swan | Not Threatened | 2,968 | 1,181 | 1,569 | | 5,718 | 251 |
| Bar-tailed godwit | At Risk - Declining | 34 | 1,080 | 2,746 | 213 | 4,073 | 600 |
| Black-backed gull | Not Threatened | 608 | 80 | 1,604 | 626 | 2,918 | 250 |
| Variable oystercatcher | At Risk - Recovering | 3 | 11 | 284 | 1,399 | 1,697 | 111 |
| Grey teal | Not Threatened | 919 | 40 | | | 959 | 140 |
| Pied stilt | Not Threatened | 91 | 320 | 337 | | 748 | 68 |
| NZ shoveler | Not Threatened | 411 | | | | 411 | 155 |
| Pied shag | At Risk - Recovering | 237 | 6 | 21 | 68 | 332 | 25 |
| White-faced heron | Not Threatened | 50 | 43 | 25 | 8 | 126 | 12 |
| Little shag | At Risk - Relict | 36 | 15 | 24 | 34 | 109 | 6 |
| Little black shag | At Risk - Naturally Uncommon | 74 | | | 31 | 105 | 28 |
| Spur-winged plover | Not Threatened | 35 | 7 | 32 | 15 | 89 | 7 |
| Caspian tern | Threatened - Nationally Vulnerable | 20 | 15 | 39 | 6 | 80 | 7 |
| Royal spoonbill | At Risk - Naturally Uncommon | 33 | 25 | 11 | | 69 | 15 |
| Black-fronted tern | Threatened - Nationally Endangered | | 58 | | 1 | 59 | 41 |
| Kingfisher | Not Threatened | 22 | 18 | 14 | | 54 | 4 |
| Banded dotterel | At Risk - Declining | | 53 | | | 53 | 17 |
| Pukeko | Not Threatened | 48 | | | | 48 | 6 |
| Paradise shelduck | Not Threatened | 42 | 4 | | | 46 | 3 |
| Spotted shag | Threatened - Nationally Vulnerable | 1 | | | 13 | 14 | 12 |
| Feral goose | Introduced | 4 | | | | 4 | 1 |
| Harrier | Not Threatened | 2 | | 1 | | 3 | 1 |
| White-fronted tern | At Risk - Declining | 1 | | | 2 | 3 | 1 |
| NZ scaup | Not Threatened | 2 | | | | 2 | 1 |
| TOTAL BIRDS | | 7,807 | 7,834 | 24,678 | 12,719 | 53,038 | 3,450 |
| AVERAGE BIRD DENSITY / Ha | | 92 | 109 | 213 | 198 | | |

#### 3.4.10.4.1.3 Ecological Value

The species either confirmed or expected to utilise the area are considered to be of differing ecological value according to their New Zealand Threat Classification, as listed in Table 8.

Table 8 Ecological value attributed to the coastal / estuarine avifauna species recorded during the 2022 Estuary surveys, or expected to occur there.

| SPECIES | NZ THREAT CLASSIFICATION | ECOLOGICAL VALUE |
|---|---|---|
| Black-fronted tern | Threatened - Nationally Endangered | Very High |
| Caspian tern | Threatened - Nationally Vulnerable | Very High |
| Spotted shag | Threatened - Nationally Vulnerable | Very High |
| Black-billed gull | At Risk - Declining | High |
| SIPO | At Risk - Declining | High |
| Red-billed gull | At Risk - Declining | High |
| Bar-tailed godwit | At Risk - Declining | High |
| Banded dotterel | At Risk - Declining | High |
| White-fronted tern | At Risk - Declining | High |
| Pied shag | At Risk - Recovering | Moderate |
| Variable oystercatcher | At Risk - Recovering | Moderate |
| Black shag | At Risk - Relict | Moderate |
| Little shag | At Risk - Relict | Moderate |
| Royal spoonbill | At Risk - Naturally Uncommon | Moderate |
| Little black shag | At Risk - Naturally Uncommon | Moderate |
| Black-backed gull | Not Threatened | Low |
| Black swan | Not Threatened | Low |
| Pied stilt | Not Threatened | Low |
| White-faced heron | Not Threatened | Low |
| Spur-winged plover* | Not Threatened | Low |
| Kingfisher | Not Threatened | Low |
| Grey teal | Not Threatened | Low |
| Paradise shelduck | Not Threatened | Low |
| NZ shoveler* | Not Threatened | Low |
| Pukeko* | Not Threatened | Low |
| NZ scaup* | Not Threatened | Low |

*Not found in Zones 2-4, adjacent to the project site.

### 3.4.10.5 Summary of Ecological Values

Table 9 summarises our assessment of ecological value following the EIANZ EcIA methodology as documented in the Ecological Impact Assessment (Appendix M).

Table 9 Summary of ecological values assigned to terrestrial vegetation and habitats, estuarine species and habitats, and avifauna and herpetofauna assemblages at the project.

| Ecosystem Component | Representativeness | Rarity / Distinctiveness | Diversity and Pattern | Ecological Context | Overall Ecological Value |
|---|---|---|---|---|---|
| **Terrestrial Vegetation and Habitats** | | | | | |
| Exotic Grassland / Herbfield | Very Low | Very Low | Very Low | Very Low | Negligible |
| Exotic Forest / Treeland | Very Low | Low-Moderate | Very Low | High | Moderate |
| Exotic Herb Cobblefield | Very Low | Very Low | Very Low | Very Low | Negligible |
| Saltmarsh Ribbonwood / Marram Grass Grassland | Moderate | Moderate | Low | Moderate | Moderate |
| Saltmeadow | Moderate | Moderate-High | Low-Moderate | Low | Moderate |
| Saltmarsh | Moderate-High | High | Moderate | Low-Moderate | High |
| **Estuarine Species and Habitats** | | | | | |
| Hard-bottom habitat at SNBP and Southshore | High degree of habitat modification. Common hard shore estuarine species. Low species richness, diversity and abundance. No invasive species. No Threatened / At Risk species. Macroalgae include opportunistic / disturbance tolerant species and provide minimal habitat. Low diversity and abundance of benthic invertebrates. | | | | Low |
| Soft-sediment habitat: mudflat at SNBP and Southshore | Less than 30% silt and clay. Low level of contaminants. Limited habitat modification. Moderate species richness, diversity and abundance. Vegetation provides minimal habitat. Both tolerant and sensitive taxa present. No invasive species. No Threatened / At Risk species present. | | | | Moderate |
| Soft-sediment habitat: seagrass at Southshore | Less than 30% silt and clay. Low level of contaminants. Limited habitat modification. Moderate species richness, diversity and abundance. Vegetation provides significant habitat. Both tolerant and sensitive taxa present. No invasive species. Threatened / At Risk species present. Indigenous coastal habitat vulnerable to modification present. | | | | High |
| Soft-sediment habitat: saltmarsh below MHWS at Southshore | Less than 30% silt and clay. Low level of contaminants. Limited habitat modification. Moderate species richness, diversity and abundance. Vegetation provides significant habitat. Both tolerant and sensitive taxa present. No invasive species. No Threatened / At Risk species present. Indigenous coastal habitat vulnerable to modification present. | | | | High |
| **Herpetofauna (species confirmed to be present)** | | | | | |
| Southern grass skink | At Risk - Declining | | | | High |
| **Avifauna (species confirmed or expected to be present)** | | | | | |
| Australasian bittern | Threatened - Nationally Critical | | | | Very High |
| Black-fronted tern | Threatened - Nationally Endangered | | | | Very High |
| Grey duck | Threatened - Nationally Vulnerable | | | | Very High |
| Caspian tern | Threatened - Nationally Vulnerable | | | | Very High |
| Spotted shag | Threatened - Nationally Vulnerable | | | | Very High |
| Wrybill | Threatened - Nationally Increasing | | | | Very High |
| Banded dotterel | At Risk - Declining | | | | High |
| NZ pipit | At Risk - Declining | | | | High |
| SIPO | At Risk - Declining | | | | High |
| Bar-tailed godwit | At Risk - Declining | | | | High |
| Lesser knot | At Risk - Declining | | | | High |
| Marsh crake | At Risk - Declining | | | | High |
| Black-billed gull | At Risk - Declining | | | | High |
| Red-billed gull | At Risk - Declining | | | | High |
| White-fronted tern | At Risk - Declining | | | | High |
| Variable oystercatcher | At Risk - Recovering | | | | Moderate |
| Pied shag | At Risk - Recovering | | | | Moderate |
| Black shag | At Risk - Relict | | | | Moderate |
| Little shag | At Risk - Relict | | | | Moderate |
| Little black shag | At Risk - Naturally Uncommon | | | | Moderate |

| Ecosystem Component | Representativeness | Rarity / Distinctiveness | Diversity and Pattern | Ecological Context | Overall Ecological Value |
|---|---|---|---|---|---|
| Chaffinch | Introduced & Naturalised | | | | Negligible |
| Dunnock | Introduced & Naturalised | | | | Negligible |
| Goldfinch | Introduced & Naturalised | | | | Negligible |
| House sparrow | Introduced & Naturalised | | | | Negligible |
| Starling | Introduced & Naturalised | | | | Negligible |
| **Coastal / Estuarine** | | | | | |
| Black-fronted tern | Threatened - Nationally Endangered | | | | Very High |
| Caspian tern | Threatened - Nationally Vulnerable | | | | Very High |
| Spotted shag | Threatened - Nationally Vulnerable | | | | Very High |
| Black-billed gull | At Risk – Declining | | | | High |
| SIPO | At Risk - Declining | | | | High |
| Red-billed gull | At Risk - Declining | | | | High |
| Bar-tailed godwit | At Risk - Declining | | | | High |
| Banded dotterel | At Risk - Declining | | | | High |
| White-fronted tern | At Risk - Declining | | | | High |
| Pied shag | At Risk - Recovering | | | | Moderate |
| Variable oystercatcher | At Risk - Recovering | | | | Moderate |
| Black shag | At Risk – Relict | | | | Moderate |
| Little shag | At Risk - Relict | | | | Moderate |
| Royal spoonbill | At Risk - Naturally Uncommon | | | | Moderate |
| Little black shag | At Risk - Naturally Uncommon | | | | Moderate |
| Black-backed gull | Not Threatened | | | | Low |
| Black swan | Not Threatened | | | | Low |
| Pied stilt | Not Threatened | | | | Low |
| White-faced heron | Not Threatened | | | | Low |
| Kingfisher | Not Threatened | | | | Low |
| Grey teal | Not Threatened | | | | Low |
| Paradise shelduck | Not Threatened | | | | Low |

### 3.4.11 Contaminated Land

Christchurch City Council holds a global resource consent (RMA/2021/2094, CCC Global NESCS Consent) under the NES-CS.

A Detailed Site Investigation ('DSI') has been completed (Appendix J). The purpose of the DSI is to inform the use of Council's existing global land use consent and support the application for Regional Consents. It is intended to inform the risk classification that applies to the Project, and in turn determine which Contaminated Soil Management Plan is applicable.

The DSI noted that a review of historic aerial imagery was conducted for Southshore in 2020 and 2022 as part of the Project's Preliminary Site Investigations (PSIs). This indicated that the Project site remained undeveloped until sometime between 1955 and 1959 when residential development at Southshore commenced. This development progressively covered Southshore until between 2000 and 2004 when all the properties immediately adjacent to the Project site were well established.

In the process of developing the area for residential use there was a considerable amount of reclamation to both extend and level properties that were close to the shoreline. Following the CES, the land adjacent to the Project site at Southshore was red zoned. This was followed by the demolition of dwellings and land clearance between 2013 to 2016. All the land that encompasses the Project site is currently vacant, apart from one residence at 44A Rocking Horse Road. The land further east of the Project site has also been in residential use since between 1955 and 1959 and these residential properties are currently occupied.

The DSI draws on the two previous PSIs, with the first investigating the Southshore Estuary edge and the second investigating SNBP and proposed bund area. The PSIs' found:

- The initial PSI identified one HAIL activity – HAIL I, intersecting with the proposed works. During the PSI site walkover and subsequent sampling, nine of the eleven existing erosion protection structures returned

positive detections of asbestos containing material ('ACM'). All structures are located within 20 m adjacent west to the Southshore bund.

- The second PSI identified no current or historical HAIL activity within the proposed bund location. However, it was noted that there is the potential for HAIL I classification owing to the former demolition of residential buildings and fill associated with these works.
- Both reports recommended:
  - The NES-CS will require further consideration for project works within the Southshore bund area of the Project and further sampling would be required to confirm the presence/concentration of friable asbestos or asbestos fines in the soil
  - Soil sampling along the proposed bund alignment (100 m intervals) and at locations where asbestos was previously positively identified
  - The estimated soil disturbance volumes associated with the proposed bund construction and proposed erosion protection upgrade activities exceed the permitted activity volume of NES-CS triggering a resource consent
  - The NES-CS required further consideration for Project works at the Southshore bund and further sampling would be required to confirm the presence/concentration of friable asbestos or asbestos fines in the soil.

The additional sampling has been undertaken and is reported on in detail in the DSI.

## 3.5 Summary

The Project area is located within a dynamic coastal location, surrounded by coastal waters on three sides. The physical characteristics of the Project area are dictated by its proximity to the coast, including both its underlying geomorphology and susceptibility to erosion. This proximity to the coast has affected the types of natural vegetation present and ongoing shoreline changes from sediment movement. These geomorphological processes have also supported fauna and flora, including areas of seagrass and saltmarsh.

The Project area has experienced significant human use and occupation, including a pre-colonisation phase by Māori and urbanisation during the mid-20th century. The urbanisation of the area resulted in land clearance, construction of single-lot dwellings and the establishment of esplanade reserves. Historically, an informal approach to coastal protection structures has been employed, which presently includes the use of rumble and building debris that provides limited protection against natural coastal processes. These processes have also been influenced by the CES, which resulted in the damage to coastal protection structures, the creation of the red zone and land subsidence.

# 4. Proposed Activities

## 4.1 Introduction

Christchurch City Council seeks resource consent to enable the construction and long-term occupation of erosion protection and inundation protection structures at Southshore and SNBP for a period of 35 years. The following section details the proposed works in both Project areas, as well as the general construction methodology that will be employed. Further details are provided in the following documents:

- Appendix C contains Design Drawings showing the proposed new structures in plan view, cross sections and the construction boundary.
- Appendix D contains the Design Report which details, among other things, existing environmental conditions and constraints that influence design, the design approach and assumptions applied, and the draft outline construction methodology.
- Appendix E contains the Landscaping Master Plan that details the wider landscaping being proposed for the Southshore red zone and SNBP.
- Appendix N contains the Draft Construction Environmental Management Plan which details how construction effects are anticipated to be managed.
- Section 8.9 contains resource consent conditions proposed as mitigation measures for this application.

## 4.2 General Design Basis

As documented in Section 3.1.2 of the Design Report (Appendix D) some key design basis elements include:

- Design life: The design level of protection is 20 years to allow time for decisions with communities on longer-term adaptative planning responses to climate change and sea level rise to be made and implemented. The expected physical lifetime of the structures will be longer than 20 years, however, increased maintenance and repairs may be required to maintain the structures after this timeframe. This duration is reflected in the proposed conditions (Section 8.9), with a 35-year consent duration sought for the coastal permits to allow maximum flexibility while an adaptation strategy is formulated.
- Maximum storm scenario (waves and water level): Protection from erosion in a 50-year return period (2%AEP) extreme estuary water level event combined with waves generated by a 50-year return period (2%AEP) south-west or westerly wind event blowing across the estuary.
- Climate change considerations: No allowance for increased water levels due to sea level rise, or other climate change factors (e.g., increased wind climate, changed fluvial/pluvial flood frequency).
- Land subsidence: No allowance for further land subsidence along the shoreline.
- Stability: Bund and structures will be designed for standard static conditions, but not be designed to withstand seismic load cases and will require inspection and maintenance following a seismic event.

## 4.3 South New Brighton Park General Description

While the general approach to structures in SNBP shares many common elements with Southshore, key elements include:

- An inundation bund at a design elevation of 11.5m (Christchurch Drainage Datum) to provide protection in a 50-year return period extreme estuary water level event (Figure 34). The bund will be range in height between 0.3 m and1.0 m above the existing ground level. A shared path will also be provided on top of the inundation bund.
- The bund design is based on that already used by Council for a section from Bridge Street south into SNBP, with a photo provided below (Figure 35). This is a section is grassed, without a path on the top.

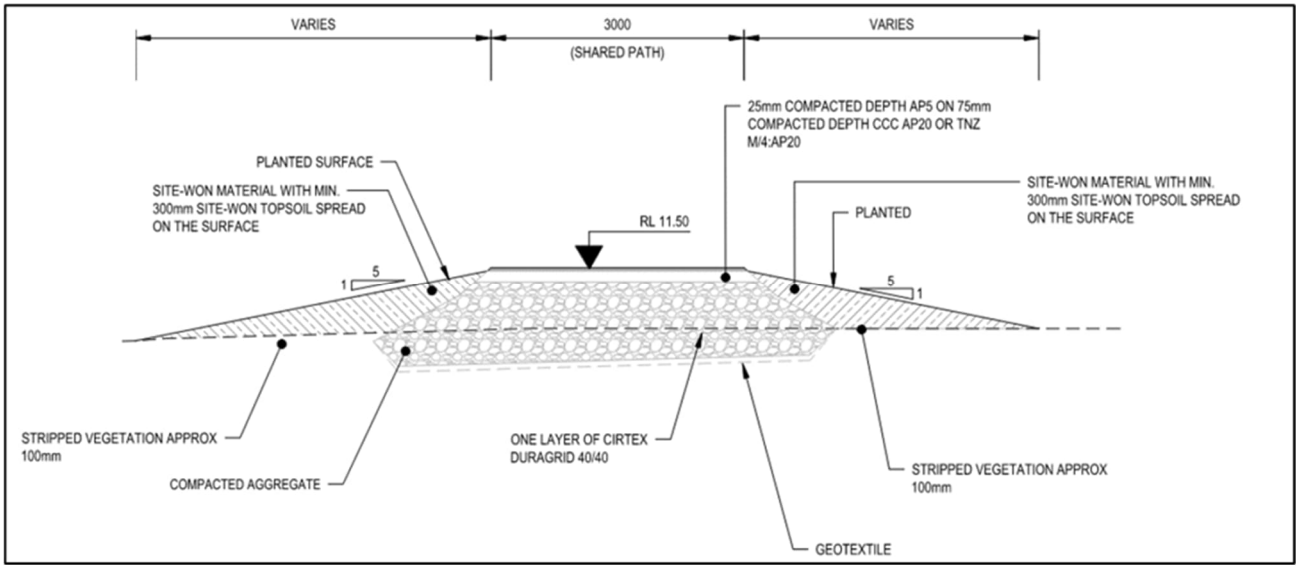


Figure 34 Typical section of planted bund with shared path at Southshore

Figure 35 Example of grassed bund without a path (Bridge Street Bund) in SNBP (2023)

- The inundation bund in SNBP will be the same design and finish elevation as in Southshore, its location is however set further back in the park as there is more land available and not a risk of a potential impact on neighbouring residents;
- A path will be provided on the bund, but it will be considered a secondary path in SNBP. The bund design will allow for a 3m wide path, but a smaller width may be constructed;
- The primary path in SNBP will be along the coast, generally following the current coastal path. It will go from in front of the Yacht Club along the edge a few meters behind the gabion baskets and cobble beach erosion protection structures before joining the existing path at Jellicoe Marsh. This path will be at ground level;
- The cobble beach will be a similar design concept as at Southshore (Figure 36). The toe will be placed at or behind the current failed edge protection structures. Where large areas of erosion have already occurred, the crest will be placed on the current eroded coastal edge and the toe will be landward of the existing failed structures. The wires in these old gabions will be removed and rocks reused where possible.

Then in areas where less erosion has occurred the toe will sit on the line of the current failed structures to minimise reclamation of the estuary bed;

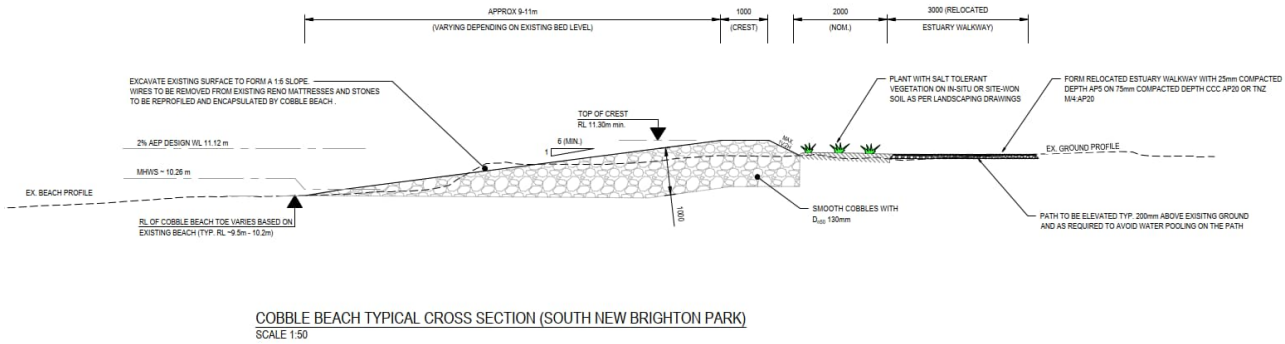


Figure 36 Cobble Beach Typical Cross Section SNBP (reproduced in Appendix C)

- Area of shell middens of archaeological and cultural interest have been identified in SNBP on the Estuary edge. Due to the failed structures these are currently eroding. It is proposed to use gabion basket structures as edge protection in these locations. The intent is to use a structure with a small footprint so disturbance of the middens can be avoided, and reclamation of the estuary bed minimised. The gabion baskets will be located south of the Yacht Club for approximately 180m;
- The gabion will be placed on the excavated bed and constructed to the same 11.3m design height as the crest of the other edge protection structures (Figure 37). The area between the placed gabions and the current eroded edge will be filled; and

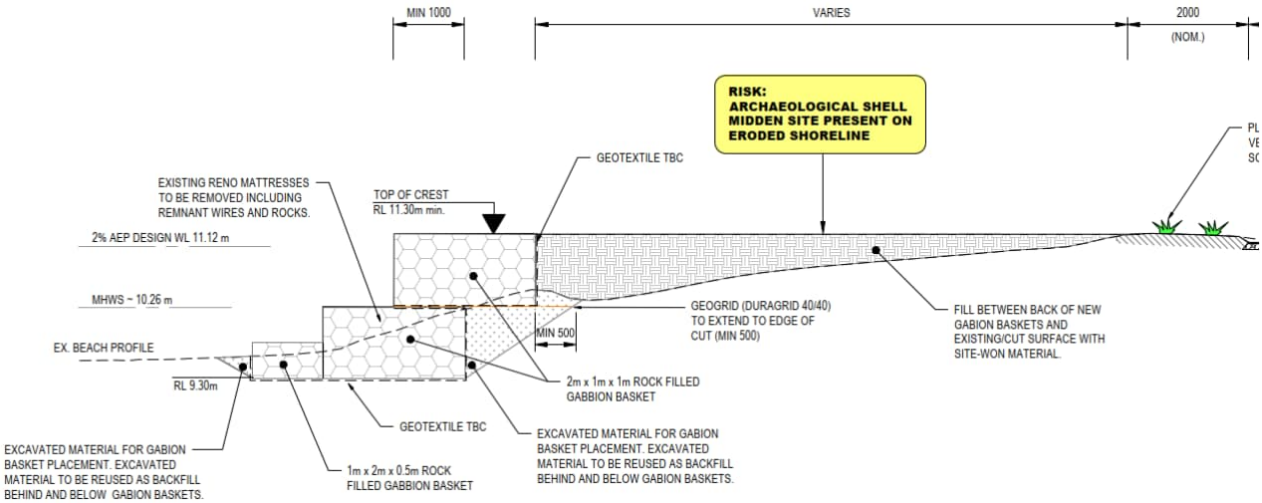


Figure 37 Cross-section of gabion baskets at SNBP (CH0 to CH180)

- In SNBP the removal of the existing structures and placement of new structures will result in a net reclamation of 780m² of estuary bed, comprising a reclamation of 1346m² and a declamation of 566m² (refer to Appendix M).

Overall, across the whole project site (Southshore and SNBP) there is a net <u>declamation</u> of 879m² of estuary bed.

### 4.3.1 South New Brighton Park Landscaping and Access

The Landscaping Master Plan (Appendix E) details the proposed landscaping in SNBP. There is a mix of planting with low growing coastal plants nearer the edge and taller planting further away. The construction of

the proposed structures will lead to a loss of a number of trees across Southshore and SNBP. Forming part of the existing environment from a planning perspective RMA/2021/2059 is operative as a global resource consent enabling tree removals in parks and trees under the District Plan. Council's Tree Policy[13] requires replacement trees lost on a 2 for 1 basis. SNBP is where much of the tree replacement in line with this policy will be achieved. Regarding replacement tree planting. There are 2441 trees proposed for removal as part of the Project and the CCC Tree Policy therefore requires the replanting of a minimum of 4882 trees.

The replacement tree planting is to be carried out as specified in the CSS, Part 7 Landscapes, with at least 24 months establishment.

The proposed Landscape Master Plan for the project exceeds the requirements of the Tree Policy.

The pathways through the park and linkages to other paths are also shown on the landscaping plan, these generally allow for walking through the park and onto existing walkways at either end.

Access to the estuary will not be formally provided as the cobble beach should allow reasonably easy access and the gabion basket section is short. The existing boat ramps outside the project area will not be impacted.

### 4.3.2 South New Brighton Park Additional Design Elements

There are some additional design elements of note for the SNBP area:

- At the southern end near Jellicoe Marsh the cobble beach will tie into a section of retained reno mattresses that are in an acceptable condition. This is to avoid disturbing an area of identified saltmeadow that is located behind the present reno mattress structures;
- Stormwater drainage and existing piped outfalls will be unchanged from the present design and no change to stormwater flows or discharges from these is anticipated; and
- Maintenance access will be provided for council to maintain vegetation and inspect/maintain structures.

## 4.4 Southshore Works General Description

The Southshore design seeks to avoid salt marsh and seagrass habitats in the estuary where practicable. These works involve the following:

- As in SNBP, an inundation bund at a design elevation of 11.5m (Christchurch Drainage Datum) to provide protection in a 50-year return period extreme estuary water level event (Figure 34). The bund will be range in height between 0.3 m and1.0 m above the existing ground level. A shared path will also be provided on top of the inundation bund.
- The inundation bund will be set back approximately 5m from the crest of the erosion protection structures. This is to achieve the community's desire for an alignment near the estuary edge and away from impacts on residential dwellings.
- To ensure viability of the inundation bund over its design life protection of the estuary edge from erosion is required. This is to reduce the risk of erosion of the inundation bund during storms. Provision of erosion protection in Southshore is an integral part of the inundation protection structure.
- Two types of erosion protection structures are proposed, these being the creation of approximately 330m of cobble beach and construction of 1230m of rock revetments along the Estuary edge. The rock revetment is typically steeply sloping (1V:1.5H) and requires excavation into the estuary bed for the toe. By comparison, the cobble beach has a shallower slope (1V:6H) and will generally not involve excavation. The stone material used for the cobble beach will typically be smaller and smoother than for the revetment. Both structure types will have an 11.3m elevation (Christchurch Drainage Datum). These

[13] Available at https://ccc.govt.nz/the-council/plans-strategies-policies-and-bylaws/policies/trees-policies/tree-policy.

options were chosen due to the existing erosion risk environment and current landforms, and seek to achieve the project objective of addressing erosion, ensuring that no more land is lost.

- The cobble beach is a low angle loose rounded cobble stone structure that will be placed with its toe around the current edge of the Estuary, grading back up to its design crest height (Figure 38). The positioning has taken account of the existing salt marsh habitats in front of the cobble beach that the project seeks to avoid impacting. Given the low angle beach shape the cobble beach will have a width of 9-11m on average from the crest to the toe. An example photo of a cobble beach that is currently in place in SNBP is provided in Figure 39).

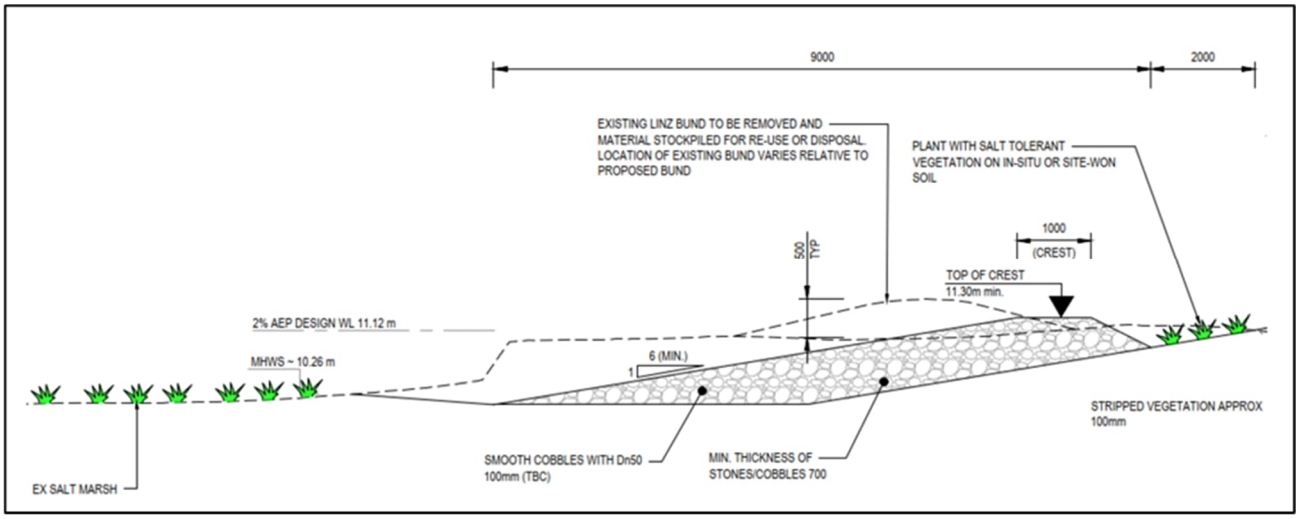


Figure 38 Typical cross-section of cobble beach at Southshore (CH450 to CH800)

Figure 39 Example of cobble beach in SNBP (note cobble size and beach width likely smaller than proposed for the Project (photo taken 2023)

- The rock revetment is a steeper structure made of larger rock material (Figure 40). The original concept sought to encapsulate the existing structures and maintain the current edge location to address erosion. This concept design resulted in the toe of the new structure being generally further into the estuary than the existing failed structures. Due to the presence of seagrass habitats in the Estuary, the rock revetment design has been updated and moved landwards in places so that the toe of the new structure only projects a short way into the Estuary in places and not at all in others. This positioning will avoid impacts on the seagrass habitats. There is some encapsulation of structures, while others will be excavated and removed in order to facilitate the construction of the rock revetments. In general, the creation of the rock revetment requires a small intrusion landward to create the new crest. This generally allows the coastal edge to be maintained as close to the existing structure edge as can be done to meet the project objectives given the other environmental values and constraints. An example photograph of an existing rock revetment in the estuary at McCormacks Bay is in Figure 41. This is a similar style and size to the designs propose at Southshore, though slope angles and rock sizing will vary.

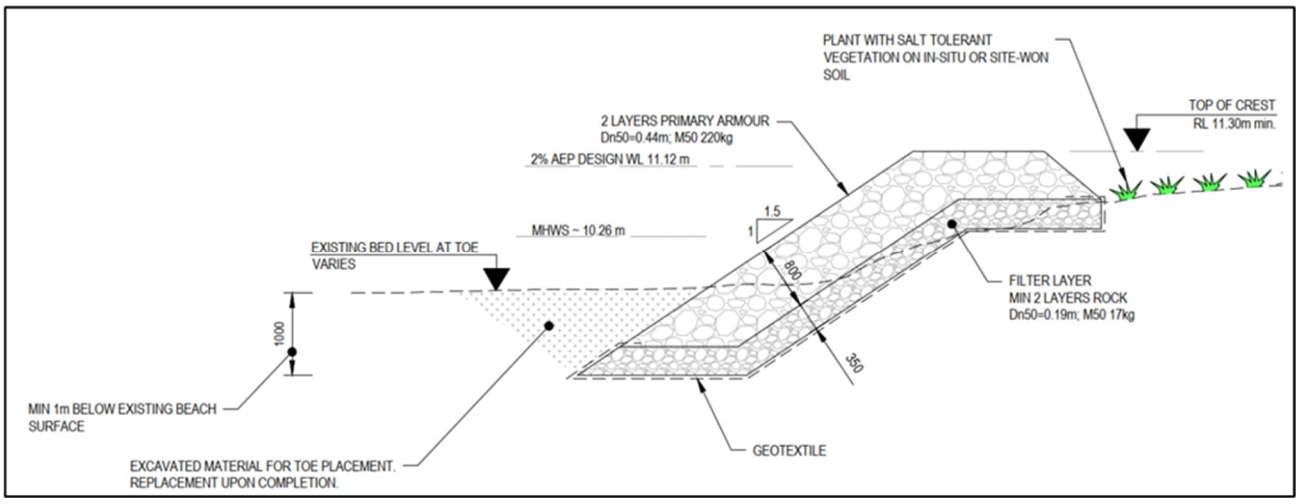


Figure 40 Rock revetment typical cross-section at Southshore (CH0 to CH450)

Figure 41 Example of Rock Revetment style structure - The Causeway at McCormacks Bay in the Estuary (October 2023)

- The new rock revetment structure will occupy some small areas of estuary bed/mudflat (i.e. reclamation) while overall more areas will become available for new mudflat as a result of removing existing failed structures, especially those that protrude further into the estuary (such as old boat ramps). In Southshore, the area of estuary bed removed/replaced by structures is calculated as 480 m².

The area of estuary bed potentially gained from pulling back/removal of structures is 2140 m². This gives a net gain of 1659 m² of extra estuary bed area within Southshore.

Overall, across the whole project site (Southshore and SNBP) there is a resulting net declamation of 879m²of estuary bed.

### 4.4.1 Southshore Landscaping and Access

The Landscaping Master Plan (Appendix E) details the proposed landscaping approach. As already noted, the landscaping footprint is larger than the site footprint as the whole Southshore residential red zone has been included in the landscaping plan. This landscaping plan was developed with inputs from the Trust, SSRA and wider community feedback on a draft.

Key elements include:

- Provision of a coastal edge pathway along the whole length of the area, generally on top of the bund;
- Connections onto this pathway at all existing street ends;
- Closure of some existing ROW accesses (although enhanced access overall);
- Planting of a mix of vegetation types across the area, these include more low-growing plants in the 5m between the erosion protection and inundation bund. The bund itself will either be grassed or have low vegetation on its sides. A mix of planting with areas of taller species and areas or lower planting and areas of grass is provided through the remaining area. Some planting is designed to promote and support local fauna such as lizards;
- Provision of minor community facilities such as a nature-based play space;
- Provision of a viewing platform at Tern Street to allow visual interaction with the landscape; and
- Provision of access into the estuary/over the rock revetments (generally located at road ends). This will be a mix of steps and ramps. The ramps are intended to allow access for small watercraft users who may have hand pulled trolleys (kayaks etc.).

### 4.4.2 Southshore Additional Design Elements

There are some additional design elements of note for the Southshore area:

Specific design at 44a Rocking Horse Road

At this location there is a limited width of land available between the private property and the estuary. At present access is not provided on the Estuary edge and coastal path users must divert onto Rocking Horse Road for a stretch. The proposed design (shown in Figure 42). has removed the separation between the inundation bund and rock revetment to reduce the overall structure footprint. The rock revetment face will also be armoured due to its proximity to the edge and potential wave effects. The pathway has been moved from the bund top and onto the face of the revetment and set at a lower elevation. This was to reduce the visual intrusion on the residents from people using the path. This lower elevation does leave the path more likely to be inundated during higher estuary water levels and therefore more likely to be inaccessible during storms. Multiple alternative options were considered for the edge protection/bund and pathway with this proposed option being the one that balanced all outcomes best.

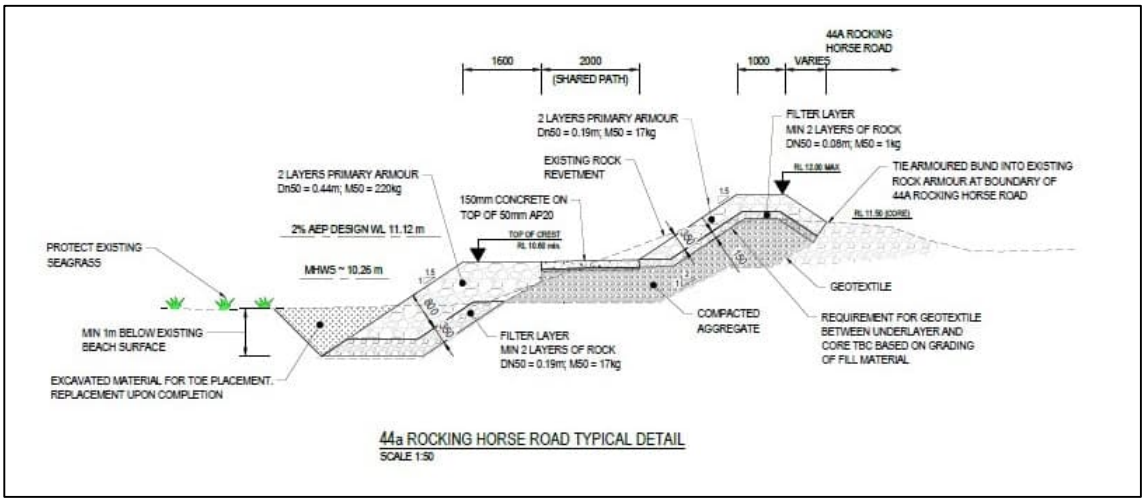


Figure 42 Cross-section 44a Rocking Horse Road

Road ends and parking

The existing road ends at Tern Street, Godwit Street, Penguin Street, Plover Street, Heron Street have already been stopped. The intent generally is to remove the road surface/asphalt and shorten these back to the last property boundary. Parking will be slightly reduced but still be provided at each road end.

Maintenance access

Access for maintenance of the landscaping, the inundation bund and the existing stormwater infrastructure will be provided at each road end. Private vehicle access will not be allowed.

Stormwater management

The proposed works will not alter the existing piped stormwater infrastructure. The existing outfalls will be retained. Minor changes to current stormwater drains will occur when the road ends are removed, and new manholes installed as necessary. Access will be provided to maintain the current stormwater infrastructure including management during flood events which may include pumping from the stormwater network to the estuary as currently occurs.

Ebbtide Street

At Ebbtide Street the erosion protection and bund will tie into the existing combined structure. The road surface of the closed/stopped section of Ebbtide Street will be removed. A swale will be provided to collect, retain and infiltrate stormwater from a small section of Ebbtide Street. There will be no change in the stormwater catchment size or flows and no change to the stormwater discharge outfalls to the estuary.

## 4.5 Construction Methodology

This section documents a likely approach to construction of the features and management of construction related issues, including controls proposed to manage potential adverse effects. An adaptive management plan approach that details controls over specific activities or features of interest. The intent of this section is to provide a good indication of how works would progress while also acknowledging that it is advantageous to have some flexibility of construction approach, within the bounds of that proposed by this section, the management plans and proposed conditions of consent, to allow for contractors to develop efficient construction methodologies once on site.

The construction methodology proposed is described in detail in the Design Report (Appendix D). The methodology describes the Project as a long linear construction project with a common inundation bund design and three erosion protection designs (rock revetment, cobble beach and gabion baskets). The linear nature of the work and the narrow construction corridor will have an influence on the size and type of machinery to be utilised for the project. The methodology also recognises that there are environmental and other constraints that will influence the approach taken to construction.

### 4.5.1 Construction Constraints

The following are identified construction constrains for the construction approach to recognise:

- Sensitive estuary ecosystem - No working outside the construction boundary, nominally 1.5m in front of the finished erosion protection works and no vehicle movements on the estuary bed. All construction to occur landwards of this boundary.
- Sensitive estuary ecosystem - Assumed stringent adherence to conditions around erosion, sediment and dust control.
- Tidal environment will affect working time on the erosion protection works - Assumed no work can be undertaken below the high tide line for 2-hours either side of high tide.

- Tidal environment requires that the Estuary edge is not left without erosion protection during onshore wind events - Assumed that placement of erosion protection progressively follows excavation works to avoid prolonged exposure without erosion protection.
- Inundation bund is generally physically separated from erosion protection works - Assumed the erosion protection and inundation bund work fronts can proceed independently, however, to avoid impeding access for the erosion protection works, this needs to advance ahead of the inundation bund works.
- Progressive advancement of work area - Depending upon the rate of advancement of the works and associated rate of generation of excavated material or usage of imported gravel and rock, it may be advantageous to utilise smaller equipment and utilise smaller secondary stockpiles within the active work area to enable advance delivery of imported gravels and rock and accumulation of excavated material for more efficient disposal.
- Large volumes of imported gravel and rock - Assumed that a local primary stockpile site is provided offsite to avoid community disturbance and enable efficient bulk delivery and storage of gravel and rock, from which smaller trucks more suited to the scale of the work front can source construction material for direct use or placement in interim stockpiles within the active work area/construction footprint. Council has identified an existing area used for stockpiling by previous projects (Figure 43) which could be used for this project without requiring any additional consent approvals. Therefore, assessment of this site is not required or included as part of this AEE.

Figure 43 Potential offsite stockpiling area (Owles Terrace 3km from Project area)

- Large volumes of excavated material requiring disposal - Assumed that material is either excavated and temporarily stockpiled in small stockpiles within the construction boundary prior to being removed for off-site disposal. Contaminated material will be taken directly to an approved disposal facility, in line with the DSI.
- Significant scale of project - Assumed that there will be several work crews and need for a construction compound(s) close to the work area to reduce inefficiency with staff and machinery movements.
- Proximity to residents - Assumed stringent adherence to conditions around working hours and dust management.
- Presence of contaminated ground – Will require advance works during site preparation to better define and to remove and dispose of confirmed contaminated material in a controlled manner.

### 4.5.2 Site Preparation Activities

At the start of or ahead of construction works certain activities will be undertaken as follows:

Lizard Management Activities

As documented in the Lizard Management Plan (attached to the Ecological Impact Assessment (Appendix L) certain works may be required to prepare the areas for lizard exclusion, trapping and habitat in relocation areas.

Erosion, Sediment and Dust Control

Erosion, sediment and dust control measures will be established in accordance with the ESDCP. These will seek to minimise erosion and the risk of sediment moving offsite as either dust or sediment in runoff.

Contaminated Soils Management

The DSI has identified the presence of asbestos fragments and other risks (the chance of coal tar or other accidentally discovered contaminants) that will be managed in accordance with the CSMP authorised under the Council's existing global contaminated land consent. Council has identified the medium-risk CSMP is appropriate under global consent RMA/2021/2094 that is being utilised for contaminated soil management.

In addition to these controls the ESDCP will document additional measures to manage the risk of any known (or accidentally discovered) contaminants in sediment getting eroded from site. The provision of good ESDCP processes is considered the best way to manage the chance of erosion of any contaminated material and its potential movement into the Estuary.

Some of these erosion and sediment control measures will be established early in the site work and be continued throughout the project. There may also be some additional testing of site soils before or in early phases of work to confirm any areas that may require specific management.

### 4.5.3 General Activities

A number of steps will be common across all of the stages of the project. These include:

- Induction of all workers onto the project and site. As a minimum, the induction will cover working in an estuarine environment, ecological matters of significance, and awareness of the management plans applying to the site including all consent requirements and archaeology and contamination risks;
- Establishment of main construction compound, including any offices, ablutions, construction vehicle parking and materials storage, with associated security fencing, hardstand, site access, power and sediment controls. The main construction compound could potentially be located in the Ebbtide Street area for the Southshore site and in the area east of the Yacht Club for the SNBP site. Both these sites are within the construction footprint identified on site drawings;
- Establishment of erosion and sediment controls as per the Erosion, Sediment and Dust Control Plan;
- Establishment of temporary haul road, if required in the Contractors work methodology;
- Establishment of a primary stockpile site offsite, at location noted above or an alternate area as identified and directed by CCC;
- Delivery of gravel and rock materials to primary stockpile(s), with rate of delivery and size of primary stockpile(s) dependent upon quarry supply capacity and the Contractor's rate of use of material;
- Removal of excavated material directly off site, with separate stockpiles for clean and contaminated materials and subsequent consolidated trucking to disposal;
- Establishment of temporary secondary material stockpiles and vehicle parking compounds along the construction corridor, likely close to each road end and used while works are in proximity;
- Demobilise and reinstate temporary secondary material stockpiles once work has progressed and they are no longer required;

- Undertake landscape planting and sowing of grass progressively as erosion protection and inundation bund works in a common work area are complete, maintain until established;
- Demobilise construction compound once all works are complete and reinstate site; and
- Demobilise primary stockpile once all works are complete and reinstate site.

For the programme it is expected that the construction of the inundation bunds will follow the erosion protection works, as this provides greater opportunity for direct placement of material to be re-used. It is also expected that the Contractor will aim to complete the work in sections, likely based around optimising access from each of the road ends, with the result being the progressive completion and planting of the work area.

### 4.5.4 Specific Activities: Erosion Protection – Rock Revetment and Cobble Beach

The following steps will be undertaken in construction of the rock revetment and cobble beach sections:

- Clear identified vegetation for removal and dispose off-site;
- Clear contaminated structures and ground and dispose off-site at an approved facility, if an option for encapsulation on-site cannot be identified and consented;
- Strip topsoil and stockpile along the work corridor for future respreading;
- Excavate Estuary bed to formation levels and place at toe of completed rock revetment sections, otherwise temporarily stockpile adjacent the work area for replacement once rock revetment completed;
- Excavate to formation levels, direct load to truck or temporarily stockpile material adjacent the work area, periodically removing the balance of material not to be re-used to the primary stockpile. If the material is contaminated it will be managed as per the Contaminated Soils Management Plan and Erosion, Sediment and Dust Control Plan;
- Deliver rock and cobbles from primary stockpile to temporary secondary stockpile adjacent the work area;
- Place on geotextiles to design profile (rock revetment only);
- Take rock and cobble from temporary secondary stockpile and place on revetment/cobble beach slope;
- Take Estuary bed material from temporary stockpile, place at toe of completed rock revetment sections and shape to existing estuary bed levels; and
- It is expected that the Contractor will place rock revetment and cobble beach within the tidal zone soon after excavation to avoid the risk of erosion and rework that is likely to occur if the unprotected cut is exposed to tidal action. This will simplify erosion and sediment control requirements and enable continuation of work during high tide.

### 4.5.5 Specific Activities: Erosion Protection – Gabion Baskets

The following steps will be undertaken in construction of the gabion baskets:

- Clear vegetation/debris and dispose off-site;
- Remove existing reno mattresses, including remnant wires and rocks;
- Strip topsoil and stockpile along the work corridor for future respreading;
- Excavate Estuary bed to formation levels and place at toe of completed gabion sections, otherwise temporarily stockpile adjacent the work area for reuse as backfill behind, below, and at the toe of gabion baskets
- Deliver gabion baskets to a site adjacent the work area;
- Place geotextile to design profile and place the lower gabion baskets on the Estuary bed;

- Fill and secure gabion baskets;
- Place estuary bed material from the temporary stockpile as backfill behind the gabion baskets, encapsulating midden on the eroded shoreline;
- Place geogrid and geotextile as per the design cross section, followed by the upper gabion basket; and
- Take the Estuary bed material from the temporary stockpile, place at toe to embed the gabion basket as per the design cross section, as well as behind the crest to achieve a minimum ground elevation of 11.3 m CDD.

### 4.5.6 Specific Activities: Inundation Bund

The following steps will be undertaken in construction of the inundation bund:

- Clear vegetation and dispose off-site;
- Strip topsoil and stockpile along the work corridor for future respreading;
- Excavate existing bund and new bund to formation levels, temporarily stockpile material adjacent the work area, periodically removing material not to be re-used to the primary stockpile;
- Deliver aggregate from primary stockpile to temporary secondary stockpile adjacent the work area, take, place, compact and shape to design profile;
- Take general fill from temporarily stockpiles adjacent the active work area, place, shape and compact to form final inundation bund profile and infill between the erosion protection and the inundation bund;
- Take topsoil from temporarily stockpiles adjacent the active work area, place and level; and
- Take topsoil from temporarily stockpiles adjacent the active work area, place, shape and compact to form final inundation bund shape.

Figure 44 shows a selection of photographs of the staging of construction of the Bridge Street bund that was constructed by Citycare for Council. This bund is a similar design and size to that proposed in SNBP and Southshore.

Figure 44 Example photographs of stages of construction of the Bridge Street inundation bund, which is similar to the proposed Southshore/SNBP bund (source Citycare)

### 4.5.7 Specific Activities: Tern Street Viewing Platform

The Landscaping Master Plan (Appendix E) includes a boardwalk structure with a ramp providing access to the estuary bed at the Tern Street road end. The following steps will be undertaken in construction of the Tern Street Viewing Platform. CCC have confirmed that piles will be untreated recycled hardwood piles.

- No machinery will be located within the estuary;
- Piles will be installed from the bank, with decking installed progressively to allow access further into the estuary as required; and
- No works will be undertaken at high tide.

## 4.5.8 Tree Works and Removal

### 4.5.8.1 Tree Protection

Trees and vegetation that are to be retained in the work corridor will be protected during the works through requiring compliance with the Christchurch District Plan rules, the CCC Tree Policy tree protection requirements, and the Contract Standard Specifications (CSS) Part 1, 22.0 protection of natural assets and habitats. These requirements will be embodied in the preparation and implementation of a Tree Protection Management Plan.

Specific recommendations are included in Section 8 of the Arboricultural Impact Assessment for the works around protected trees to ensure any adverse effects on the trees are either avoided or mitigated.

### 4.5.8.2 Tree Removal

A total of 2,441 trees are proposed for removal. Tree removals are proposed on design conflicts, construction activity conflicts and poor asset condition ratings.

Preparatory works to facilitate the construction of the rock revetments and inundation protection bund will include the removal a number of trees along the Project corridor. Many of the trees along the Southshore portion of the Project are remnant trees from now removed dwellings, and others have existed in the coastal environment for many years.

Treetech have undertaken an assessment of the location of the project and its component parts and have confirmed that trees will be required to be removed from both the Road Corridor (Transport Zone) and the Open Space (Specific Purpose Flat Land Recovery Zone). The trees are generally within an approximately 20-metres wide corridor/envelope inland from the existing coastal edge for the extent of the proposed Erosion Protection and Bund along the Southshore.

For replacement planting please refer to Section 4.3.1.

## 4.5.9 Public Access

There will be no public access to the active work areas. However, given the current public access along the coastal edges provision will be made to allow people to continue to travel through SNBP and Southshore areas, accepting that there will be disruption to people's normal use of the area during construction.

In SNBP access will most likely be provided inland around the work and clearly signed. In Southshore, access will most likely be in the residential red zone between the construction footprint and the residential houses but may at times require detours onto the Rocking Horse Road footpath. Details of access and signage/management of public access around works will be developed by the contractor.

## 4.5.10 Traffic Movements

Section 4 of the Design Report details the volume and scale of heavy vehicles anticipated during construction, summarised below.

- Heavy vehicle movements associated with traffic between the primary stockpile site and active construction areas. These movements are affected by the limitations of coastal works, given the need to undertake activities outside of high tide and will occur in peaks of activity associated with the construction programme. On average 33 heavy vehicle trips between the primary stockpile site and construction sites are expected during each working day. This figure is based on a conservative assessment of fill volumes and truck use efficiency, so it is possible that fewer movements may occur, while some movements may be direct from suppliers and avoid the need to travel via the stockpile site.

- Heavy vehicle movements associated with disposal of materials (e.g., excess fill) from the stockpile site to a disposal location. The preliminary design report estimates that 22 truck movements per day can be expected by this activity.

# 5. Assessment of Alternatives

Schedule 4 of the RMA requires that an assessment of alternatives is undertaken in specific instances, namely:

- *"Where it is likely that an activity will result in any significant adverse effect on the environment, alternative locations or methods for undertaking the activity must be described (Clause 6(1)(a)); and*
- *Where the activity includes the discharge of any contaminant, any possible alternative methods of discharge, including discharge into any other receiving environment must be described (Clause 6(1)(d)(ii)).*"

*Schedule 4 – Clause 6(1)(1)*

As concluded in Section 8 the Project will not result in any significant adverse effects that require assessment of alternative locations or methods under clause 6(1)(a). It is considered appropriate that the permitted baseline is applied to the current application, given that the Project will be undertaken within an established brownfield location. The Project area has been subject to historic development, including coastal protection works and open space improvements. There are numerous positive effects of the Project that provide significant positive impacts particularly culturally, amenity and landscape improvements. The majority of the existing infrastructure is dilapidated, and the proposed activities of the Project represent a positive step change for the wider Project area. An adaptive environmental management plan framework is put forward as part of this consent to manage both the construction and operational phases of the Project. This will ensure that at each stage of the Project the environmental impacts are appropriately avoided, remedied and mitigated. Overall, after recognising the context of the receiving environment and the nature of the existing infrastructure, as well as taking into account the proposed positive effects of the Project and the proposed construction methodology, the effects of the proposal are considered to be no more than minor. As such, it is considered that an assessment of alternatives under Clause 6(1)(a) is not necessary.

*Schedule 4 – Clause 6(1)(d)(ii)*

This requirement aligns with the requirement under section 105 of the RMA, under which the consent authority in considering an application for a discharge or coastal permit must, in addition to the matters in section 104(1), have regard to any possible alternative methods of discharge, including discharge into any other receiving environment.

Discharges are appropriately managed for the Project as described in Section 8.7 – Section 8.9. Proposed construction controls (e.g. only working from the bank top and around the tide) are provided as conditions of consent for the Project. Furthermore, an adaptive management framework is proposed including a CEMP and ESDCP and the proposed conditions of consent provide appropriate mitigation of any potential adverse effects of discharges into the coastal environment during construction phase activities. Given that inundation and erosion protection works are necessitated to occur on the Estuary edge, it is considered that there is no alternative method of discharge during the construction phase activities and there is no alternative receiving environment available.

Overall, it is considered that any discharges that may occur into the coastal environment are appropriately managed by the controls put forward in Section 8 of this application.

# 6. Reasons for Consent

There are a number of resource management regulations that the Project is subject to. These include District and Regional Plans and National Environmental Standards. These planning regulations contain the relevant rules under which resource consents are required for the Project. The following sections identify the relevant provisions from each of the relevant Plans and National Environmental Standards, as well as identifying the overall activity status for the project under each Plan.

## 6.1 National Environmental Standards for Freshwater

The Resource Management (National Environmental Standards for Freshwater) Regulations 2020 (NES-F) and the subsequent amendments regulations (No 2) 2022 regulate activities that pose risks to the health of freshwater and freshwater ecosystems. Anyone carrying out these activities will need to comply with the standards. The regulations came into effect on 3 September 2020. The NES-F was amended in 2022 and the amended regulations came into force on 5 January 2023.

The standards are designed to:

a) Protect existing inland wetlands;

b) Protect urban and rural streams from in-filling;

c) Ensure connectivity of fish habitat (fish passage);

d) Set minimum requirements for feedlots and other stockholding areas;

e) Improve poor practice intensive winter grazing of forage crops;

f) Restrict further agricultural intensification until the end of 2024; and

g) Limit the discharge of synthetic nitrogen fertiliser to land and require reporting of fertiliser use.

### 6.1.1 Specified Infrastructure

The proposed works have been designed and the application predicated on the fact that the proposed works are specified infrastructure in terms of the NPS-FW and the NPS-IB. This is addressed below.

The objective of the Project is to provide a level of coastal hazard protection that was present along the Southshore and SNBP estuary edge prior to the CES. This is specifically an earthquake legacy project and is separate to any longer-term adaptation planning.

The Project involves two interrelated elements of coastal hazard works that form this earthquake legacy Project. The first element is inundation protection via the installation of a flood protection bund offset approximately 5m from the line of MHWS, to provide principal protection to both public and private infrastructure from inundation. This is set to a design reduced level ('RL') of 11.5m. The flood protection bund is designed to provide approximately 330mm of freeboard above the 50-year return period extreme water level in the Estuary.

The second element is erosion protection works predominantly at the line of MHWS to minimise the impacts of erosion, so as to protect the integrity of the flood protection bund. The erosion protection works are set to a design RL of 11.3m. The erosion protection works are designed to stop any overtopping for the current 50-year return period of extreme water level in the estuary, as well as providing protection for the same period wave conditions, and thus preventing flooding and water getting in behind the erosion protection structures and impacting the integrity of the flood protection bund.

Together, the inundation and erosion protection work form the coastal hazard protection package as part of this earthquake legacy project.

Ecological mapping has identified that the original proposed design encroaches upon existing areas of saltmeadow (above the line of MWHS). The Project team considers that these habitats meet the definition of 'natural inland wetland' under the NES-F (noting that saltmarsh and seagrass habitats below the line of MWHS are excluded from the NES-F). A 'wetland' is defined by the Act, being the RMA, as:

*wetland includes permanently or intermittently wet areas, shallow water, and land water margins that support a natural ecosystem of plants and animals that are adapted to wet conditions*

A conservative approach to the definition of 'natural inland wetland' for saltmeadow has been applied for the purposes of this AEE. A conservative approach ensures that anything that may be defined as a 'natural inland wetland' is captured. As such, it is assumed that the areas of saltmeadow identified have the requisite hydrological regime to be considered a wetland on the basis that they support a qualifying natural ecosystem.

The design of the rock revetments has been undertaken to ensure that the construction and occupation of structures avoid the habitats of salt marsh and seagrass. However, although the saltmeadow areas are considered to be a wetland, consents is required for the removal of some of these areas as it is not possible to retain them all and construct the project, which is considered to be specified infrastructure. It is noted that the construction of specified infrastructure is provided for under Regulation 45 of the NES-F. Regulation 45 provides for earthworks, land disturbance and water diversions within a wetland as a discretionary activity if the activity is for the purpose of constructing 'specified infrastructure'.

Regulation 3 of the NES-F defines 'specified infrastructure' by reference to the NPS-FW definition, reproduced below: Specified infrastructure means any of the following:

*(a) infrastructure that delivers a service operated by a lifeline utility (as defined in the Civil Defence Emergency Management Act 2002)*

*(b) regionally significant infrastructure identified as such in a regional policy statement or regional plan (c) any public flood control, flood protection, or drainage works carried out:*

*(i) by or on behalf of a local authority, including works carried out for the purposes set out in section 133 of the Soil Conservation and Rivers Control Act 1941; or*

*(ii) for the purpose of drainage by drainage districts under the Land Drainage Act 1908*

Lifeline Utility

The Project is not for infrastructure that delivers a service operated by a lifeline utility under the Civil Defence Emergency Management Act as described in clause (a) of the definition of 'specified infrastructure'.

Regionally Significant Infrastructure

For the Canterbury region, regionally significant infrastructure is defined in the Canterbury Regional Policy Statement (RPS). The RPS defines regionally significant infrastructure by listing 15 different activity categories. It is the opinion of the Project team that coastal hazard works do not fit the prescribed activities listed in the RPS.

The Regional Coastal Plan for the Canterbury Region does not define 'regionally significant infrastructure'.

The CLWP defines 'nationally and regionally significant infrastructure as including but not limited to infrastructure for activities recognised by a National Policy Statement as being nationally significant. The Project is not an activity recognised as being nationally significant in a National Policy Statement, including the NZCPS. The Project team do not consider the CLWP provides any further determination on regionally significant from what is provided for in the RPS.

For these reasons the Project team do not consider the Project to be 'regionally significant infrastructure' as identified in a regional policy statement or regional plan. Therefore, the Project does not fit under the definition of (b) of 'specified infrastructure' under the NES-F.

Public flood control or flood protection carried out by or on behalf of a local authority

The Project involves two interrelated elements that form the coastal hazard protection works. The principal element of coastal hazard protection is an inundation protection bund. As this work is carried out by the Council it is covered by clause (c) of the definition of 'specified infrastructure', as the inundation bund includes works specifically providing for the establishment of flood control/protection that is carried out on or on behalf of the local authority (CCC).

The flood protection bund provides the principal protection for public and private infrastructure and is designed to provide approximately 330mm of freeboard above the 50-year return period extreme water level in the estuary.

It is considered that the erosion protection is an integral ancillary (secondary) element of the coastal hazard protection works. The coastal erosion works provide essential support to the inundation bund to provide a first line of defence at the line of MHWS to protect the integrity of the inundation bund. The coastal erosion works provide the following functions:

- Erosion protection structures protect the shoreline behind the erosion structures scouring and eroding further. Not preventing further erosion of the shoreline would compromise the structural integrity of the flood protection bund;
- The erosion protection structures act as a first line of defence and stop any overtopping for the current 50-year return period of extreme water level in the estuary, as well as providing protection for the same period wave conditions; and
- Accounting for sea level rise, erosion protection is required to protect the integrity of the flood protection bund until a more definitive solution is reached on longer-term adaptation and risk mitigation measures.

Having considered the above, it is considered that the coastal hazards work (including both the inundation bund providing principal inundation protection and erosion structures providing ancillary protection to the bund) meet the definition of 'specified infrastructure'. This is the premise upon which these applications have been prepared, and as such the following activities would incur a discretionary status under Regulation 45 of the NES-F:

- Earthworks to disturb some areas of saltmeadow (as a natural wetland) for the purpose of constructing specified infrastructure;
- Earthworks within a 10 m setback from seagrass and salt marsh (as natural wetlands) for the purpose of constructing specified infrastructure; and
- The diversion and discharge of water within a 100m setback from salt marsh, seagrass (as natural wetlands) for the purpose of constructing specified infrastructure.

Confirmation on this approach has already been sought on this matter specifically from ECan. Agreement on this matter is provided for in Appendix O.

### 6.1.2 Consenting Requirements under the NES-F

Table 10 identifies the consenting requirements under the NES-F for the Project:

Table 10 Consenting Requirements Under the NES-F

| Activity | Rule | Activity Status | Comment |
|---|---|---|---|
| Vegetation clearance within, or within a 10 m setback from a natural wetland | Regulation 45(1) | Discretionary | Relates to all project activities within, or within 10 m setback from a natural inland wetland (saltmeadow habitats only). |

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| Earthworks within, or within a 10 m setback from a natural wetland | Regulation 45(2) | Discretionary | Relates to all project earthworks within, or within 10 m setback from a natural inland wetland (saltmeadow habitats only). |
| Discharge of water within, or within a 100 m setback from, a natural wetland | Regulation 45(5) | Discretionary | Discharges relate to any construction-phase stormwater that applies to this Project within 100 m setback from a natural inland wetland (saltmeadow habitats only). |

Overall, consent is required under the NES-F as a discretionary activity.

## 6.2 National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS)

The Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 ensure that land affected by contaminants in soil is appropriately identified and assessed before it is developed - and if necessary the land is remediated or the contaminants contained to make the land safe for human use.

A review of the NES-CS has identified that the proposed works include some areas that are subject to contamination (e.g. from asbestos identified in the soil), and the following consents are required:

Table 11 NES-CS Regulations

| Activity | Rule | Activity Status | Comment |
|---|---|---|---|
| Works on land that is not permitted or controlled, and a DSI exists | Regulation 10(2) | Restricted Discretionary | Councils NESCS consent (RMA/2021/2094, CCC Global NESCS.<br><br>Consent) can be utilised to address the NESCS consenting requirement for this project. A CSMP is required under the consent to outline measures to mitigate risks to human health and environmental effects of earthworks, provide procedures for construction contractors to following the event that unexpected contamination is encounters during the works and set out general earthwork's controls, disposal requirements and management of soil during the groundworks phase. Council have identified the medium risk CSMP is appropriate. |

Although the proposal would ordinarily trigger the need for a consent under the NES regulations, in this case the Council holds a global resource consent for works involving contaminated land, and will undertake the works in accordance with conditions of that consent.

## 6.3 Canterbury Land and Water Regional Plan

The purpose of the CLWRP is to identify the resource management outcomes or goals (objectives in this Plan) for managing land and water resources in Canterbury of the RMA. It identifies the policies and rules needed to achieve the objectives, and provides direction in terms of the processing of resource consent applications.

Table 12 identifies the consenting requirements under the CLWRP for the Project:

Table 12 Consenting Requirements Under the CLWRP

| Activity | Rule | Provision | Status |
|---|---|---|---|
| Discharge of construction-phase stormwater | 5.94A | The discharge of construction-phase stormwater, other than into or from a reticulated stormwater system, to a surface waterbody, or onto or into land in circumstances where a contaminant may enter groundwater or surface water, is a permitted activity, provided the following conditions are met: | Permitted activity (if construction phase stormwater can follow the activity standards. |
| | | 1.The area of disturbed land from which the discharge is generated is less than:<br>a.1000m2 for any construction-phase stormwater generated as a result of work carried out in an area shown as High Soil Erosion Risk on the Planning Maps; or<br>b. two hectares in any other location; and | The work is to be completed in a linear manner and is not expected to result in more than 2ha in area of land being disturbed at any point in time. |
| | | 2.The concentration of total suspended solids in the discharge shall not exceed:<br>a. 50g/m3 where the discharge is to any spring-fed river, Banks Peninsula river, or to a lake except when the background total suspended solids in the waterbody is greater than 50g/m3 in which case the Schedule 5 visual clarity standards shall apply; or<br>b. 100g/m3 where the discharge is to any other river or to an artificial watercourse except when the background total suspended solids in the waterbody is greater than 100g/m3 in which case Schedule 5 visual clarity standards shall apply; and | N/A |
| | | 3. The discharge does not result in an increase in the flow in the receiving waterbody at the point of discharge of more than 1% of a flood event with an Annual Exceedance Probability of 20% (one in five year event); and | N/A<br>Stormwater will be managed through the ESDCP to manage |

| Activity | Rule | Provision | Status |
|---|---|---|---|
| | | 4. The discharge is not from, into or onto contaminated or potentially contaminated land; and<br><br>5.The discharge does not contain any hazardous substance; and<br><br>6.The discharge does not occur within a Community Drinking-water Protection Zone as set out in Schedule 1. | any potential stormwater from contaminated areas that may be affected.<br><br>The discharge will not contain any hazardous substances.<br><br>The discharge does not occur within a community drinking water protection zone.<br><br>Construction-phase stormwater may proceed as a permitted activity if the discharge is not from potentially contaminated land. Stormwater will be managed through the ESCP to manage any potential stormwater from contaminated areas that may be affected. |
| Excavation and deposition over aquifers | 5.175 | The use of land to excavate material is a permitted activity, provided the following conditions are met:<br><br>1 .Over the Coastal Confined Gravel Aquifer System, as shown on the Planning Maps: a. there is more than 1 m of undisturbed material between the deepest part of the excavation and Aquifer 1; and<br>b. if more than 100 m3 of material is excavated, the excavation does not occur within 50 m of any surface waterbody; or | Permitted activity (if the standards can be met – NB a surface water body does not include water in the sea).<br><br>Aquifer 1 sits at a depth of 141 m at the nearest measuring bore log for aquifer testing on Estuary Road (BX24/1210). There are no nearby surface water bodies. |
| Site dewatering | 5.119 | 5.119 The taking of water from groundwater for the purpose of dewatering for carrying out excavation, construction, maintenance and geotechnical testing and the associated use and discharge of that water is a permitted activity, provided the following conditions are met:<br>1. The take continues only for the time required to carry out the work but the take shall not last for a period exceeding 6 months; and<br>2. The take or discharge is not from, into, or onto contaminated or potentially contaminated land; and | No dewatering is anticipated to be required. |

| Activity | Rule | Provision | Status |
|---|---|---|---|
| | | 3. The take does not lower the groundwater level more than 8 m below the ground level of the site or cause subsidence of any other site; and<br>4. The take does not have a moderate, high or direct stream depletion effect on a surface waterbody, determined in accordance with Schedule 9, unless the abstracted groundwater is being discharged to the surface waterbody to which it is hydraulically<br>connected; and<br>5. An assessment of interference effects, undertaken in accordance with Schedule 12, does not show that any community, group or private drinking-water supply bore will be prevented from taking water; and<br>6. At the point and time of any discharge to surface water, the rate of flow in the river or artificial watercourse is at least five times the rate of the discharge; and<br>7. The concentration of total suspended solids in any discharge to a surface waterbody does not exceed:<br>(a) 50g/m3 where the discharge is to any Spring-fed river, Banks Peninsula river, or to a lake or wetland; or<br>(b) 100 g/m³ where the discharge is to any other river or to an artificial watercourse;<br>and<br>8. The discharge after reasonable mixing with the receiving waterbody meets the visual clarity standards in Schedule 5; and<br>Canterbury Land and Water Regional Plan<br>9. The point of discharge is not within a Community Drinking-water Protection Zone as set out in Schedule 1. | |

Overall, it is considered that there are no consent triggers under the CWLRP. If ECan take an alternative view, the Council hold a number of global consents that may be applicable for this Project.

## 6.4 Canterbury Air Regional Plan

The Canterbury Air Reginal Plan seeks to manage discharges to air in the best practicable manner. Its principal purpose is to maintain air quality where it provides for people's health and cultural wellbeing, or to improve it if it does not, whilst recognising the investment in, and significant contribution to the economy and social wellbeing of Canterbury of industrial and trade activities that discharge into air.

Table 13 identifies the consenting requirements under the CARP for the Project:

Table 13 Consenting Requirements Under the CARP

| Activity | Rule | Provision | Comment |
|---|---|---|---|
| Discharge of Dust | 7.32 | The discharge of dust to air beyond the boundary of the property of origin from the construction of buildings, land development activities, unsealed surfaces or unconsolidated land, is a permitted activity provided the following conditions, where applicable, are met:<br><br>1. The building to be constructed is less than 3 stories in height, or where the building is greater than 3 stories in height, a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and<br><br>2. The area of unsealed surface or unconsolidated land is less than 1000m2, or where the area of unsealed surface or unconsolidated land is greater than 1000m2 a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and<br><br>3. The discharge does not cause an offensive or objectionable effect beyond the boundary of the property of origin, when assessed in accordance with Schedule 2. | Permitted Activity.<br><br>The proposed works will require an area of unsealed surface greater than 1000m$^{2,}$ which will include any areas used for stockpiling.<br><br>An ESDCP will be prepared for the works in accordance with Schedule 2 of the CARP.<br><br>The discharge will not cause an offensive or objectionable effect beyond the boundary of the property of origin when appropriately managed in accordance with the ESDCP. |
| Discharge of contaminants to air from handling of bulk solid materials | 7.35 | The discharge of contaminants into air from the handling of bulk solid materials is a permitted activity provided the following conditions are met:<br><br>1. The discharge of dust does not cause an offensive or objectionable effect beyond the boundary of the property of origin, when assessed in accordance with Schedule 2; and<br><br>2. The handling occurs indoors, or where the handling occurs outdoors the rate of handling does not exceed 100t per hour; or<br><br>3. Where handling occurs outdoors on less than 21 days per calendar year, the rate of handling does not exceed 250t per hour; and<br><br>4. Where the handling occurs outdoors and the rate of handling exceeds 20t per hour, a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and<br><br>5. The dust management plan is supplied to the CRC on request; and | Permitted Activity.<br><br>Bulk solid materials will be those required for the construction of the rock revetments and the creation of the bund.<br><br>The proposed works will comply with the limitations of this rue, and a Dust Management Plan will be prepared as part of the ESCDP required for the Project. |

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| | | 6. The discharge does not occur within 200m of a sensitive activity, wāhi tapu, wāhi taonga or place of significance to Ngāi Tahu that is identified in an Iwi Management Plan; and<br>7. Notwithstanding condition 6, where the discharge is from production blasting at a quarry site the discharge does not occur within 500m of a sensitive activity wāhi tapu, wāhi taonga or a place of significance to Ngāi Tahu that is identified in an Iwi Management Plan. | |
| Outdoor storage of bulk solid materials | 7.36 | The discharge of contaminants into air from the outdoor storage of bulk solid materials is a permitted activity provided the following conditions are met:<br>1. The discharge of dust does not cause an offensive or objectionable effect beyond the boundary of the property of origin, when assessed in accordance with Schedule 2; and<br>2. The amount of material stored does not exceed 1000t when it has an average particle size of less than 3.5mm; and<br>3. Where the storage exceeds 200t, a dust management plan is prepared in accordance with Schedule 2 and implemented by the person responsible for the discharge into air; and<br>4. The dust management plan is supplied to the CRC on request; and<br>5. The discharge does not occur within 100m of a sensitive activity, wāhi tapu, wāhi taonga or place of significance to Ngāi Tahu that is identified in an Iwi Management Plan. | Permitted Activity.<br>Storage of bulk materials, including rock for the estuary erosion protection works and materials for the bund will not give rise to adverse effects beyond the boundary of the project site.<br>The proposed works will comply with the limitations of this rue, and a Dust Management Plan will be prepared as part of the ESCDP required for the Project. |

Overall, it is considered that there are no consent triggers under the CARP.

## 6.5 Regional Coastal Environment Plan for the Canterbury Region

The Regional Coastal Environmental Plan for the Canterbury Region (RCEP) aims to promote the sustainable management of the natural and physical resources of the Canterbury coastal environment.

Table 14 identifies the consenting requirements under the RCEP for the Project:

Table 14 Consenting Requirements under the RCEP

| Activity | Rule | Provision | Status |
|---|---|---|---|
| Discharge of water into water in Coastal Marine Area | 7.1a | Except as provided for by paragraph (b) or (e) of this Rule, the discharge of water, into water, or onto or into land in the Coastal Marine Area, is a Permitted Activity; provided that the discharge, disregarding the effect of any natural perturbations that may affect the receiving water: | The discharge of water associated with any earthworks into the CMA must comply with the standards identified to |

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| | | i. shall not result in any scouring or erosion of the foreshore or seabed that is not erased by wind, tidal or wave action within 24 hours; and<br><br>ii. shall not give rise to any of the following effects in the Coastal Marine Area further than 20 metres in any direction from the point of the discharge:<br>1. within areas classified as Coastal AE water or Coastal CR water: the colour of the receiving water shall not change by greater than ten points, as measured using the Munsell Scale, and the visual clarity of the receiving water shall not be reduced by greater than 33%;<br>within any other area: the colour of the receiving water shall not change by greater than five points, as measured using the Munsell Scale, and the visual clarity of the receiving water shall not be reduced by greater than 20 %; or<br>2. any emission of objectionable odour; or<br>3 any reduction in the concentration of dissolved oxygen in the receiving water to less than 80% of saturation; or<br>4 any change by more than 3º Celsius in the natural temperature of the receiving water or any change that causes it to exceed 25 o Celsius | continue as a permitted activity.<br>It is unlikely that the discharge of water into the CMA for any management option will result in scouring or erosion of the foreshore or seabed.<br><br>The Estuary is in Coastal AE water. There will be no direct discharge to the coastal waters and there will be no change to the colour or visual clarity of the receiving water.<br>The colour, temperature and dissolved oxygen concentration of the discharged water is not expected to change the receiving environment to the levels attached to these standards.<br>There will be no direct discharge of water in the coastal waters. Erosion and sediment controls will manage any potential discharges.<br>Overall, these conditions will be complied with and any discharge of water to water is therefore considered to be a permitted activity. |
| Discharge of stormwater | 7.1b | Except as provided for by paragraph (e), the discharge of stormwater into water, or onto or into land in the Coastal Marine Area is a Permitted Activity, provided that the discharge, disregarding the effect of any natural perturbations that may affect the receiving water:<br>i. shall not result in any scouring or erosion of the foreshore or seabed that is not erased by wind, tidal or wave action within 24 hours; and<br>ii. shall not give rise to any of the following effects in the Coastal Marine Area, in any direction from the point of the discharge, and further than the greater of 100 metres, or 100 times the average internal diameter of the outfall pipe being used, or 100 times the average width of the open culvert or drain being used: | The discharge of stormwater associated with any earthworks into the Coastal Marine Area must comply with the standards identified to continue as a permitted activity.<br><br>The Estuary area is in Coastal AE water. Any discharges will not breach the relevant standards.<br><br>The colour, temperature and dissolved oxygen concentration of the discharged water is not expected to change the |

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| | | 1 the production of suspended materials; or<br>2 within areas classified as Coastal AE water or Coastal CR water: a change in the colour of the receiving water by greater than ten points, as measured using the Munsell Scale, or a reduction in the visual clarity of the receiving water by greater than 50%;<br>3 within any other area: a change in the colour of the receiving water by greater than five points, as measured using the Munsell Scale, or a reduction in the visual clarity of the receiving water by greater than 20%; and<br>iii. shall not give rise to any of the following effects in the Coastal Marine Area, in any direction from the point of the discharge, and further than the greater of 20 metres, or 20 times the average internal diameter of the outfall pipe being used, or 20 times the average width of the open culvert or drain being used:<br>1. the production of conspicuous oil or grease films, scums or foams, or floatable materials; or<br>2. any emission of objectionable odour; or<br>3. any reduction in the concentration of dissolved oxygen in the receiving water to less than 80% of saturation; or<br>4. any change by more than 3 o Celsius in the natural temperature of the receiving water or any change that causes it to exceed 25 o Celsius; or<br>5. other than in the Operational Area of a Port, any increases in the concentrations of the dissolved fractions of the following metals in the receiving water, measured after filtering a sample through an acid-washed 0.45 micron filter, to more than the following concentrations:<br>Arsenic 50 mg per cubic metre<br>Cadmium 2 mg per cubic metre<br>Chromium 50 mg per cubic metre<br>Copper 5 mg per cubic metre<br>Lead 5 mg per cubic metre<br>Nickel 15 mg per cubic metre<br>Zinc 50 mg per cubic metre; or | receiving environment to the levels attached to these standards.<br><br>Any discharge of stormwater from the project site will comply with these standards and is therefore considered to be a permitted activity. |

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| | | (iv) other than in the Operational Area of a Port, any increase in the BOD 5 of the receiving water measured after filtration through a GF/C filter, to more than 2 g per cubic metre. | |
| Discharge of sediment already present in the foreshore or seabed | Rule 7.1e | The discharge into water, or onto or into land in the Coastal Marine Area of sediment already present in, on, under, the foreshore or seabed is a Permitted Activity where the discharge is the result of the disturbance of the sediment:<br>i. through any erection, reconstruction, placement, alteration, extension, removal or demolition of a structure that is authorised as a Permitted Activity by Rule 8.1, or granted a resource consent in accordance with Rules 8.2, 8.3, 8.4 or 8.5; or<br>ii. authorised as a Permitted Activity by Rule 8.7, or granted a resource consent in accordance with Rules 8.8 or 8.9. | The discharge of existing sediment already present is permitted where authorised by these standards.<br><br>This provision applies for these works and can proceed as a permitted activity. |
| Removal of Structures | Rule 8.1f | The removal or demolition of any structure or part of any structure, by or on behalf of the owner of the structure, provided that:<br><br>i. all materials removed from the structure or part of the structure, other than materials used in the remaining part of the structure or in other structures, shall be removed from the Coastal Marine Area; and<br><br>ii. for wharves, jetties, piled structures or buildings, Environment Canterbury shall be advised in writing at least twenty working days prior to work commencing, if the structure is to be completely removed from the Coastal Marine Area; and<br><br>iii. the structure is not listed in Schedule 5.12 as a Protected Recreational, Cultural or Historic Structure. | The removal or demolition of any structure remains permitted provided that all materials are removed, other than materials used in the remaining part of the structure.<br><br>ECan shall be advised in writing at least twenty working days prior to work commencing if the structure is to be completely removed from the CMA. |
| The erection or placement of structures within an Area of Significant Natural Value | 8.4c | The following are Non-Complying Activities in, on, under, or over any foreshore or seabed:<br><br>and the erection or placement of a structure within an Area of Significant Natural Value or within an area listed in Schedule 5.13. This shall not apply to:<br><br>i. a structure allowed as a Permitted Activity by Rule 8.1; or<br>ii. a structure controlled by Rule 8.2 or Rule 8.5; or | The erection of structures within the Estuary as an area of Significant Natural Value is a non-complying activity. |

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| | | iii. a marine farm structure that was authorised prior to 16 May 2001; or<br>iv. the erection or placement of a structure or structures undertaken for the purpose of maintaining, repairing, or protecting network utility infrastructure. | |
| Disturbance of foreshore and seabed | 8.6i | The following activities involving disturbance of any foreshore or seabed, (including by excavating, drilling, or tunnelling), including removal of sand, shingle, shell, or other natural material, are Permitted Activities:<br><br>Any disturbance of the foreshore or seabed or the removal of material, outside an Area of Significant Natural Value, that is not authorised as a Permitted Activity by paragraphs (a) to (g) of this Rule, provided that:<br>i. no more than one cubic metre of material shall be disturbed or removed by any person in any 24 hour period; and<br>ii. no more than five cubic metres of material shall be disturbed or removed by any person in any 12 month period; and<br>iii. no more than half a cubic metre of boulders or shell shall be disturbed or removed by any person in any 24 hour period; and<br>iv. no motorised excavation machinery or explosives shall be used to disturb or remove sand, shingle, shell, or other natural material; and<br>v. no motorised vehicles shall be used to remove sand, shingle, shell, or other natural material in circumstances where the operation of a motorised vehicle is a Discretionary Activity in accordance with Rule 8.21; and<br>vi. evidence of the disturbance or removal is erased by wind, tidal or wave action within 24 hours to conform to the natural state pertaining in the area before the activity permitted by this rule commenced and<br>vii. the disturbance does not occur within a Protected Recreational, Cultural or Historic Site listed in Schedule 5.12. | Earthworks required to replace the failed gabion baskets and other structures will exceed the 1 $m^3$ and 5$m^3$ triggers. |
| Disturbance of foreshore and seabed | 8.9 | Any disturbance of the foreshore or seabed by any person, (including by excavating, drilling, or tunnelling), or any removal of sand, shingle, shell, or other natural material, by any person; is a Non Complying Activity where the disturbance or removal:<br>a. is within an Area of Significant Natural Value; and<br>b. is not Maintenance Dredging, or authorised as a Permitted Activity by Rule 8.6, or | The disturbance of the seabed and foreshore is occurring in an area of Significant Natural Value and is a non-complying activity. |

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| | | provided for by Rule 8.10; and<br>c. involves, in any twelve month period, more than 100 cubic metres of material.<br>This rule shall not apply to disturbances undertaken for the purpose of maintaining, repairing, or<br>protecting network utility infrastructure. | |
| Deposition of any substance on, or under any Foreshore or Seabed | Rule 8.11 | Permitted Activities<br><br>The deposition in, on or under any foreshore or seabed of sediment, sand, shingle, shell or other natural material from the foreshore or seabed that occurs contemporaneously with and is directly associated with any erection, reconstruction, placement, alteration, extension, removal or demolition of a structure or that occurs contemporaneously with and is directly associated with any disturbance of the foreshore or seabed, is a Permitted Activity provided that:<br><br>i. the erection, reconstruction, placement, alteration, extension, removal or demolition of the structure or the disturbance of the foreshore or seabed is authorised as a Permitted Activity in accordance with Rules 8.1 or 8.6; or is authorised by a resource consent in accordance with Rules 8.2, 8.3, 8.4, 8.5, 8.7, 8.8 or 8.10; and<br>ii. outside the Operational Area of a Port, no more than five cubic metres of material shall be deposited by any person in any twelve month period; and<br>iii. within the Operational Areas of Timaru Port, no more than 50 cubic metres of material shall be deposited by any person in any twelve month period; and<br>iv. the deposition shall not take place within an Area of Significant Natural Value. | The deposition of material cannot proceed as a permitted activity as it is taking place within an area of Significant Natural Value. |
| Deposition of any substance on, or under any Foreshore or Seabed | 8.14 | Except as authorised as a Permitted Activity by Rule 8.11, or provided for by Rule 8.15; the deposition by any person of more than 100 cubic metres of any material on the foreshore or seabed at any site within an Area of Significant Natural Value, in any twelve month period, is a Non-Complying Activity.<br>This rule shall not apply to depositions undertaken for the purpose of maintaining, repairing, or protecting network utility infrastructure; or to the deposition of dredged material by or on behalf of the Lyttelton Port Company within the spoil dumping grounds in Lyttelton Harbour/Whakaraupo shown in Map 5.5 | More than 100 m³ will be deposited on the foreshore, particularly at Southshore for the offshore breakwater. This is a non-complying activity. |

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| Occupation of CMA | 8.23 | Except as provided for by Rules 8.22, 8.24 or 8.25; the occupation of the Coastal Marine Areas is a Discretionary Activity. | The enduring occupation of structures in the CMA is a discretionary activity. |
| Reclamation | 8.28 | Except as provided for by Rule 8.29, any reclamation of foreshore or seabed within an Area of Significant Natural Value is a Non-Complying Activity where that reclamation involves the deposition of more than 100 cubic metres of material on the foreshore or seabed.<br>This rule shall not apply to reclamations undertaken for the purpose of maintaining, repairing, or protecting network utility infrastructure | More than 100m$^3$ of estuary bed will be reclaimed as the edge protection structures are constructed. As the Estuary is an Area of Significant Natural Value (Site 12-007) this is a non-complying activity. |

Overall, consent is required as a non-complying activity under the RCEP.

## 6.6 Christchurch District Plan

The Christchurch District Plan relates to all land use activities within the project area. The relevant rules are identified in Table 15.

Table 15 Consenting Requirements under the Christchurch District Plan

| Activity | Rule | Activity Status | Relevance to Proposal |
|---|---|---|---|
| Land use consent to undertake earthworks in the Flood Management Area | 5.4.1.5 – Table 5.4.1.5(a) | Restricted Discretionary | Applies to all project works. |
| Land use for the construction of any new buildings in the High Flood Management Area | 5.4.6.3 | Non-complying | Relates to inundation protection works (bunds) in SNBP and may trigger some erosion protection works at Southshore. |
| Liquefaction hazard | 5.5.1 | Permitted | Activities are located within the Liquefaction Management Area and captured by Rules 5.5.2 or 5.5.3. |
| Noise | 6.1.5.1.1 | Permitted | Open space zone limits between 07:00-22:00 are 55dB LA eq. There is no limit for LA max in these hours. |
| Traffic movements | 7.4.2.1 P10 | Permitted | Traffic movements proposed do not trigger any in the requirements of rule 7.4.3.10 – High trip generators. Also, traffic volumes expected each day are low. |
| Earthworks | 8.9.2.1 | Permitted | The earthworks are coastal hazard mitigation works undertaken by the council. Therefore, earthworks are exempt from the standards identified in Rule 8.9.2.1. under |

| Activity | Rule | Activity Status | Relevance to Proposal |
|---|---|---|---|
| | | | Rule 8.9.3 (v) and can proceed as a permitted activity. |
| Land use consent for the construction of a building (bund and erosion protection structures) in the Outstanding Natural Feature Overlay (36.0) | 9.2.4.1 – Table 1 - a | Non-complying | Relates to inundation and erosion protection works at Southshore and erosion protection works at SNBP as a non-complying activity. |
| Land use for the construction of a new building (flood bund) in the Natural Coastal Character Overlay and High Natural Character Coastal Overlay | 9.2.6.1 – Table 3 - a | Non-complying | Relates to inundation protection works (bund) in SNBP as a discretionary activity (natural character).<br><br>Relates to inundation and erosion protection works at Southshore and erosion protection works at SNBP as a non-complying activity (high natural character). |
| Planting of Indigenous Vegetation | 9.1.4.1.1 | Permitted – P2 | Any planting taking place post-works will consist of indigenous species that naturally occur in the area and will be sourced from the ecological district.<br><br>The planting of indigenous vegetation is therefore a permitted activity. |
| Pruning of Trees | 9.4.4.1.1 P5 | Permitted | Any pruning, maintenance or remedial work/treatment to any tree in parks or public open space and road corridors in Christchurch City is a permitted activity provided it is undertaken by, or under the supervision of, a works arborist employed or contracted by the Council or a network utility operator. |
| Felling of trees in parks or open space | 9.4.4.1.1 P6a | Permitted | Felling of trees in parks or public open space and road corridors in Christchurch City is a permitted activity provided it is undertaken by, or under the supervision of, a works arborist employed or contracted by the Council or a network utility operator. |
| Earthworks within 5m of the base of trees | 9.4.4.1.1 P12 | Permitted | Earthworks within 5m of the base of any tree less than 10m in height in parks or open space provided it is undertaken by, or under the supervision of, a works arborist employed or contracted by the |

| Activity | Rule | Activity Status | Relevance to Proposal |
|---|---|---|---|
| | | | Council or a network utility operator. |
| Earthworks not complying with Rule 9.4.4.1.1 P12 | 9.4.4.1.1 RD 8 | Restricted Discretionary | Any earthworks within 5m of the base of any tree more than 10m in height in parks or open space provided it is undertaken by, or under the supervision of, a works arborist employed or contracted by the Council or a network utility operator. In this instance the Council will rely on Global Resource Consent RMA/2021/2059 held by the Council. |
| Specific Purpose (Flat Land Recovery) Zone | 13.11.4.1.1 P10 | Permitted | The maintenance, repair, relocation and removal of flood protection and bank erosion works undertaken or authorised by CCC is a permitted activity. |
| Land use for the purpose of flood protection undertaken by Council in Open Space Community Park Zone | 18.4.1.2 | Controlled Activity | Relates to inundation protection works (bunds) in SNBP. |
| Land use for indigenous vegetation clearance in the open space coastal zone | 18.9.1.3 (RD2) | Restricted Discretionary | Relates to erosion protection works at Southshore and SNBP if indigenous vegetation is to be removed. |
| Land use for the construction of a flood risk reduction bund/ coastal erosion protection works in the Open Space Coastal Zone | 18.9.1.5 | Non-complying | Relates to inundation protection works in Southshore and possible SNBP. Also includes new erosion protection structures in Southshore and SNBP. |

Overall, consent is required as a non-complying activity under the Christchurch District Plan

## 6.7 Summary

Overall, resource consent is required as a non-complying activity. A non-complying activity requires a resource consent before it can be carried out. A resource consent can be granted for a non-complying activity, but first it must be established that the adverse effects of the activity on the environment will be minor or that the activity will not be contrary to the objectives of the relevant planning plans or proposed plan.

# 7. Consultation and Engagement

## 7.1 Introduction

The Council has undertaken extensive community engagement and consultation over a number of years with partners, various stakeholders and community groups regarding the proposed works for the Project.

In May 2019, the Council took over leadership of the Southshore and South New Brighton work that was previously led by Regenerate Christchurch. At that point, the work was split into two:

1. Urgent investigations into earthquake legacy issues; and
2. A coastal hazards adaptation planning project, which is a longer-term conversation focused on how Christchurch adapts to coastal hazards in the short, medium and long term.

Between May – August 2019 Council staff undertook engagement to understand community needs relating to earthquake legacy issues and identify actions to address these needs. A Community Assessment of Options generated 373 survey responses that provided evidence of community preferences. This directly informed the recommendations to the Council in August 2019 for options for inundation and erosion protection for Southshore and SNBP.

Further engagement with the Southshore and South New Brighton communities took place in 2020, including establishing a collaborative Working Group with Council staff, Jacobs (providing independent technical expertise), and Gary Teer (a community-nominated technical expert). The Working Group developed options that were socialised with the community via a drop-in on Wednesday 24 June 2020 and in a community newsletter that was sent electronically, as well as hand-delivered to properties in the area.

The Working Group then developed a final Erosions Options Report that was presented to the Southshore Residents' Association and the Waitai Coastal Burwood Community Board, before coming to the Council in November 2020.

On 12 November 2020 the Council unanimously approved a $12.5 million package of works to reduce the risk of flooding and Erosion in Southshore and South New Brighton.

To support the project in its current phase (preliminary design and consenting) the Project team developed a communications and engagement plan to:

1. Ensure residents in Southshore and South New Brighton are aware of what is happening with the project, what the next steps entail, any engagement opportunities and how they can be involved;
2. Build a shared understanding of why the Council is doing this work (the scope) and what it will achieve;
3. Keep elected members and key stakeholders well informed of what is planned; and
4. Engage with directly impacted property owners on the proposed alignment of the bund.

This plan also identified key stakeholders and affected parties as part of the consenting process, in order to seek their feedback to help inform project outcomes.

With decisions already made on technical options for the estuary edge and location of the bund, this phase of engagement has largely been focused on seeking community and stakeholder feedback on the landscape approach and recreational outcomes.

## 7.2 Engagement Actions and Results for Current Project Phase

A summary of engagement with partners, key stakeholders and the community, and the outcome of that engagement, is provided below. This section also documents how the engagement has informed the project.

### 7.2.1 Mana Whenua – Te Ihutai Ahu Whenua Trust

In the previous optioneering stage of the Project a representative from Mahaanui Kurataiao Limited provided commentary on the potential cultural effects of the various options. This helped inform the selection of the preferred option.

Within this preliminary design and consenting project stage Council initially approached Mahaanui Kurataiao Limited again around the proposals in March and April 2022. From discussions with Mahaanui Kurataiao Limited it was confirmed that Te Ihutai Ahu Whenua Trust (the Trust) had mana over the Project area and were the relevant mana whenua representatives to discuss the Project with and consider cultural effects.

A hui with representatives of the Trust was held on the 19 October 2022. The purpose of the hui was to introduce the Trust and the Project team[14]. The Project team had the opportunity to listen to The Trust's background and relationship to Southshore and SNBP. From this the Project team confirmed the importance of the Trust to the success of the Project and started the conversation of how to engage with the Trust.

On 3 November 2022, a site visit to Southshore and SNBP was undertaken representatives of the Trust, Council, Jacobs, Boffa Miskell and Underground Overground. The site visit included general discussions about the Project, the assessments proposed/underway and values of the area.

This was followed on the 21 March 2023 by a hui held by CCC with the Trust and Jacobs to discuss the approach to involvement in the Project, as well as the Project's main design elements. At the hui it was agreed that there was a desire from the Trust to be involved in the scoping and design of the Project's landscaping. In addition, the Trust detailed the need to be involved in the storytelling of cultural values of area, as opposed to simply undertaking a cultural impact assessment of some form.

In developing how the landscaping and storytelling approach may be implemented, the Trust invited Council and Jacobs team in May 2023 to a walking tour of various central city projects to see how cultural values had been included in design during May 2023. The walking tour helped to underpin the thinking of the Project's landscaping elements, given the lessons learnt from projects like the at Avon River Corridor, Bus Exchange, Justice Precinct, laneways and King Edwards Barracks projects.

From May 2023 to present, the CCC landscape team have been working with representatives of the Trust on the Project's landscaping design. A cultural design guide was developed by the Trust to assist the Council team in this work.

Following on from the city walk with a representative of the Te Ihutai Ahu Whenua Trust, CCC landscape architects met with the representative and walked the project site at Te Ihutai. During this visit, we identified 3 key locations, with a focus on the opportunities presented by the project which were not accessible from the city. The initial suggestions from the trust include wayfinding points along the path, and interpretation of the cultural landscape as viewed from the key points. The Trust have provided 2 guiding documents – Design synopsis and cultural narrative, which will guide the features to be included. As of present we have engaged Fayne Robinson to produce the cultural interpretive artworks.

Given the involvement of the Trust in the project, written approval has been sought. This will be provided to the consent authorities once received.

The Applicant is also required to seek the views of applicants under the Marine and Coastal Area (Takutai Moana) Act 2011. The two parties subject to this requirement are Te Ngai Tuahuriri and Ngai Tahu. Engagement with mana whenua has occurred, and while these parties will be aware of the Project, copies of the application will be provided to these two parties and their views sought as required by the Takutai Moana Act. Copies of correspondence will be provided to the regulatory authorities.

[14] This included CCC staff, as well as Jacobs, Boffa Miskell, Underground Overground representatives.

### 7.2.2 Southshore Residents Association (SSRA)

The SSRA have been very involved in all phases of this project and have advocated strongly for their community. During this phase of the Project SSRA invited the Project Team to be a standing item on the agenda of their monthly meetings. The Project team has met in person or sent written updates during 2022/2023 (noting that some months the updates were simply to say there was no further update). The Project team has also benefited from SSRA's generosity in promoting the project to residents via their newsletter The Southshore Beacon, and their Facebook pages – The Southshore Beacon and Southshore 8062.

The draft landscaping plans were shared for feedback with the SSRA on 16 May 2023. Key areas of interest noted were as follows:

Table 16 Summary of comments by SSRA on Draft Landscaping Plans

| Topic | Summary of SSRA comments | Project response |
|---|---|---|
| Paths | The path that runs along the top of the berm should be 3m wide, as it is used now with reasonable traffic such as bikes, prams, and dog walkers. Committee members supported the linkage paths but didn't see value in the optional paths. | Path width has been maintained, with separation from houses by having bund ~5m from the edge rather than further inland. |
| Grass vs Planting | Committee members reinforced previous feedback that planting in the area should be an appropriate size so as not to block view and sunlight and create shading. | Landscape plan has considered this with types of plants, location of stands of vegetation and protection of sight lines. |
| | Penguin Street, along with others, have trees of significance (e.g. phoenix palms, Pohutukawa and Nikau). Strong community sentiment to retain these trees if at all possible. | Council sought further feedback from the community to enable them to locate key trees of interest that the landscaping plan could look to preserve or relocate. Trees under structure footprints are unlikely to be able to be preserved in location. However, some trees in the wider construction footprint may be able to be avoided. Council has done further survey to respond to community and SSRA feedback on trees. |
| | Committee members raised concerns about ongoing maintenance and highlighted the importance of good irrigation, especially as plants are getting established. | I If done correctly, planting will be low maintenance and tolerant of local conditions. |
| | Committee members understood the importance of mana whenua taking the lead on landscaping design, but also identified | Council staff followed up with the community members and have |

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| | several members of the community who have excellent local knowledge of what plants do well in the area. | taken onboard their advice re species selection.<br><br>These community members also provided detailed feedback as part of the community engagement in June 2023. |
| Flooding | At Ebbtide Street there is a grass area that is flat and gets surface flooding, and floods into people's homes as it gets trapped in the bund. | This area will have a swale to allow drainage to be collected and infiltrated. |
| | Committee members identified drainage issues in the area, due to outfall pipes not working properly, and were keen to understand if this could be addressed as part of this Project. | Existing drainage will be continued, but the Project is not seeking to resolve existing drainage issues. Access for maintenance of stormwater drains will be maintained. |
| Road Ends | Committee members highlighted wider community concerns about anti-social behaviour occurring at street ends and were therefore supportive of pulling back road ends to where the houses end rather than extending them into the green space. | Following feedback from SSRA and the wider community, the plan is to pull back road ends, provide grass and reduce parking slightly. |
| | Tern Street identified as a place where it would be good if here was less parking. | |
| | Mermaid Place is a good example of what could work for streets that will have parking/turnaround areas. | |
| | Penguin street people park where the houses/lighting ends. | |
| Cultural story telling | Committee members strongly supported having cultural information and stories along the path. | The project has been working with Mana Whenua (Te Ihutai Ahu Whenua Trust) around the cultural inputs into landscaping. |

Following the community engagement in June 2023, the Project team attended another SSRA meeting on 7 August 2023 to update the committee on findings and next steps. The Project team also provided a written update on consenting delays to the committee in October 2023.

A full list of in-person meetings is provided below:

- 14 February 2022;
- 14 March 2022;
- 11 April 2022;
- 9 May 2022;
- 9 November 2022;

- 16 May 2023; and
- 7 August 2023

### 7.2.3 Local Community

The Project the project team held a two-week engagement to get community feedback on the landscape plans. The plans and supporting information were available on the Council's website and promoted via Council and local community communication channels. There was also a flyer drop to properties in Southshore and South New Brighton.

As part of the engagement, the project team held a community drop-in on Saturday 17 June 2023 at The Bridge in South Brighton. The event was well-attended, with approximately 80 people dropping in to see the draft landscape plans, talk with the Project Team about key project elements and provide feedback. The Project team also received 70 online submissions, including from the Avon-Heathcote Estuary Ihutai Trust.

Key issues raised are summarised in the table below.

Table 17 Summary of comments raised by the community (from online engagement and drop-in on 17 June 2023)

| Theme | General Comment (Grouped) | Action |
|---|---|---|
| Access | ▪ Remove stair and ramp access at Penguin Street.<br>▪ Remove stair and ramp access/ reduce numbers.<br>▪ Reduce the amount of access down to the estuary - discourage people especially with dogs.<br>▪ Just have ramp at end of Godwit Street - no stairs.<br>▪ Reduce the number of access points.<br>▪ Consider accessibility (wheelchair users etc).<br>▪ Get advice on wheelchair access.<br>▪ Include more access points to road.<br>▪ Include separated paths for cyclists and pedestrians.<br>▪ Include bike stands at the jetty and yacht club.<br>▪ Widen existing track between Estuary Road and Ebbtide Street. Conflict with cyclists and pedestrians. | ▪ The overall strategy for stair and ramp locations has been reviewed, with ramp access removed at Penguin Street.<br>▪ The design philosophy is to ensure that the spaces are accessible for wheelchair users. Earlier designs were simplified due to the space of the park.<br>▪ Bike stand locations to be considered elsewhere along route also.<br>▪ The existing track between Estuary Road and Ebbtide Street is proposed to be widened to 2m (from approximately 1.2-1.5m), however is limited beyond this purely due to space in this area. |
| Turning Circles | ▪ Do not shorten Godwit Street end due to vehicles turning.<br>▪ Remove proposed turning circles.<br>▪ Reduce turning circle sizes/ remove for street ends. | ▪ Majority of feedback is in support of removing turning circles and shortening street ends, therefore these have been removed. |
| Lighting | ▪ Retain lighting. | ▪ Street lighting at end of streets to be retained. No additional lighting proposed |

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| | ▪ Consider clear sightlines and lighting for CPTED.<br>▪ Include lighting along the path.<br>▪ Include CCTV cameras. | along path due to sensitivity of estuary and neighbouring properties.<br>▪ Investigate CCTV. |
| Seating | ▪ Relocate seats away from properties. Consider seating locations in relation to private properties. | ▪ The quantity of seating has been reduced with seating located away from private properties to the main path unless otherwise asked for. |
| Community features | ▪ Retain fairy log seat circle and pétanque.<br>▪ Arrange site walkthrough with SSRA for special trees/ landmarks. | ▪ Fairly log seat circle identified to be retained however may need to be relocated due to bund batter slope locations. Pétanque court needs to be reinstated elsewhere due to bund location.<br>▪ Walkthrough with SSRA to be discussed. |
| Planting | ▪ Incorporate low flammability planting and firefighting access maintained (access from Caspian Street and further down). Remove self-seeded Ngaios.<br>▪ Retain all roosting sites. Retain as many large pines as possible which are used by roosting birds.<br>▪ Relocate swale by 18-20 Rocking Horse Road where it conflicts with existing planting.<br>▪ There is a forest walk in between this planting and has a range of other benefits - lizards etc.<br>▪ Keep planting low at Godwit Street to retain views from private properties. Include plant species that retain and encourage native bird life to thrive.<br>▪ Include planting which would have naturally occurred in this environment. | ▪ Some low flammability planting has been proposed. Firefighting access to be investigated further with FENZ.<br>▪ The vast majority of trees at the end of this street have been removed due to the bund.<br>▪ In general, existing large trees to be retained to the landward side of the bund. There may be some that need removal.<br>▪ Swale relocation to be confirmed with Jacobs engineers.<br>▪ A large amount of existing planting is to be removed at the end of Godwit Street.<br>▪ Supplementary planting is proposed to replace this. Views have been taken into account when location trees.<br>▪ Native plant species appropriate to the site will be used, including those that |

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| | | provide food, habitat etc. for native species.<br>▪ Plant information has been based upon discussions with CCC ecologists and the Lucas Associates plant ecosystems plant lists. |
| Planting | ▪ Remove the Phoenix Palm trees.<br>▪ More planting, less grass.<br>▪ Remove exotic species.<br>▪ Provide plant species which support native wildlife.<br>▪ Retain existing trees at end of 192 Rocking Horse Road.<br>▪ No need for CCC to plant anything.<br>▪ Remove grass on either side of path.<br>▪ Retain existing planting.<br>▪ Retain Norfolk pine.<br>▪ Retain Norfolk Pines and Pohutukawa.<br>▪ Retain as much existing vegetation as possible.<br>▪ Retain existing native trees.<br>▪ Retain trees at end of Penguin St - Pohutukawa, cordyline, Phoenix palms. | ▪ In general, existing large trees to be retained to the landward side of the bund. There may be some that need removal (including Phoenix palms).<br>▪ Both exotic and native trees will be retained where possible.<br>▪ Trees not proposed to be removed. Existing to be retained with additional planting.<br>▪ Planting to be included to reduce carbon, maintenance costs, provide habitat and food for wildlife etc.<br>▪ Need to think about how grass would be maintained in northern portion where it is just on bunds.<br>▪ In general, existing large trees to be retained to the landward side of the bund. There may be some that need removal.<br>▪ Currently proposed to be removed due to bund. Potential to tree spade the Pohutukawa. |
| Jetty | ▪ One jetty to be large enough to use as a small concert space for community events (band or choir) or have platform/ stage/ viewing platform - discuss with SSRA for best placement.<br>▪ No need for jetty and ramps.<br>▪ Add jetty to Plover Street.<br>▪ Add jetty between Penguin Street and Heron. | ▪ The Tern Street Jetty is relatively large, with an open space on top of the bund also therefore facilitating for SSRA events.<br>▪ Access has been requested by the community.<br>▪ Plover Street has a jetty shown. Path links in with existing as shown on the plan |

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| Signage | ▪ Include signage at entrances and where the path joins the existing Southshore Spit. Include signage - dogs on leashes, no motorbikes/ vehicles.<br>▪ Include interpretive signage on estuarine ecosystem, signage for homes lost due to earthquakes, signage for dog owners.<br>▪ Educate people about protecting areas for wildlife.<br>▪ Signage to encourage bikes to use path around salt marsh with pedestrians only on boardwalk. Make walking track only along estuary edge to provide separation between walkers and cyclists.<br>▪ Signage and bollards for no motorbikes on walkway.<br>▪ Create dog friendly areas.<br>▪ Signage for wildlife at Caspian Street community garden. | ▪ Signage to be included - potential for wayfinding, cultural values, educational and dog control etc.<br>▪ Dogs are prohibited on the estuary and dunes. |
| Community gardens | ▪ Review locations and number. Not in front of houses.<br>▪ Reduce the number of community gardens<br>▪ Community gardens in good positions.<br>▪ Relocate community garden away from house towards Mermaid Place or have a harakeke garden for local weavers.<br>▪ Community gardens too close to salt water. Will need shelter. | ▪ The end of Rocking Horse Road is not appropriate as this is estuary where godwits nest.<br>▪ The location and number of community gardens has been reviewed.<br>▪ Community space made into harakeke garden and ongoa. |
| Bins | ▪ Include rubbish bins. | ▪ Investigate locations and number of bins throughout the project corridor. |
| Playground | ▪ Check if there is a playground already at Plover Street. If so, shift nature play.<br>▪ Potentially relocate playground. Similar to Rawhiti playground.<br>▪ Add fitness area with gym equipment. | ▪ Nature play playground has been shifted to better locate features. |
| Boat Access | ▪ Include watercraft ramps - Catamarans, kayaks and SUPs. Tern St - sloped access so that a watercraft can be rolled down.<br>▪ Facilitate access for kayaks and catamarans. | ▪ Boat ramp to be discussed with Jacobs. Check levels with proposed bund. |

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| | ▪ Investigate retaining boat ramp near 164 Rocking Horse Rd. | |
| Swale/Flooding | ▪ Consider swales in front of 6 Godwit St and 26 Rocking Horse Rd.<br>▪ Relevel terrain by 36 and 34 Rocking Horse Road as low point on 36 Rocking Horse Rd gets flooded. | ▪ Further investigation needed. These areas aren't low points based on the LIDAR plans we have.<br>▪ Potentially build up with site-won material. |
| Wildlife | ▪ Include rocks and planting for native skinks in Caspian St community garden.<br>▪ Include specific planting for bird, butterflies and skinks.<br>▪ Separate recreational spaces and wildlife/habitats. | ▪ Rocks and planting for native skinks will be located based upon where existing skink habitat is. Locations to be confirmed with herpetologist.<br>▪ Native plant species appropriate to the site will be used, including those that provide food, habitat etc for native species. Plant information has been based upon discussions with CCC ecologists and the Lucas Associates plant ecosystems plant lists. |
| Emergency Access | ▪ Emergency access from Caspian Street to Godwit Street. | ▪ Yet to be investigated. |

Further engagement was held from 8-18 September 2023, inviting residents to 'drop a pin' on a map to indicate a significant trees and local landmarks. This was effectively a 'last call' to identify any trees or important community assets that had not been identified through earlier engagements and site investigations. As this engagement was specifically focused on local residents with knowledge of the area, it was largely promoted via the SSRA.

During the engagement 33 pins were 'dropped', the majority of which were for trees along or close to the estuary edge that had already been identified by the Project Team. However, this engagement did identify a few examples of trees that hold personal significance for local families and will need to be treated sensitively. The general approach will be to retain all trees wherever possible. Significant trees which are in the construction footprint will be assessed as to feasibility for relocation.

### 7.2.4 Environment Canterbury (ECan)

The ECan coastal consenting/planning section was consulted during the original optioneering stage in 2020. Key issues were discussions of potentially affected parties, as well as the scale and nature of assessments.

Since the Project's preliminary design and consenting stage, the Project team has met with representatives of the ECan coastal consenting team in a pre-application meeting on 11 May 2023. Key issues discussed were the scale and nature of technical assessments, especially ecology assessments, and the approaches to offsetting, as well as advice on ECan's application of policy approaches under the NES-F and NZCPS.

These discussions help shape the direction of the project when it came to balancing the potential effects on ecological and archaeological values in SNBP. They also led to a general approach of minimising reclamation of the bed, while seeking to maintain the Project objective of protecting the existing coastal edge.

### 7.2.5 Christchurch City Council

A pre-application meeting was held with the Council Consents Team in the optioneering phase of the project during 2020 and included discussion of the erosion protection elements of the Project at Southshore. Key feedback from this was around the relevant Council zones, policies and rules and their application in this area to the Project. It was also raised that applications to Council and ECan for multiple activities needed to construct these works would likely result in a jointly processed consent between the two parties. Pre-application meeting minutes are appended as Appendix P

### 7.2.6 Identified Recreation Groups

The Project interaction with sports clubs has been limited to those clubs that are located at or use SNBP. While there is a sports field and tennis courts at SNBP, it is not anticipated that the proposed works would affect these. The main relevant stakeholder is the Yacht Club. Early consultation identified that the original Project concept involving an inundation bund immediately landward of the Yacht Club was a concern to them given severance between event/sailing day parking and Yacht Club facilities. The inundation bund would largely prevent trailer parking and negatively affect the running of Yacht Club events. Given this, the bund was moved inland to the current proposed location.

Council staff met with representatives of the Yacht Club again on 7 June 2023 to discuss upcoming community engagement and to talk through the proposed estuary edge treatment. In early engagement on the project, and during consultation on changes to the South New Brighton Reserves Management Plan 2014 and the South New Brighton Park Concept Plan, the Yacht Club and its members had expressed their concerns with erosion in the area. The representatives were therefore very supportive of the proposal for gabion baskets for a length of around 160 metres south of the existing boat ramp.

A copy of this application will be provided to the Yacht Club and written approval will be sought.

### 7.2.7 The Department of Conservation (DOC)

Communication with DOC took place during the earlier optioneering stage in 2020. A discussion of the proposed Southshore erosion structures took place, with the relevant legislation and policies, the structures, restoration and enhancement, indigenous biodiversity vales and future management plans all addressed. DOC identified an interest in viewing draft management plans and the AEE once available. Initial engagement with DOC is appended as Appendix Q

A second meeting is being planned at present to give an overview of these documents. A copy of this application will be provided to DOC and written approval will be sought.

### 7.2.8 Avon-Heathcote Estuary Ihutai Trust

The Avon-Heathcote Estuary Ihutai Trust provided written feedback on the draft landscape plans as part of the community engagement in June 2023.

Members of the project team met with representatives of the trust on Thursday, November 16 2023. The Trust outlined their concerns regarding the management of the estuary, including issues with people currently not complying with prohibitions on dogs in the estuary, among other matters. The Trust's principal concern is in relation to the various species bird that live and transit through the estuary and its surrounds. The Trust's concerns included issues with providing enhanced public access to the estuary, as this increases the risk to birds that feed in and occupy the estuarine environment.

The Trust also commented on the proposed structure at the end of Tern Street, noting that it was now smaller than originally proposed, which was appreciated.

Overall the Trust remained concerned with the project as a whole, although they appreciated the varied interests that require balancing through project, including public access to the estuary, recreational users, mana whenua interests, and the wishes of the wider Southshore community. The Trust members indicated that they would like to remain informed of progress, including being advised when the application is lodged.

### 7.2.9 Landowners

Elements of the Project will interact with privately owned land in the Southshore section of the Project. This is because of there being a number of private land parcels that cross into or through the residential red zone. Some of these will have inundation and edge protection features built on them and/or landscaping features. Council's property team has been engaging with these parties with a view to:

a. Seek legal agreement around establishing structures; and

b. Gaining approval to the works under the RMA.

Table 18 contains a list of identified private properties impacted by the works and the status of discussions with those parties.

Table 18 Private property owners affected by the works

| Address | Summary of issues, status of agreement over establishing project elements |
|---|---|
| 44A Rocking Horse Road | On 7 June 2023 Council staff met with the residents of 44a Rocking Horse Road to talk through the proposed plans for in front of their property.<br><br>The residents discussed their concerns with the previous pathway that ran along the top of the rock wall, enabling people to look directly into their property.<br><br>The residents were amenable to the idea of a lowered path on the seaward side of the rock wall, on the condition that an additional 30cm of height is added to the rock wall, to limit people's views into their property. |
| 78 Rocking Horse Road | Unable to reach the landowner. |
| 168A Rocking Horse Road | Agreement for the Council to purchase part of the land. Currently obtaining valuation. |
| 172D Rocking Horse Road | Agreement for the Council to purchase part of the land. Currently obtaining valuation. |
| 184B Rocking Horse Road | Agreement for the Council to purchase part of the land. Currently obtaining valuation. |

A copy of this application will be provided to these five landowners (while still landowners) and written approval will be sought from these parties.

### 7.2.10 South New Brighton Holiday Park

South New Brighton Holiday Park was sent landscape plans ahead of the engagement and the Project team believes a representative attended the drop-in in June 2023.

The Council's Property Team has met with the lease-owners on other matters, and they have signalled any access for construction phase of the project will require negotiation.

A copy of this application will be provided to South New Brighton Holiday Park and written approval will be sought.

### 7.2.11 Wider Community

Engagement efforts on the Project have been focused on the local South New Brighton and Southshore communities, however, this information has been publicly available on the council website (ccc.govt.nz/haveyoursay) during the engagement period (13 -27 June 2023).

The engagement was also promoted via Council communication channels - Newsline and Facebook.

# 8. Assessment of Effects on the Environment

## 8.1 Introduction

This section of the AEE addresses the actual and potential effects associated with the Project and is informed by the assessment matters and policy context provided in the relevant sections of the district and regional plans where appropriate. The relevant actual and potential environmental effects of the Project are:

- Positive Effects;
- Operational Effects:
  - Ecological Effects;
  - Effects on Coastal Processes (including flood risks);
  - Visual and Landscape Effects;
  - Recreation Effects;
  - Cultural Effects; and
  - Effects on Natural Hazards.
- Construction Effects:
  - Arboriculture Effects;
  - Construction Traffic Effects;
  - Noise and Vibration Effects;
  - Earthworks Effects;
  - Ecological Effects;
  - Cultural Effects;
  - Archaeological Effects;
  - Effects on Groundwater; and
  - Effects associated with Contaminated Land.

Also provided are the following that help avoid, remedy and mitigate any actual or potential environmental effects of the Project:

- General Construction Controls;
- Environmental Management Plans; and
- Proposed Conditions of Consent

The sections below provide a summary of the technical reports to support the Project. These reports should be read in conjunction with the AEE. When considering the effects of the Project, the receiving environment consists of:

- The existing environment (as described in Section 3) and the associated effects from lawfully established activities, these being the existing road network, recreational activities and residential sites.
- The existing environment as modified by any resource consents granted and likely to be implemented.
- The environment as likely to be modified by activities permitted by the district and regional plans.

The AEE is based on the existing environment (and any consented developments) as opposed to the future environment particularly regarding landscape and recreational effects. This is because a future focused assessment is fraught with uncertainty given the reliance on theoretical and unconsented developments.

Furthermore, any related assessment of effects of this project against the hypothetical environment (as opposed to the existing environment, as defined by case law to include permitted activities and resource consents likely to be implemented) is difficult to implement and subject to potential inaccuracies and without significant merit.

Therefore, the AEE undertaken below is based on the existing environment (and any unimplemented approved resource consents).

## 8.2 Permitted Baseline

Under sections 95D(b),95E(2)(a) and 104(2) of the RMA, the planning authority may disregard an adverse effect if a rule or national environmental standard permits an activity with that effect. This “permitted baseline” test is commonly employed to assess applications under the RMA unless unusual or special circumstances apply.

It is considered appropriate that the permitted baseline is applied to the current application, given that the Project will be undertaken within an established brownfield location. The Project area has been subject to historic development, including coastal protection works and open space improvements.

The breakdown of relevant permitted activities is provided in Section 6.

## 8.3 Summary of Consultation and Engagement

Overall, the council has undertaken a thorough engagement around the proposed project over a number of years which has contributed to the proposed project designs and landscaping approach.

It is considered by the Project team that the following parties are affected given their direct interest in the land and the Project area:

- Te Ihutai Ahu Whenua Trust
- Department of Conservation
- Pleasant Point Yacht Club
- South New Brighton Holiday Park
- Avon/Heathcote Ihutai Estuary Trust
- Landowners impacted by Project works:
    - 44A Rocking Horse Road
    - 78 Rocking Horse Road
    - 168A Rocking Horse Road
    - 172D Rocking Horse Road
    - 184B Rocking Horse Road

If written approvals of these parties are obtained it is considered that the application can be processed non-notified. The Project team do not consider any other parties to be affected by the Project to a more than minor degree. If written approval of these parties cannot be obtained it is considered that the application be limited notified to those outstanding parties (please refer to Section 9 for a detailed notification assessment).

## 8.4 Positive Effects

The Project will deliver positive effects to Christchurch and more significantly to the communities of South New Brighton and Southshore. As detailed in Section 1, the Project is a response to damage and land subsidence generated by the CES in 2010 and 2011. The CES resulted in the loss of coastal protection along the Estuary edge, resulting in erosion and localized inundation by coastal waters.

The Council has worked closely with the community and other stakeholders to develop a Project response that is sympathetic to local environmental values. The Project's development, options assessment and community engagement are detailed further in Sections 1, 5 and 7 respectively.

- The primary benefit provided by the Project will be the improved protection of the community against coastal inundation and erosion over the next 20 years. As detailed in the Coastal Processes Report (Appendix I), the Project area is subject to natural hazards given the land subsidence and damage that resulted from the CES. However, the chosen Project design will address these risks, which is critical to providing surety to the local community that their homes, businesses and other activities are appropriately protected.
- The Project results in a net declamation of 879 $m^2$.
- The Project also forms part of a wider improvement programme to Open Space sites at SNBP and Southshore. The Council has developed a Landscaping Master Plan. While that plan does include improvements outside the scope of this resource consent application, the Project will contribute to the planned open space values of the Project area, as well as provide protection to the open space and red zone land that runs along the Estuary edge.
- Given that the Project area is bound on three sides by coastal and estuarine waters, as well as being low lying above sea level, this Project reduces risks to remaining housing, Council reserves and other land uses from erosion and coastal inundation. Importantly, this risk reduction is crucial while longer term adaptation planning and strategies are formulated for the broader Project area.

## 8.5 Operational Effects

Consideration has been given to the operational effects of the Project once construction is complete. Given its scale and its potential to reshape the surrounding area, the following operational effects are detailed below:

- Ecological Effects;
- Effects on Coastal Processes (including flood risks);
- Visual and Landscape Effects;
- Recreation Effects;
- Cultural Effects; and
- Effects on Natural Hazards.

### 8.5.1 Ecology Effects

The Project has the potential for some longer-term operational effects once constructed. These effects are detailed in the Ecological Assessment (Appendix M). The potential effects and how they are managed appropriately are identified below:

- Localised estuary bed lowering could affect the ability of epibenthic and infaunal animals to occupy the area at the toe of the new revetment. However, bed scouring at the toe of the new revetment will be similar to what is currently experienced at the base of the existing revetment / sloping structures., and less than currently experienced at the southern end of the Project site. As a result, there will be a very slight change from the existing baseline conditions.

- Also, increased access to the estuary bed may result in a higher number of people accessing the bed and could result in increased trampling, harvesting and littering in the estuarine environment. However, the increase in the numbers of visitors and users of the Project site and surrounding areas will not be of a magnitude likely to affect estuarine habitats and organisms.

Given the negligible change to the existing baseline conditions and the low level of effect on the increased number of visitors to the site, it is considered that the level of effect will not affect the ecological values that contribute to the ecological significance of the estuary. Furthermore, the improved access to mahinga kai is seen as a positive effect that must be considered when weighing up any effects of increased foot traffic to the estuary.

Overall, operational coastal ecology effects are considered to be negligible.

### 8.5.2 Effects on Coastal Processes

The effects on Coastal Processes have been assessed in the Coastal Processes and Natural Hazards Assessment (Appendix I), where it concluded that the effects from the enduring occupation and maintenance of the proposed inundation and erosion protection works are considered to be negligible and highly localised.

An explanation of potential impacts and how they are managed appropriately are identified below:

- The locality of proposed works are situated away from the key processes that would impact estuary morphology, being the estuary channels, tidal prism at the estuary mouth and sediment supply from the catchments.
- There are localised effects of bed lowering in front of the rock revetment structure and gabion baskets due to wave reflection against the toe, however, this is anticipated to be highly localised and small scale due to the low energy environment of the Estuary.
- The locality of the proposed works is not anticipated to affect the broader scale sediment transport processes.
- The increased level of protection is anticipated to displace only a negligible volume of water in extreme water level events that would not adversely impact water levels in other estuary areas that are sensitive to flooding.
- For some processes, such as managing future shoreline erosion and achieving inundation protection, these protection works will have a net positive effect in reducing future risks.

Overall, given the highly localised nature of coastal processes impacts and the scale of these impacts, it is considered that the operational adverse effects of the Project on coastal processes is negligible.

### 8.5.3 Visual and Landscape Effects

The actual and potential landscape and visual effects have been addressed in the Southshore Erosion and Inundation Protection Works: Landscape Effects Assessment prepared by Boffa Miskell Ltd. This is included in Appendix K. The Estuary has well-recognised landscape features that are protected under the Christchurch District Plan as ONF. There is potential for operational effects to adversely impact the surrounding landscape.

It is considered the potential for adverse impacts is appropriately managed through the following:

- The Assessment identified that the margins of the Estuary ONF are already modified through the presence of the degrading sea walls and structures, reducing their sensitivity to change at a localised scale. Proposed erosion control structures may appear as a noticeable modification due to their consistent, hard engineered form, however they will not dominate the character of this open coastal landscape, particularly given that views of the site are largely from across the estuary.

- The proposed inundation protection will involve a small increase in the width and height and change to the alignment of the existing bund along the estuary foreshore, formalising a feature that currently modifies the Site, resulting in relatively low degree of change.
- Over time, the native species proposed to be planted along the edge will further integrate the proposed works into the immediate and wider landscape setting with some positive effects on landscape values.

Overall, following completion of the works, effects on landscape values as a result of the proposed works are considered to be low. Any adverse effects on natural character, landscape and visual effects will be largely benign given the negligible change to the overall level of modification apparent in the context of the highly developed spit and southern estuary edges. The extent of restoration planting that is proposed as part of the landscape masterplan will result in additional beneficial effects over time, further integrating the proposed works and reinforcing the coastal character of the Southshore estuary edge. As such, the operational effects of visual and landscape effects for the Project are considered to be less than minor.

### 8.5.4 Recreation Effects

Recreation effects have been addressed in the Recreational Values Assessment report (attached as Appendix L). There is potential that recreational activities can be adversely impacted if not appropriately accommodated.

It is considered that the recreational values at the Estuary will not be hindered by the enduring occupation of the estuary edge erosion protection and inundation protection works given the following:

- The amenity associated with this open space are currently in a dilapidated condition. Formalising the informal walkways and providing wayfinding and landscaping that responds to the cultural and community values will significantly enhance the amenity values of the Project.
- The Project will increase areas of interest (i.e. via access to the Estuary) and improving facilities will allow greater opportunities for informal and formal community interactions. This open space will become even more appreciated and easier to use for people.
- The ability for kayaking, canoeing, paddle boarding, swimming, fishing, birdwatching and picnicking will be enhanced.
- The Project's accesses into the estuary through the rock revetment will directly link via the raised walkway bund to Plover, Penguin, Heron and Tern Streets, which will enable additional formalised access points to the estuary. Furthermore, the road ends will be made into safe, community friendly spaces enhancing the amenity of this space.
- The Estuary edge walkway will include a 3m wide path enhancing a safe environment for recreational activities such as walking, dog walking, running and cycling.

Overall, it is considered that the operational impacts on recreational effects are overwhelmingly positive.

### 8.5.5 Cultural Effects

As highlighted in Section 7.2.1, initial engagement with Mahaanui Kurataiao Limited it was confirmed that Te Ihutai Ahu Whenua Trust (the Trust) holds mana over the area and were the relevant mana whenua representatives to discuss the project with and consider cultural effects. It is worth noting the Trust and Runanga have agreed to work together on various Kaupapa within the Ihutai Catchment.

It is acknowledged that the construction of the Project has the potential to cause cultural impacts. Mahinga kai, significant sites and areas and relevant flora and fauna all reinforces the connection of mana whenua to place. During the operational phase, the impacts on mahinga kai, significant sites and areas and relevant flora and fauna will be dramatically reduced. However, the overarching historical 'storying' of the mana whenua of the local area has the potential to be compromised if not appropriately accommodated.

Given this, the council have undertaken the following steps to avoid, remedy and mitigate cultural impacts:

- As discussed in Section 7.2.1, engagement with the Trust has been early and ongoing. There has been and intent to provide a partnership approach to the Project and there has been early and consistent engagement with the Trust to enable recognition of mana whenua. A list of engagement activities to date is identified in Section 7.2.1. Council recognise this is an ongoing partnership and extends well beyond environmental approvals and this Project and extends to maintaining the partnership principles of the Treaty of Waitangi.
- Following on from the city walk with a representative of the Te Ihutai Ahu Whenua Trust, CCC landscape architects met with the representative and walked the project site at Te Ihutai. During this visit, we identified 3 key locations – with a focus on the opportunities presented by the project which were not accessible from the city. The initial suggestions from the trust include wayfinding points along the path, and interpretation of the cultural landscape as viewed from the key points. The Trust have provided 2 guiding documents – Design synopsis and cultural narrative, which will guide the features to be included.
- Fayne Robinson has been engaged to produce the cultural interpretive artworks. The correct level of engagement has been attained and Council recognise that in a partnership this must be maintained.
- Given the involvement of the Trust in the Project to date we have sought written approval of the Trust. A copy of the resource consent has been provided to the Trust for comment.

Given the level of engagement Council have a level of confidence that the operational cultural effects of the activities being undertaken are negligible as the 'storying' of mana whenua has been prioritised in design and issues are consulted on and acted upon before they materialise. A copy of the resource consent application is being provided to the Trust and written approval is being sought.

### 8.5.6 Effects on Natural Hazards

The effects on Natural Hazards including tsunami and earthquakes have been assessed in the Coastal Processes and Natural Hazards Report (Appendix I). A tsunami or earthquake hazards during the design life of the project structures may compromise the integrity of those structures.

The consequences of the events occurring may be very high but the likelihood within the design life of 20 years is low, indicating the overall risk is low. The consequences of these events would be significant for the wider Southshore and Christchurch area. However, given the low risk it is not practical to design the structure to withstand such an event occurring.

Given the potential compromising of the structures the following mitigation and monitoring recommendations are proposed.

- Monitoring of the estuary bed levels using LiDAR data is recommended to establish any localised changes in bed levels from the proposed edge protection structures.
- Annual walkover assessment of the structures is recommended to identify any damage or changes to the structures to inform maintenance.
- Assessment of the erosion protection works is recommended following large coastal storm events, tsunamis, or earthquakes to assess any damage or change to the structures. This information should be gathered to inform any additional maintenance to the structure required to maintain its designed level of protection.

Overall, it is considered that, while the consequences of these events could be very high, the likelihood of the event occurring within the design life of 20 years is also low, indicating that overall the risk is low. The consequences of these events would be significant for the wider Southshore and Christchurch area. Given the low risk and potential for more broader impacts it is not practical to design the structure to withstand such an event occurring. The proposed monitoring recommendations provide certainty that the erosion protection

function of the structures remain effective. As such, it is considered the effects on natural hazards are less than minor.

## 8.6 Construction Phase Effects

Given the scale of the works proposed and the existing urban environment, a range of construction effects have been considered and assessed. The following sub-sections of the AEE will address the following construction related effects:

- Construction Traffic Effects;
- Arboriculture Effects;
- Noise and Vibration Effects;
- Earthworks Effects;
- Ecological Effects;
- Recreation Effects;
- Cultural Effects;
- Heritage Effects;
- Effects on Groundwater;
- Effects on Surface Water; and
- Effects associated with Contaminated Land.

The subsections below describe the construction related effects, the proposed mitigation measures relating to the effects and the level of effect remaining after mitigation.

Where relevant, cross referencing will be provided to the discussion of operational phase effects.

### 8.6.1 Construction Traffic Effects

While a construction partner for the Project is yet to be appointed, the Design Report (Appendix D) does provide a summary of construction traffic volumes and management measures.

To summarise, construction traffic will be generated by:

- Construction staff arriving and departing on each work day.
- Heavy vehicle movements associated with construction material, fill and demolition material.
- Other miscellaneous movements.

If not managed appropriately construction-phase traffic can cause significant disruption to the local community. It is considered that the effects of construction phase traffic are effectively managed by the following:

- The Project's construction will require up to 10 to 20 staff per day to be present on-site, with construction activities will run between 0700 and 1900 Monday to Friday and 0700 to 1800 on Saturday (if required). The movement of these staff members to and from the construction site(s) will be run counter to other traffic in the Project area, thereby avoiding any significant delays for other road users in the Project area. Furthermore, staff vehicle numbers are insignificant in the context of the traffic volumes present within the Project area and connecting arterial corridors.. Furthermore, staff parking will be provided across at the various active construction areas, such as the primary stockpile site. There is also ample on-street parking present that can be used without any significant impact on residents. On-street parking will also remain available to users of SNBP and other open spaces.

- Council's proposed condition set includes a requirement to engage with residents and open space users (e.g. the Yacht Club) to minimise any potential conflict between the Project's staff parking and other activities.
- Section 4 of the preliminary design report also details the volume and scale of heavy vehicles generated by the Project's construction. First considered by that report are the heavy vehicle movements associated with traffic between the primary stockpile site and active construction areas. Those movements are affected by the limitations of coastal works, given the need to undertake activities outside of high tide and will occur in peaks of activity associated with the construction programme. However, on average 33 heavy vehicle trips between the primary stockpile site and construction sites are expected during each working day. This figure is based on a conservate assessment of fill volumes and truck use efficiency, so it is possible that fewer movements may occur, while some movements may be direct from suppliers and avoid the need to travel via the stockpile site. The other major source of vehicle movements will arise from the disposal of materials (e.g., excess fill) from the stockpile site to a disposal location. The preliminary design report estimates that 22 truck movements per day can be expected by this activity. It is considered that traffic movements fit within the permitted activity standards of Rule 7.4.2.1 P10 of the District Plan.
- Despite traffic movements being predicted to be within permitted activity limits under Rule 7.4.2.1 P10 of the District Plan, the Council proposes to employ a Construction Traffic Management Plan (CTMP) due to the need to bring materials into a work site in proximity to a residential area. The CTMP forms part of the proposed conditions set (Section 8.9), The CTMP will include the following:
  - Methods to manage the effects of temporary traffic management activities on traffic;
  - Measures to ensure the safety of all transport users;
  - The estimated numbers, frequencies, routes and timing of construction traffic movements, including any specific non-working or non-movement hours to manage vehicular and pedestrian traffic near educational facilities and childcare facilities or to manage traffic congestion;
  - Details on temporary facilities for pedestrians to ensure connectivity if the existing facilities cannot be safely and reasonably maintained;
  - Details of wayfinding signage for motor vehicle users, public transport users, cyclists and pedestrians;
  - Site access routes and access points for heavy vehicles, the size and location of parking areas for plant, construction vehicles and the vehicles of workers and visitors;
  - Methods to maintain vehicle access to property and/or private roads where practicable, or to provide alternative access arrangements when it will not be; and
  - The management approach to loads on heavy vehicles, including covering loads of fine material, the use of wheel-wash facilities at site exit points and the timely removal of any material deposited or spilled on public roads outside active construction areas.

Based on the limited duration of traffic generation activities and mitigation measures to be employed by the use of the CTMP, the construction traffic effects of the Project are considered to be less than minor.

### 8.6.2 Arboricultural Effects

Tree removal can alter the landscape and cause impacts on the existing open space amenity and surrounding environment. The Project requires the removal of 2,441 trees. At SNBP, this includes trees within the Council reserve, while affected vegetation at Southshore is largely the remains of old residential gardens. The potential impacts of arboricultural effects are considered to be appropriately managed by the following:

- A range of recommendations have also been proposed in the Arboricultural Impact Assessment (Appendix G) to ensure any adverse effects on the immediate and wider environment are either avoided or mitigated. It is considered that Global Consent RMA/2021/2059 can be relied on for removal of trees

that do not fall under the permitted activity standards of Rule 9.4.4.1.1. The global consent is subject to approval under relevant Council Delegations requirements that will be sought as part of the adherence to the Global Consent.

- Mitigation is also provided partly by the proposed Landscape Master Plan that has been prepared in support of the Project. That concept has been designed in consultation with mana whenua and with input from the community and is considered an appropriate response to the works that are necessary to construct the Project.
- The Arboricultural Impact Assessment has also identified particular trees and vegetation that are to be retained and protected during the construction works. Some of the trees that are to be retained have been identified by the community as significant, either as particular remnant species from now removed dwellings or trees that hold significance for other reasons. These trees will be protected through compliance with the Christchurch District Plan rules, the CCC Tree Policy tree protection requirements, and the Contract Standard Specifications (CSS) Part 1, 22.0 "Protection of natural assets and habitats". These methods will be included within the Tree Protection Management Plan ('TPMP') that is required under condition 9(a) of Global Consent RMA/2021/2059.
- The Arboricultural Impact Assessment has also identified that the existing global consent (RMA/2021/2059) can be relied upon for works with the vicinity of trees within the road corridor, public open spaces and waterbody setback. The consent is for works affecting the entire Project extent. Where this consent is to be relied on the conditions outlined in the global consent will be adhered to, and the process for this included in the TPMP.
- The Arboricultural Impact Assessment identified that the Council's own tree policy specifies that for every tree removed, a minimum of two new trees will be planted with the projected canopy cover replacing that which is lost within 20 years (additional planting may be required). There are 2,441 trees proposed for removal as part of the project and as such the CCC Tree Policy requires the replanting of a minimum of 4882 trees. The replacement tree planting is to be carried out as specified in the CSS, Part 7 Landscapes, with at least 24 months establishment. The proposed Southshore Landscape Master Plan exceeds this requirement (Appendix E).

Overall, the effects of tree removal are managed through the adherence to Global Consent RMA/2021/2059, which confirmation of use is being sought through correct channels at Council. Although a large number of trees are required to be removed to facilitate construction of the Project, the effects of this are considered to be appropriately offset by the number of trees to be replanted and the proposed Landscape Master Plan, such that any adverse effects associated with the removal of the existing trees are less than minor. Mitigation landscaping and planting has been developed in consultation with mana whenua, and has been designed such that the entire project area will appear as a coherent site, as discussed in Appendix K.

### 8.6.3 Noise and Vibration Effects

The Project will involve a require a variety of construction activities and equipment, including earthwork machinery and piling. While no infringements of noise and vibration are proposed, the Council recognises that construction activities can disturb sensitive land uses, like housing and open space. It is considered that noise and vibration impacts are appropriately addressed through the following:

- While the Project is in proximity to some sensitive land uses such as housing, open space and educational facilities, the Project will be constructed in a linear manner which will minimise the effects on any particular party to a reduced period of the construction programme.
- Furthermore, no works are proposed on Sundays, night-time hours or on public holidays. These limits on work hours will minimise disruptions to sensitive activities, including public use of SNBP and the Estuary edge given their high recreational usage.
- The Council proposes to include a section within the CEMP dealing with construction noise and vibration the objectives of which will be:

- Identify and implement the Best Practicable Option (BPO) for the management of all construction noise and vibration effects.
- Define the procedures to be followed where the noise and vibration standards are not met (following the implementation of the BPO).
- Set out the methods for scheduling works to minimise disruption.
- Ensure engagement with affected receivers and timely management of complaints.
- Highlight the description of the works, machinery and equipment to be used.
- Identify the hours of works.
- Specify the construction noise and vibration standards.
- Identification of receivers where noise and vibration standards apply.
- Management and mitigation options, and identification of the BPO.
- Methods and frequency for regular construction noise and vibration monitoring and reporting of all monitoring results and outcomes.
- Procedures for communication with nearby residents, education facilities, sports clubs and other stakeholders, including:
  - Notification of proposed construction activities,
  - The period of construction activities; and
  - Effective management of noise and vibration complaints.
- Contact details for the person responsible for communication and consultation for the Project.

Based on the proposed mitigation measures and the implementation of noise and vibration protocols within the CEMP, the construction noise and vibration effects of the Project will be less than minor.

### 8.6.4 Earthworks Effects

The Project will require a variety of earthworks across the construction footprint, not least those associated with the excavation and removal of existing protection structures. The Design report (Appendix D) provides an estimate of likely earthwork volumes as detailed below (Table 19).

Table 19 Estimated Earthworks Volumes for the Project

| | Southshore | | South New Brighton Park | |
|---|---|---|---|---|
| Material | Volume - $m^3$ solid | Volume - $m^3$ loose | Volume - $m^3$ solid | Volume - $m^3$ loose |
| Site strip | 700 | 1,000 | 530 | 750 |
| Excavation | 16,800 | 21,850 | 3,650 | 4,750 |
| Re-use of excavated material | 5,700 | 7,400 | 1,300 | 1,700 |

| | | | | |
|---|---|---|---|---|
| Cobble | 1,700 | 1,800 | 3,360 | 3,700 |
| Rock | 8,500 | 9,400 | - | - |
| Structural fill | 9,650 | 12,550 | 3,690 | 4,800 |

Council is aware that bulk earthworks can generate erosion, sediment run-off, dust and effects on water quality as reinforced through engagement with mana whenua. On this basis, all land disturbance will be undertaken in accordance with ECan Erosion and Sediment Control Toolbox for Canterbury and managed through the Project's ESDCP.

As detailed in the proposed conditions (Section 8.9), the ESDCP will require certification prior to earthworks commencing and will require the following:

- Preparation of the ESCP by a suitably qualified and experienced person (SQEP);
- Supporting calculations and design drawings;
- Details of construction methods;
- Catchment boundaries and contour information;
- Details relating to the management of exposed areas;
- Design criteria, typical and site-specific details of erosion and sediment control;
- Design details for managing the treatment, disposal and/or discharge of contaminants; and
- Measures to control dust generation and dispersal.

These measures will be subject to regular monitoring and maintenance.

Earthworks are also proposed below MHWS within the CMA. In order to avoid the discharge of sediment within active construction areas, the Council will only work in the CMA during low tide. Similarly, piling of the Tern Street Viewing Platform will be undertaken during low tide to minimise the dispersal of displaced sediment.

Based on the identified mitigation and management techniques the effects of earthworks for the Project are considered to be less than minor.

### 8.6.5 Ecological Effects

The Project's ecological effects are addressed in detail by the Ecological Assessment (Appendix M), which considers both terrestrial and coastal ecological effects. As an existing urban area, there has been significant clearance and alterations made to natural environmental values, including those associated with terrestrial ecology. Similarly, the Estuary has been subject to modification, with its own ecological values affected by historic land clearance and discharges.

#### 8.6.5.1 Effects on Terrestrial Ecology

The primary terrestrial ecological values are associated with the presence of the Southern grass skink, an at-risk declining native species that is reliant on vegetation cover and related debris for habitat. The Ecological Assessment has also identified that there are very low biodiversity values associated with terrestrial vegetation within construction areas, with the red zone areas identified as exotic grassland/herb field and a small area of indigenous grassland present at the southern extremity of the Project area. Overall, the Project will require the disturbance of 7.3 ha of the exotic grassland/herb field, with a further 0.34 ha of Saltmarsh Ribbonwood/Marram Grass grassland affected too.

The Ecological Assessment has considered the various possible effects on each of the terrestrial environments. It is considered that the impacts on terrestrial ecology are appropriately managed via the following:

- The construction-phase activities will require vegetation clearance of identified natural inland wetlands at Southshore (i.e. saltmeadow). The overall quantum of vegetation clearance will be:
  - 0.17 ha of Saltmeadow;

The loss of ~0.2 ha of saltmeadow habitat cannot be avoided, remedied or mitigated, and hence this represents a net loss of significant habitat. Wider habitat benefits (ecological enhancements) associated with implementation of the planting plan are considered insufficiently relevant to the loss of saltmeadow to constitute a remedy, mitigation. On this basis, an offset is required. The proposed offset involves creation of at least 0.36 ha of saltmeadow habitat at nearby Southshore Spit Reserve. The offset is described in the Saltmeadow Management Plan included as part of Appendix M of this report. It is concluded that this will result in a net gain of saltmeadow for the Project.

- In regard to the exotic grassland/herb field, the Project will result in the removal of mostly non-native vegetation that does not currently provide continuous cover or significant habitat for native lizards. The Saltmarsh Ribbonwood/Marram Grass grassland and indigenous grassland currently provide better native lizard habitat and although efforts have been made to minimise its disturbance, some construction activities and permanent occupation by the Project will still be required.
- The primary focus of mitigation to address the ecological effects of this vegetation clearance will focus on native lizards. This focus will rely on the implementation of a Lizard Management Plan (LMP), which is a commonly employed measure on infrastructure projects across the motu. The LMP will be subject to certification prior to the commencement of the Project's construction and as listed in the proposed conditions (Section 8.9)
- Complementing the LMP will be a Saltmeadow Offset Plan (SOP). The SOP will be developed to complement and form part of the wider the Landscape Management Plan, which with the reintroduction of native coastal vegetation improve local floral biodiversity values. The SOP has accompanying proposed conditions require the following to be detailed in the SOP:
  - Identification of areas to be restored as lizard habitat to the quantum identified by the Ecological Assessment.
  - Details of the restoration required at each site to replace and enhance lizard habitat, including the planting design (including vegetation to be retained) and supplementary refuges.
  - How plantings are demarcated and protected by fencing (where appropriate).
  - The programme to establishment and post establishment protection and maintenance of plants (fertilising, weed removal/spraying, replacement of dead/poorly performing plants, watering to maintain soil moisture, maintenance programme) for a minimum of the 5 (five) years.
  - Details of the proposed plant species, plant sourcing (locally EcoSourced native pioneer species that are adapted to the Estuary environment are preferred in the first instance), the plant sizes at time of planting, the density of planting and timing of planting.
- The Ecological Effects Assessment has recommended that vegetation removal is not undertaken during bird nesting season (September to February). Where these months cannot be avoided, the assessment recommends pre-construction nesting bird surveys should occur. This approach will protect any native birds and is required in accordance with the following proposed condition:

  > *"Vegetation must not be removed between 1 September and 28 February (bird nesting season) unless the matters below have been undertaken:*

*a) A suitably qualified ecologist (the 'project ecologist') has completed a survey at least one week before any vegetation is to be cleared to ensure that there is no active native bird nesting occurring at the time; and*

*b) If any active nests of native birds are recorded within the vegetation scheduled for removal, vegetation clearance may not be undertaken until the birds have finished fledging. The project ecologist must monitor the birds until they have finished fledging and provide written confirmation to the clearance contractor when clearance may commence."*

Based on these measures, the Ecological Assessment has concluded that the Project's terrestrial ecological effects will range from net positive (at the exotic grassland/herb field) through to low effects (at saltmarsh ribbonwood / marram grass grassland). Given the terrestrial ecological effects will be no more than minor.

#### 8.6.5.2 Effects on Marine Ecology

As noted in the Ecological Assessment (Appendix M), both temporary and permanent activities are proposed within the coastal environment. This includes work below MHWS (i.e., the CMA), as well as the foreshore and above MHWS. These activities are associated with the coastal protection works and the Tern Street Viewing Platform.

Given these construction activities, the following types of effects are anticipated:

- Loss and creation of mudflat habitat.
- Loss and creation of hard-bottom habitat.
- Mudflat habitat disturbance.
- Mortality of estuarine organisms.
- Resuspension of benthic sediment and contaminants.
- Runoff of terrestrial sediment and contaminants.
- Minimal estuarine vegetation loss below MHWS including:
  - 0.001ha loss of saltmarsh represents margin of error between the mapping of saltmarsh and the proposed construction footprint ; and
  - Although design identifies that seagrass vegetation will be avoided there is a chance that indicatively less than 400 cm² impact will be possible at 44a Rocking Horse Road and other isolated locations.
- Noise and vibration impacts.

The construction-phase impacts are considered to be appropriately managed by the following:

- The area of estuary bed potentially gained from pulling back/removal of structures is 2140 m². This gives a net gain of 1659 m² of extra estuary bed area within Southshore. Overall, across the whole project site (Southshore and SNBP) there is a resulting net declamation of 879m²of estuary bed.
- Similarly, the Project will result in the loss of ,1731 m² of hard-bottom habitat, although 2,436 m² of equivalent habitat will be constructed. The Ecology Assessment identifies that while there is a net gain in this habitat type, it will still be formed by unnatural hardening and will be unlikely to support estuarine communities with any significant ecological values. As such, the Ecological Assessment has determined that the effects from changes in the quantum of hard-bottom habitat will have a very low-level impact on ecological values.
- The Project will also involve approximately 4,210 m² of mudflat disturbance, which will be up to 1 m in depth below current seabed levels. This excavation will occur within 3m of the bases of new revetment structures. The other mudflat disturbance will occur during piling for the Tern Street Viewing Platform, although the piling will be undertaken from the bank (i.e. no machinery in the Estuary) and will be

undertaken at low tide. This disturbance is anticipated to generate negligible effects given the lack of any real change from the current conditions present below MHWS.

- Consideration has also been given to how best for the Project to avoid impacts on seagrass habitat. However, some seagrass habitat disturbance may still occur, including a 400cm² are adjacent to 44A Rocking Horse Road and a single isolated plant within the revetment footprint. However, the loss of this habitat has been assessed as having very low effects with the implementation of the Seagrass Management Plan.
- For saltmarsh at Southshore it is recommend that the minor 0.001 ha losses are remedied by planting of greater numbers of sea rush plants into sparsely vegetated areas of (or at the upper edge of) existing saltmarsh, to achieve no net loss or preferably net gain in saltmarsh extent.
- It is recognised that the Project's construction will also cause mortality to some marine fauna. This is likely to affect sessile or slower moving benthic organisms, rather than fish species. However, the ecological surveys undertaken for the Project did not identify any Threatened or At Risk marine organisms, with only common species observed. Within the context of the wider Estuary, as well as the new mudflat habitat created by the Project, the mortality effects of the Project will only be of a very low magnitude and will largely localised to the immediate Project area.
- Another possible source of marine ecological effects could arise due to the resuspension of sediments during construction. Due to historic discharges from stormwater networks and other sources, the sediment within the Estuary features a variety of contaminants that can concentrations harmful mainly to benthic biota. In order to address this potential effect, the Council proposes to only undertake sediment disturbance below MHWS during low tide. The resulting disturbed seabed will also be reinstated within the same tidal phase in order to reduce sediment suspension. Any resulting suspension is anticipated to be localised and temporary, thereby avoiding any significant effects on biota.
- Similarly, earthworks onshore also have the potential to affect marine water quality and consequently marine ecological values. Earthworks will be undertaken in accordance with a Council certified ESDCP, which follows the ECan Erosion and Sediment Control Toolbox for Canterbury. With the implementation of these measures, the effects of onshore earthworks on marine ecological values will be very low.
- There will be noise and vibration associated with the Project's construction. This includes the piling required to build the Tern Street Viewing Platform. While noise and vibration can have an adverse effect on marine biota, any such effects are temporary. These effects are anticipated to mainly affect benthic organisms given their more localised or fixed positions in the Estuary. Benthic biota could be temporarily disturbed by construction, but such disturbance is intermittent and highly localised. It is also noted that hard surface biota will be unaffected given that their existing habitat will be removed for the new protection structures. Fish species are anticipated to be remain largely unaffected, both due to works occurring at low tide and their ability to readily transit to other areas of the Estuary. On this basis, the noise and vibration effects on marine biota are expected to be very low in magnitude.

Although these effects are generally of a very low to low magnitude, the Council has proposed a range of mitigation measures that have been incorporated into the proposed conditions set (Section 8). To summarise, this mitigation will include:

- A Seagrass Management Plan, which will address effects on seagrass where such effects cannot be avoided at the very small isolated location at 44a Rocking Horse Road and other possible isolated locations (400cm²). This management plan may involve excavating seagrass and reinstating it at the same location or transplanting it to a suitable receiving site in adjacent areas of the Estuary.
- The implementation of a Saltmeadow Offset Plan for any offsetting measures required (more applicable to terrestrial ecology for saltmeadow habitat – refer to Section 8.6.5.1).
- Supervision of works within the CMA by a suitability qualified marine ecologist. This is to ensure that works occur in an appropriate manner and avoid saltmarsh and seagrass habitats.
- Replacement planting of sea rush plants at the edges of retained salt marsh.

- Mitigation plantings for the clearance of saltmarsh ribbonwood / marram grass grassland habitat.

On the basis of the ecological assessment and the measures proposed by the Council, the marine ecology construction effects of the Project will be no more than minor.

#### 8.6.5.3 Effects on Avifauna

Based on information received from Project ecologists, with the exception of red-billed gull (At Risk – Declining) and little shag (threat classification At Risk – Relict), all other species recorded during the surveys are classified native Not Threatened or Introduced species. Three of the five red-billed gull birds were recorded traversing, indicating that they were not utilising the habitat within the project footprint. Furthermore, the roost trees that the little shag were recorded in during the April 2022 survey are no longer present, as is the case for white-faced heron.

No breeding shag species (or white-faced heron) were observed within the SNBP footprint during the November 2023 survey. Similarly, there are reports of kereru nesting within the trees of SNBP, potentially within the project footprint adjacent to Jellicoe Marsh, however none were observed during the November 2023 survey.

The exotic grasslands within the project footprint offers limited habitat for common, widespread terrestrial native and introduced bird species typically found in urban / residential and open habitats and effects are considered to be negligible. The direct removal of the exotic treeland habitat at SNBP will result in the potential loss of breeding habitat for a number of native species including bellbird, fantail, grey warbler, kereru and silvereye. The creation of new estuary habitat is considered to be a net gain.

With the proposed mitigation/impact management the level of effect on avifauna was considered by the Project ecologists to be very low to low. It is therefore considered that this is a less than minor effect.

On the basis of the ecological assessment and the measures proposed by the Council, the impacts on 'at-risk coastal bird species protected under Policy 11(a) of the NZCPS are avoided, and the impacts on birds that are afforded protection under 11(b) of the NZCPS are considered to be less than minor.

### 8.6.6 Recreation Effects

The Project will be constructed within Council reserves and an area of the red zone used for recreational activities by residents. These outdoor spaces provide for both passive and active forms of recreation as detailed in the Recreation Assessment (Appendix L). The Project's construction has the potential to disrupt the public's use of these spaces, temporarily impacting their utility and related social wellbeing. In particular, construction activities will require the temporary closure of some walking tracks, vegetation clearance and construction traffic in areas that are typically quiet and highly valued by the community.

Given this, the Council has proposed the following measures, which have also been incorporated into the proposed conditions set:

- Minimise, where practicable open space closures during heavily use, such as, but not limited to summer holidays and long weekends (i.e. 20 December to 31 January, public holidays and anniversary days).
- Providing wayfaring to direct open space users to facilities.
- Replacement planting for areas where vegetation is proposed to be removed from the Project or construction footprint, shall be in accordance with the Landscape Master Plan (as detailed in the Landscape Visual Effects Assessment or Southshore and SNBP landscape plan, issued 07.08.2023).
- Requiring, where practicable, the Project's CTMP and CEMP to minimise road, car park and pedestrian access closures/disruptions.
- Requiring, where practicable, the Project's CTMP to provide alternative pedestrian and cyclist access to the important linkage connecting SNBP to Southshore Spit Reserve where disruptions occur.

- Undertaking on-going communication with residents, sports clubs (including organisers of the annual Sport Canterbury Tough Kid event) and local education facilities (e.g., South New Brighton Primary School and playcentre) to inform of temporary open space closures, access and drop-off zone disruptions.
  - Allow for maintaining some access between open space and the Estuary edge;
  - Minimising works in open space during weekends, long weekends and public holidays; and
  - Minimising the overall construction footprint of the Project in open space areas.
- Given the coastal nature of the Project, there is also potential disruption to the recreational users of the Estuary. This includes the closure of access points and the occupation of parking areas by construction activities. Council's engagement with the community (Section 7) also highlighted the importance of the Estuary to the Yacht Club and other sailors. As such, further construction controls have been proposed by the Council to address effects on water users, including:
  - Ongoing engagement with the Yacht Club to phase works, where practicable around regattas and other events (e.g. The Estuary Championships), and the more the high use summer period (early September – April) and to accommodate the short winter sailing series. All year-round sailing events are scheduled on Saturday, Sunday, various Friday evenings and Monday afternoons.
  - Minimise disruption of public access to boat ramps and jetty at SNBP particularly within scheduled sailing and other events.
  - Inclusion of measures in the Project's CTMP or CEMP to minimise restrictions to road and car park access at SNBP.
  - Minimising the use of SNBP beside the Yacht Club and access to the jetty area as a construction laydown area.
  - Allow designated points to ensure the community and Yacht Club can still have reasonable and temporary access the water.

Based on the above mitigation measures, it is considered the Project's construction-phase will have less than minor effects on recreation.

### 8.6.7 Cultural Effects

As highlighted in Section 7.2.1, initial engagement with Mahaanui Kurataiao Limited it was confirmed that Te Ihutai Ahu Whenua Trust (the Trust) holds mana over the area and were the relevant mana whenua representatives to discuss the project with and consider cultural effects. It is worth noting the Trust and Runanga have agreed to work together on various Kaupapa within the Ihutai Catchment.

It is acknowledged that the construction of the Project has the potential to cause cultural impacts. Mahinga kai, significant sites and areas and relevant flora and fauna all reinforces the connection of mana whenua to place. The Project has the potential to impact on all of these elements during the construction phase and managing the impacts on all of these elements has to be carefully considered.

Given this, the council have undertaken the following steps to avoid, remedy and mitigate cultural impacts:

- As discussed in Section 7.2.1, engagement with the trust has been early and ongoing. There has been and intent to provide a partnership approach to the Project and there has been early and consistent engagement with the Trust to enable recognition of mana whenua. A list of engagement activities to date is identified in Section 7.2.1. Council recognises this is an ongoing partnership and extends well beyond environmental approvals and this Project and extends to maintaining the partnership principles of the Treaty of Waitangi. The hui helped clearly delineate cultural impacts and provide a springboard for recognition of mana whenua throughout the design process.

- There has been provision for mana whenua to be involved in the implementation of plans and activities that allow the Trust to thread the storying and history of the mana whenua of the area. Specifically, the CCC landscaping team have been working with representatives of the Trust on the Project's landscaping design and a cultural design guide was developed by the Trust to assist the CCC team in this work.
- Mana whenua are able to appropriately inform and bring together various conceptual frames from the outset with early engagement.

The correct level of engagement has been attained and Council recognise that in a partnership this must be maintained. Given the involvement of the Trust in the Project to date we have sought written approval of the Trust. A copy of this resource consent application has been provided to the Trust for comment.

Given the level of engagement Council have a level of confidence that the cultural effects of the activities being undertaken are less than minor as any issues are consulted on and acted upon before they materialise.

### 8.6.8 Heritage Effects

Given the known archaeological features of the Project area and its historic occupation by Māori as detailed in Section 3.4.3, an Archaeological Assessment has been prepared for the Project (Appendix H).

The Archaeological Assessment has provided a description of known recorded archaeological sites within the project site and the wider area. Of these, most are located within properties that are close or adjacent to the project site, but not within it, and will therefore be unlikely to be impacted by the proposed works. These are described in detail in the Archaeological Assessment.

There is one recorded midden site (identified as M35/916) that is within the Southshore portion of the construction corridor. The Archaeological Assessment notes that M35/916 is an archaeological site that has been recorded because of previous earthworks at 36A Rocking Horse Road. The midden was located 300 mm below the ground surface over an area of approximately 4 m².

If the site is encountered it will most likely be damaged and portions of the site may be destroyed, which would have a negative impact on the archaeological values of this site, and result in more than minor adverse effects. The Archaeological Assessment notes that if the excavation for the new path and bund is limited to a maximum depth of 300 mm or less, it is unlikely that archaeological site M35/916 will be affected, thereby avoiding any effect on the midden.

Other planned works at this location (in the vicinity of 36A to 40A Rocking Horse Road approximately), include stripping vegetation, removal of the existing LINZ bund, and excavation within the Estuary to at least 1 m below current beach surface, are unlikely to have any impact on M35/916 or other as yet unrecorded archaeological sites.

It is possible that other unrecorded archaeological sites associated with Māori occupation and mahinga kai exist both within and near the area of planned works. It is also possible that the construction works may encounter further yet unrecorded archaeological material relating other recorded sites in the vicinity of the proposed work.

- In this regard, it is noted that an Archaeological Authority will be sought from Heritage New Zealand Pouhere Taonga. The Council has also proposed an Accidental Discovery Protocol as part of the proposed conditions set (Section 8.9), which along with the conditions of the Archaeological Authority will establish an appropriate framework to address the Project's archaeological effects.
- In addition, if any subsurface archaeological features are encountered during earthworks for the bund, stepped access, rock revetment and/or cobble beach (including M35/916), the archaeological material will likely need to be removed during the works if it cannot remain in situ (e.g., by being encapsulated within or covered by the bund or revetment). This will be undertaken in accordance with the appropriate protocols and engagement with mana whenua and Heritage New Zealand Pouhere Taonga in order to protect heritage values.

- It is noted that to the bund and raising of the walking track, will prevent future surface erosion caused by foot traffic. This will reduce the risk of archaeological material becoming exposed on the surface in the future and is a positive effect of the Project.
- At SNBP that middens have been identified / recorded in the SNBP Project section. These are currently at risk due to the coastal erosion occurring due to the failure of the gabion baskets. Damage has already occurred as can be seen by the concentration of shells in some areas where the edge has been eroded. The Project will encapsulate these middens to protect them from further erosion. The proposed design approach has been managed in association with the Trust and results in a considerable archaeological benefit for the Project. This was balanced out against potential encroachment of encapsulation structures into the Estuary bed. As such, the footprint of encapsulation to protect the exposed middens has been minimised.

Given the protection of existing exposed middens at SNBP and the mitigation and management of archaeological heritage for the rest of the Project and the acquisition of an Archaeological Authority from Heritage New Zealand Pouhere Taonga, it is considered for the entire Project the archaeological effects will be less than minor and in fact protection of exposed middens is a considerable positive for the Project.

### 8.6.9 Effects on Groundwater

No significant excavations are proposed, apart from any necessary to remove dilapidated edge protection structures. As only shallow excavation along the alignment is necessary, groundwater is not anticipated to be intercepted, nor will any dewatering be required.

Any stormwater discharged to ground as a result of the project (i.e., through the construction process) will be limited. The works will largely comprise ground preparation and deposition of material to create the inundation bund, and appropriate erosion and sediment control measures will be required to be in place throughout the construction period. There will also be a requirement for spill kits to be available on site in the event of any incidents to allow any materials to be contained.

Given these factors, no effects on groundwater are anticipated.

### 8.6.10 Effects on Surface Water (Flooding)

There are no freshwater surface water bodies with ecological significance within the vicinity of the Project. Instead, the proposed inundation protection bunds at SNBP and Southshore have the potential to impact landward flooding.

The impacts on landward flooding are considered to be appropriately managed via the following:

- SNBP and the surrounding properties are currently susceptible to flooding from surface water. The lowest ground levels in SNBP are typically around 250 mm below the ground level along the proposed alignment of the bund between the Park and the estuary. Ponding of surface water up to this depth, which results in flooding in the South Brighton Holiday Park, will not be affected by construction of the bund.
- For higher flood levels, construction of the SNBP bund will result in the loss of a small volume of flood storage at the northern end of the bund and obstruction of a narrow overland flow path to the estuary at the southern end of the bund. In these larger flood events (ponding level of over 1.5 m NZVD2016), flooding is more widespread and includes properties along Estuary Road. The flooded area is also connected to the low-lying land in Southshore through overland flow along Estuary Road. The loss in flood storage volume and overland flow volume will be relatively small compared to the area of land flooded so that any increase in flood level and extent will also be small.
- There is potential to alleviate the existing flood risk in the SNBP area by providing a temporary pumping location for use in a large flood event.

- Construction of the new Southshore bund will not further obstruct overland flow into the estuary because previous flood modelling indicates that ponding levels in extreme rainfall events will not reach the crest level of the existing bund. Therefore, providing a higher crest level will not impede existing flow paths.
- The new Southshore bund will result in a reduction in the flood storage volume available in the protected area through filling over the footprint of the bund and this will tend to increase the flood level. However, given the large volume of flooding in the area relative to the flood volume displaced by the bund, any increase in flood level will be small.

The two bunds will reduce the current risk of tidal flooding to properties in SNBP and Southshore. Properties in these areas are also currently susceptible to pluvial flooding due to runoff exceeding the capacity of the gravity stormwater network. The effect of both bunds on pluvial flooding to properties is considered to be minor given the small volumes of flood storage displaced by the bunds relative to the flooded area.

Overall, given the increased inundation protection to the same infrastructure at risk of tidal flooding, and given the small volumes of flood storage displaced by the bunds relative to the pluvial flooded area, the effects on surface water flooding are less than minor.

### 8.6.11 Effects on Contaminated Land

The Project will require land disturbance during construction, both from land clearance and the construction of the new structures themselves. Given the land use history of the Project area, not least the red zone land, a DSI was undertaken (Appendix J).

The DSI found that all soil samples collected had contaminant concentrations that made them unfit for cleanfill disposal. In addition, asbestos containing material was also found. While these contaminant levels do not render the land unsafe for community use, controls will be needed during construction to protect human health and avoid discharges into the environment.

The principal instrument to manage these risks will be utilisation of the Contaminated Site Management Plan (CSMP) under the global consent RMA/2021/2094. As detailed in the proposed conditions (Appendix J). It is anticipated that global consent RMA/2021/2094 can be relied on for the Project, however the level of management plan to be relied on is yet to be determined. The Conditions of RMA/2021/2094 provide clear performance requirements for contaminated land management and disposal.

By relying on RMA/2021/2094 and implementing an appropriate CSMP under this consent, it is considered the effects of contaminated land for the Project will be less than minor.

## 8.7 General Construction Controls

The Construction Methodology has been outlined in detail in Section 4.5 of this AEE. In addition to the methodology proposed, general construction controls have been identified to provide mitigation for a number of potential adverse effects.

The following general operational controls are anticipated:

- Working hours: The standard hours of operation will be restricted to weekdays and Saturdays (07:00hr to 19:00hr on weekdays and 07:00hr to 18:00hr if required on Saturdays)
- No construction to occur on Sundays or public holidays.
- Contractors may attend site outside of these hours to monitor site controls as permitted under proposed conditions.
- Construction noise limits – Construction Noise will comply with the Construction Noise Standard (NZS 6803: 1999) and with the appropriate noise limits for the District Plan zonings as identified in the CEMP (Appendix N).

- Traffic will be managed through the Construction Traffic Management Plan.

## 8.8 Environmental Management Plans Approach

Environmental Management Plans will be used to control the potential effects during construction. These will include:

- Construction Environment Management Plan (CEMP) – This management plan sets out the environmental management system that will be used for managing the real or potential environmental effects during construction. A draft is provided in Appendix N.
- Erosion, Sediment and Dust Control Plan (ESDCP) – This will document the erosion, sediment and dust control practices to be utilised on site to reduce the risk or erosion and mobilisation of sediment and any contaminants in that sediment to the environment. The general requirements are discussed in the CEMP and in Appendix N.
- Contaminated Soils Management Plan (CSMP) – Council holds an existing global contaminated land resource consent under the National Environmental Standard for assessing and managing contaminants in soil to protect human health (NES-CS). This CSMP is already approved under that global consent and will be adopted on the project to manage the risks to human health.
- Heritage Management Plan – Features of archaeological interest exist within the project area as noted in the Archaeological Assessment in Appendix H. A Heritage Management Plan has been developed to manage the risk to these features and to support an application for an Archaeological Authority from Heritage New Zealand Pouhere Taonga to cover these works.
- Lizard Management Plan (LMP) – Lizard trapping and removal from work areas will be required. This LMP documents the proposed approach. It will also be used to support an application for Wildlife Act Authority for lizard management from the Department of Conservation. This is attached to the Ecological Impact Assessment (Appendix M).
- Saltmeadow Offset Plan (SOP) – The plan documents the requirements and proposed approach for offsetting the loss of saltmeadow. This is attached to the Ecological Impact Assessment (Appendix M).
- Hazardous Substances/Spill Management Plan – to be developed by contractor prior to construction commencing and can be included as an appendix to the CEMP.
- Tree Protection Management Plan – to be developed prior to construction to protect those trees identified as part of Appendix G to be retained.
- Construction Traffic Management Plan – to be developed by contractor prior to construction commencing and can be included as an appendix to the CEMP.
- Seagrass Management Plan – to be developed to address effects on seagrass where such effects may not be avoided at the very small isolated location at 44a Rocking Horse Road and possibly other isolated locations as documented in Appendix M.

## 8.9 Proposed Conditions of Consent

The following Table 20 identifies the proposed conditions of consent that are provided for the Project. A consent duration of 10 years is sought for all construction-phase related consents, while a 35 year consent duration is sought for all enduring occupation of all proposed structures (refer to Section 1.4).

Table 20 Conditions of Consent Proposed for the Project

| Conditions Proposed to Environment Canterbury |
|---|
| *General Conditions* |

| | |
|---|---|
| 1. | The works carried out in accordance with this consent shall be located within the Southshore and South New Brighton areas, Te Ihutai Avon-Heathcote Estuary, as marked on the attached Plan XX |
| *Design and Construction* | |
| 2. | The erosion and inundation protection measures shall be constructed, operated and maintained in general accordance with the application and design Plans XX, which are attached to, and form part of this consent, and are described in the application. For the purposes of this consent, maintenance includes repairs, reconstruction or other works required to repair damage to respond to changes in the estuary edge over the life of the consent. |
| *Prior to Commencing Work* | |
| 3. | 15 working days prior to the commencement of construction, the following management plans are to be provided to Council:<br>a. Construction Environment Management Plan (CEMP);<br>b. Erosion, Sediment and Dust Control Plan (ESDCP);<br>c. Seagrass Management Plan (SGMP); and<br>d. Saltmeadow Offset Plan (SOP).<br><br>In the 15 working days following the submission of the plans, A pre-construction meeting may be held between the Canterbury Regional Council, the primary contractor, and the consent holder should the Council deem it necessary. At a minimum, the following shall be covered in the meeting:<br>a. Scheduling and staging of the works;<br>b. Responsibilities of all relevant parties;<br>c. Contact details for all relevant parties;<br>d. Expectations regarding communication between all relevant parties;<br>e. Procedures for implementing any amendments;<br>f. Site inspection; and<br>g. Confirmation that all relevant parties have copies of the contents of this consent document and the Construction Environmental Management Plan (CEMP). |
| *Construction Environment Management Plan* | |
| 4. | The Consent Holder shall prepare a Construction Environmental Management Plan (CEMP) which clearly sets out the measures to be undertaken to comply with the conditions of this consent. The CEMP shall be submitted to the Canterbury Regional Council: Attention: Regional Leader Monitoring and Compliance, at least five working days prior to construction works commencing and shall be adhered to by the Consent Holder. The CEMP shall include but not be limited to:<br>a. A map showing the location of all works;<br>b. Details of the construction methods proposed for the seawall;<br>c. A programme of works including an indicative timeframe and sequence of works; |

| | |
|---|---|
| | d. Construction noise and vibration controls;<br>e. Procedures for managing hazardous substances and preventing hazardous spills<br>f. Archaeological and Cultural Discovery protocols,<br>g. Site notices to inform the public of the works and direct people safely to alternative routes.<br>h. The monitoring and visual observations, required in accordance with condition (x) to (x).<br><br>*ADVICE NOTE: The CEMP may be prepared as a combined document that also addresses the matters required by the Christchurch City Council land use consent.* |
| *Erosion, Sediment and Dust Control Plan* | |
| 5. | The Consent Holder shall prepare an Erosion, Sediment and Dust Control Plan (ESDCP) which clearly sets out the measures to be undertaken to comply with the conditions of this consent. The ESDCP shall be submitted to the Canterbury Regional Council: Attention: Regional Leader Monitoring and Compliance, at least five working days prior to construction works commencing and shall be adhered to by the Consent Holder. The ESDCP shall include but not be limited to:<br>a. Detailed plans showing the location and design of sediment control measures, on-site catchment boundaries and sources of run-off.<br>b. An erosion and sediment control plan including drawings and specifications of designated sediment control measures.<br>c. Methods to manage the discharge of contaminants, including the screening of material prior to placement.<br>d. Inspection and maintenance for sediment control measures.<br>e. The methodology for stabilising the site and decommissioning erosion and sediment control measures after works have been completed or abandoned.<br>f. Dust control measures.<br>g. Water quality management.<br>h. Controls on the disturbances within the CMA, including the placement of geotextiles or geofabrics in excavations.<br><br>*ADVICE NOTE: The ESDCP may be prepared as a combined document that also addresses the matters required by the Christchurch City Council land use consent.*<br><br>*The ESDCP will be based on the Environment Canterbury Erosion and Sediment Control Toolbox for Canterbury (http://esccanterbury.co.nz/)* |
| *Seagrass Mapping* | |
| 6. | One month prior to the commencement of works in the Southshore portion of the project, the eastern boundary (closest to the estuary edge) of the seagrass and saltmarsh habitat (below MWHS) is re-mapped before construction begins to:<br>a. Confirm the extent of the overlap between seagrass and the project footprint at 44a Rocking Horse Road; and<br>b. Confirm that there is no further overlap between seagrass or saltmarsh and the project footprint. |

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| | The project design or construction methodology is to be revised if the updated mapping identifies new areas of seagrass / saltmarsh overlapping with the footprint of the new structures.<br><br>Before work is undertaken in the proximity of seagrass, a suitably qualified marine ecologist shall mark the boundary of the main seagrass meadow, as well as the location of small, isolated seagrass patches (with flags / stakes or similar) to ensure that the areas to be avoided are clearly visible. |
| *Seagrass Management Plan* | |
| 7. | The Consent Holder shall prepare a Seagrass Management Plan. The Plan shall be submitted to the Canterbury Regional Council: Attention: Regional Leader Monitoring and Compliance, at least five working days prior to construction commencing and shall be adhered to by the Consent Holder. The Plan shall be based on the pre work survey required by Condition 6. The plan shall be prepared by a suitably qualified marine ecologist to identify how risks on small patches of seagrass adjacent to the construction corridor will be managed through the construction process. The Seagrass Management Plan may include, but not be limited to, measures to provide for:<br>a. Excavation and reinstatement of seagrass it at the same location or transplanting to a suitable receiving site in adjacent areas of the estuary, if required.<br><br>The Seagrass Management Plan will only apply to the remediation of impacts on very small seagrass patches (indicatively less than 400 $cm^2$) on an occasional basis, with avoidance always being the first principle. No works may affect any seagrass patches greater than 400$cm^2$ in area, and seabed excavation is not to be carried out in the 0.2 $m^2$ patch of seagrass on the outer edge of the excavation zone by 44a Rocking Horse Road.<br><br>The Seagrass Management Plan is to be implemented by a suitably qualified marine ecologist who should be present on site when work is undertaken in areas where impacts on seagrass may occur. |
| *Saltmeadow Offset Plan* | |
| 8. | The Consent Holder shall prepare a Saltmeadow Offset Plan which clearly sets out the measures to be undertaken to establish the saltmeadow offset area on Plan xx. Including the methodology for lowering ground levels in a saline environment to allow the saltmeadow to become established. The Plan shall be submitted to the Canterbury Regional Council: Attention: Regional Leader Monitoring and Compliance, at least five working days prior to works on the offset area commencing and shall be adhered to by the Consent Holder. The Saltmeadow Offset Plan shall include but not be limited to:<br>a. identification and of species to be planted;<br>b. planting timeframes;<br>c. pest and weed control measures<br>d. maintenance measures; and<br>e. ongoing monitoring required.<br><br>*ADVICE NOTE: The SOP may be prepared as a combined document that also addresses the matters required by the Christchurch City Council land use consent.* |

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| *Management Plan Revisions* | |
| 9. | The management plans required by these conditions may be amended at any time. Any amendments shall be:<br>a. Only for the purpose of improving the efficiency of the proposed works including erosion, sediment and dust control measures;<br>b. Consistent with the conditions of this resource consent; and<br>c. Submitted in writing to the Canterbury Regional Council: Attention: Regional Leader Monitoring and Compliance prior to any amendment being implemented. |
| *During Construction* | |
| 10. | The earthworks and erosion and sediment control activity is to be undertaken in general accordance with final Erosion, Sediment and Dust Control Plan required to be submitted to the Council. |
| 11. | The consent holder shall ensure that erosion and sediment control measures are constructed and maintained in accordance with the Environment Canterbury Erosion and Sediment Control Toolbox for Canterbury (http://esccanterbury.co.nz/) |
| 12. | Erosion and sediment control measures shall be inspected at least once per day during the period when earthworks are being undertaken, as well as following any rainfall event that results in more than five millimetres / 24hr of rainfall at the site. Any accumulated sediment shall be removed, and repairs made, as necessary, to ensure effective functioning of devices. Records of any inspections shall be kept and provided to the Canterbury Regional Council on request. Provided it is safe to do so, earthworks and erosion and sediment control measures shall be inspected upon receipt of severe storm warnings to ensure they are secure. |
| 13. | If the consent holder permanently abandons work on-site, or ceases works for a period greater than one-week, adequate preventative and remedial measures shall be taken to control sediment discharged from exposed or unconsolidated surfaces. These measures shall be maintained for so long as necessary to prevent sediment discharges from the earthworked areas. The consent holder shall inform the Canterbury Regional Council, Attention: Regional Leader: Monitoring and Compliance:<br>a. The date in which works on site have been ceased / and or abandoned; and<br>b. The reason for ceasing and / or abandoning works on site; and<br>c. The preventative and remedial measures which will be undertaken to ensure compliance with this condition; and<br>d. If applicable, the date by which works will recommence. |
| 14. | The erosion and sediment control measures shall not be decommissioned until the site is stabilised and the stormwater system for the developed site is functioning, or a suitably approved method of stormwater disposal is in place. Decommissioning measures shall be undertaken in the following order:<br>a. All disturbed areas shall be stabilised and/or re-vegetated as soon as practicable following completion of the works;<br>b. Any visible debris, litter, sediment and hydrocarbons shall be removed from all sediment control measures; and |

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| | c. Erosion and sediment control measures shall be removed. |
| 15. | No construction related machinery or vehicles shall be permitted on the estuary bed within the Coastal Marine Area at any time. No works may be undertaken in the 2 hours either side of High Tide. |
| 16. | All machinery is stored away from the estuary edge overnight. |
| 17. | All material excavated from the land and Coastal Marine Area shall be reused on site if deemed cleanfill, or taken from the site and disposed of off-site at a facility authorised to receive such material in accordance with RMA/2021/2094. |
| 18. | Stockpiling of contaminated material shall be avoided where practicable. In the event that temporary stockpiling of suspected potential or contaminated material is required, then the stockpiles shall be managed as below:<br>a. Controls shall be installed to prevent runoff leaving the area and stormwater from other areas entering the stockpile area; and<br>b. Stockpiled material shall be covered or dampened during dry and windy conditions to prevent the generation of dust; and<br>c. If significant rainfall is forecast, the stockpiled material shall be covered by a suitable material to prevent contaminated stormwater discharge or wind-blown dust generation. |
| 19. | In the event that any unexpected contaminated soil or material is uncovered by the works, an accidental discovery protocol shall be implemented, including but not limited to the following steps:<br>a. Earthworks within ten metres of unexpected contaminants shall cease immediately;<br>b. All practicable steps shall be taken to prevent the contaminated material becoming entrained in stormwater. Immediate steps shall include, where practicable:<br>i. Diverting any stormwater runoff from surrounding areas away from the contaminated material; and<br>ii. Minimising the exposure of the contaminated material, including covering the contaminants with an impervious cover;<br>c. A SQEP should be engaged to assess the requirement for further investigation and/or risk management and advise whether notification to the Canterbury Regional Council is necessary.<br>d. If deemed necessary by the SQEP, notification of the Canterbury Regional Council, Attention: Contaminated Sites Team Leader (contaminated.land@ecan.govt.nz) and Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring within 24 hours of the discovery;<br>e. Earthworks within ten metres of unexpected contaminants shall not recommence until a suitably qualified and experienced practitioner in contaminated land confirms to Canterbury Regional Council, Attention: Regional Leader - Compliance Monitoring that continuing works does not represent a significant risk to the environment |

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| | f. All records and documentation associated with the discovery shall be kept and copies shall be provided to the Canterbury Regional Council upon request. |
| 20. | Canterbury Regional Council shall be advised in writing at least twenty working days prior to work commencing if any structure is to be completely removed from the CMA. The removal of any structures shall be planned so that only small areas of the shoreline are exposed at one time. |
| *Ecological Management* | |
| 21. | Any loss of saltmarsh below MHWS attributed to the project during construction phase shall be remedied by planting of greater numbers of saltmarsh plants into sparsely vegetated areas of (or at the upper edge of) existing saltmarsh, to achieve a no net loss or a net gain in saltmarsh extent. |
| *Spills and Hazardous Substances* | |
| 22. | All practicable measures shall be undertaken to prevent oil and fuel leaks from vehicles and machinery or spills of any other contaminant within the site, including not storing fuel or refuelling machinery within 20 metres of the CMA unless:<br>a. A drip tray is positioned underneath the filling point; or<br>b. Fuelling is carried out within a bunded area created for refuelling operations. |
| 23. | The consent holder shall ensure that spill management measures and equipment, as necessary to contain, manage, and remove spilled hazardous substances and contaminated material, are retained on site at all times. These measures shall include but not be limited to:<br>a. Preparing and providing a written spill response plan to all persons undertaking activities authorised by this consent. A copy of this response plan shall be kept on site at all times; and<br>b. Retaining a spill kit on-site that is capable of absorbing the quantity of oil and petroleum products that may be spilled on site at any one time. |
| 24. | In the event of a spill of fuel or any other hazardous substance with the potential to enter the CMA, the consent holder shall:<br>a. Clean up the spill as soon as practicable, inspect and clean the spill area, and take measures to prevent a recurrence.<br>b. Inform the CRC, Attention: Regional Leader: Monitoring and Compliance, within 24 hours of a spill event and provide the following information:<br>i. the date, time, location and estimated volume of the spill;<br>ii. the cause of the spill;<br>iii. the type of hazardous subhtance(s) spilled;<br>iv. clean up procedures undertaken;<br>v. details of the steps taken to control and remediate the effects of the spill on the receiving environment;<br>vi. an assessment of any potential effects of the spill; and<br>vii. measures to be taken to prevent a recurrence. |

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| 25. | The consent holder shall remedy the impacts of inundation by cobble beach material on the mudflat habitat (both at SNBP and Southshore) and on the saltmarsh habitat below MHWS at Penguin Street (Southshore) by undertaking the following:<br>a. Monitor and map the position of the toe of the cobble beach structures yearly to assesses whether the structures are encroaching or moving closer to the mudflat and saltmarsh habitats;<br>b. Promptly inspect the cobble beach structures following large storm events;.<br>c. Assess damage to the saltmarsh vegetation in case of cobble encroachment/inundation in the saltmarsh habitat;<br>d. If needed, based on the results of the yearly mapping and of any post-storm inspection:<br>i. Reinstate the original position of the toe of the cobble beach structures.<br>ii. Remove any material washed onto the mudflat and saltmarsh habitats.<br>iii. Re-establish saltmarsh plants in areas where cobbles have caused damage to the saltmarsh vegetation. |
| *Accidental Discovery* | |
| 26. | In the event of any discovery of archaeological material:<br>a. the consent holder shall immediately:<br>i. Cease earthmoving operations in the affected area and mark off the affected area; and<br>ii. Advise the Canterbury Regional Council of the disturbance; and<br>iii. Advise Heritage New Zealand Pouhere Taonga of the disturbance.<br>b. If the archaeological material is determined to be Koiwi Tangata (human bones) or taonga (treasured artefacts) by Heritage New Zealand Pouhere Taonga, the consent holder shall immediately advise the office of the appropriate rūnanga (office contact information can be obtained from the Canterbury Regional Council) of the discovery.<br>c. If the archaeological material is determined to be Koiwi Tangata (human bones) by Heritage New Zealand Pouhere Taonga, the consent holder shall immediately advise the New Zealand Police of the disturbance.<br>d. Work may recommence if Heritage New Zealand Pouhere Taonga Trust (following consultation with rūnanga if the site is of Māori origin) advises the consent holder that work can recommence.<br><br>*ADVICE NOTE: This may be in addition to any agreements that are in place between the consent holder and the Papatipu Rūnanga. (Cultural Site Accidental Discovery Protocol).*<br><br>*ADVICE NOTE: Under the Heritage New Zealand Pouhere Taonga Act 2014 an archaeological site is defined as any place associated with pre-1900 human activity, where there is material evidence relating to the history of New Zealand. For sites solely of Māori origin, this evidence may be in the form of accumulations of shell, bone, charcoal, burnt stones, etc. In later sites, artefacts such as bottles or broken glass, ceramics, metals, etc. may be found or evidence of old foundations, wells, drains, tailings, races or other structures. Human remains/koiwi may date to any historic period.* |

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| | It is unlawful for any person to destroy, damage, or modify the whole or any part of an archaeological site without the prior authority of Heritage New Zealand Pouhere Taonga. This is the case regardless of the legal status of the land on which the site is located, whether the activity is permitted under the District or Regional Plan or whether a resource or building consent has been granted. The Heritage New Zealand Pouhere Taonga Act 2014 provides for substantial penalties for unauthorised damage or destruction. |
| *Biosecurity* | |
| 27. | To prevent the spread of pest species, the consent holder shall ensure that activities authorised by this consent are undertaken in accordance with the Biosecurity New Zealand's hygiene procedures and that machinery shall be free of plants and plant seeds prior to use.<br><br>*ADVICE NOTE: You can access the most current version of these procedures from the Biosecurity New Zealand website http://www.biosecurity.govt.nz.* |
| *Post Construction* | |
| 28. | All structures erected, extended, or placed in or on the foreshore or seabed during the exercise of the consent shall be maintained to a standard where they will continue to function as designed for the duration of the consent. |
| 29. | Following the construction of the proposed works, the following monitoring measures shall be implemented to assist with monitoring potential effects and changes to the coastal environment:<br>a. Annual walk-over assessment of the structures to identify any damage or changes to the structures to inform maintenance including observations of toe scour and estuary bed lowering in proximity to the structures.<br>b. Monitoring of the erosion protection works following large coastal storm events (defined as a 1:100 year storm event or greater), tsunamis or earthquakes to assess any damage or changes to the structures. This information should be gathered to inform any additional maintenance to the structure required to maintain its designed level of protection.<br><br>The results of the visual inspections carried out in accordance with this condition and any proposed maintenance, including proposed timeframes, identified as a result of the inspection are to be advised to the Canterbury Regional Council within one month of the completion of undertaking the inspection. |
| 30. | Upon the completion of all construction and landscaping works, the work site(s) shall be remediated, and all disturbed areas shall be stabilised. |
| Conditions Proposed to Christchurch City Council | |
| *General Conditions* | |
| 1. | Except where varied by the conditions of this consent, the construction, operation and maintenance of the development shall proceed in accordance with the information and plans submitted with the application on XX. The Approved Consent Document has been entered into Council records as RMA XX. For the purposes of this consent, maintenance includes repairs, reconstruction or other works required to repair damage to the bunds or to respond to changes in the estuary edge over the life of the consent. |

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| 2. | Prior to the commencement of works the consent holder shall appoint a site supervisor with responsibility to ensure compliance with the conditions of this consent. Contact details of the site supervisor shall be sent to all properties that immediately adjoin the proposed works area. |
| 3. | Notice, including the contact details of the site supervisor, shall be provided to the Head of Resource Consents (or nominee) at least two working days prior to the commencement or recommencement (after a period of stoppage of more than six weeks) of works. |
| 4. | The consent holder shall be responsible for all contracted operations relating to the exercise of this consent; shall undertake an induction briefing for all personnel, and shall ensure that all personnel working on the site are made aware of the conditions of this consent and have access to the contents of the relevant consent documents and all associated erosion and sediment control plans. |
| *Accidental Discovery* | |
| 5. | In the event of any discovery of archaeological material:<br>a. the consent holder shall immediately:<br>i. Cease earthmoving operations in the affected area and mark off the affected area; and<br>ii. Advise the Christchurch District Council of the disturbance; and<br>iii. Advise Heritage New Zealand Pouhere Taonga of the disturbance.<br>b. If the archaeological material is determined to be Koiwi Tangata (human bones) or taonga (treasured artefacts) by Heritage New Zealand Pouhere Taonga, the consent holder shall immediately advise the office of the appropriate rūnanga (office contact information can be obtained from the Canterbury Regional Council) of the discovery.<br>c. If the archaeological material is determined to be Koiwi Tangata (human bones) by Heritage New Zealand Pouhere Taonga, the consent holder shall immediately advise the New Zealand Police of the disturbance.<br>d. Work may recommence if Heritage New Zealand Pouhere Taonga Trust (following consultation with rūnanga if the site is of Māori origin) advises the consent holder that work can recommence.<br><br>*ADVICE NOTE: This may be in addition to any agreements that are in place between the consent holder and the Papatipu Rūnanga. (Cultural Site Accidental Discovery Protocol)*<br><br>*ADVICE NOTE: Under the Heritage New Zealand Pouhere Taonga Act 2014 an archaeological site is defined as any place associated with pre-1900 human activity, where there is material evidence relating to the history of New Zealand. For sites solely of Māori origin, this evidence may be in the form of accumulations of shell, bone, charcoal, burnt stones, etc. In later sites, artefacts such as bottles or broken glass, ceramics, metals, etc. may be found or evidence of old foundations, wells, drains, tailings, races or other structures. Human remains/koiwi may date to any historic period.*<br><br>It is unlawful for any person to destroy, damage, or modify the whole or any part of an archaeological site without the prior authority of Heritage New Zealand Pouhere Taonga. This is the case regardless of the legal status of the land on which the site is located, whether the activity is permitted under the District or Regional Plan or whether a resource or building |

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| | consent has been granted. The Heritage New Zealand Pouhere Taonga Act 2014 provides for substantial penalties for unauthorised damage or destruction. |
| *Construction Works* | |
| 6. | Works shall be undertaken in accordance with a construction methodology reviewed and accepted by a suitably qualified stormwater engineer, at the Consent Holder's cost. A copy of this methodology shall be provided to the Council's Asset Planning – Stormwater and Land Drainage Team, via email to rcmon@ccc.govt.nz, for acceptance at least five working days before the commencement of works. |
| 7. | All earthworks and construction authorised by this consent shall be monitored by a suitably experienced person on behalf of the consent holder. |
| 8. | The spread of weeds shall be minimised during the construction period by methods including hosing down machinery upon completion of works to prevent tracking of seeds and continuing to control weeds through spraying or mechanical means as part of ongoing reserve maintenance. |
| 9. | Tree removal works shall not occur during the bird breeding season (1 September to 28 February) unless the proposed area of works is inspected by a suitably qualified ornithologist.<br><br>Inspections will be conducted for each section of works no more than 5 working days prior to their commencement. The person carrying out the inspection will prepare a written report that identifies located breeding or nesting sites for any protected species under Policy 11(a) of the New Zealand Coastal Policy Statement. This report shall be made available to the Team Leader Compliance and Investigation via email to rcmon@ccc.govt.nz prior to any works commencing, the Consent Holder, site supervisor, and any persons carrying out works on site along with the name, qualifications and contact information of the person preparing the report.<br><br>If birds protected under Policy 11(a) of the New Zealand Coastal Policy Statement are nesting or rearing their young, the contractors carrying out the works shall be informed of this by the Consent Holder and works shall not be carried out within 100m of the locations of any occupied nests. If work ceases in any section for more than eight days, the site will be re-inspected for bird breeding and nesting sites and an addendum to the report prepared and provided to rcmon@ccc.govt.nz prior to any works re-commencing in accordance with this condition. |
| 10. | For birds not captured by Condition (9) tree removal works shall not occur during the bird breeding season (1 September to 28 February) unless the proposed area of works is inspected by a suitably qualified ornithologist and any removal is undertaken in accordance with RMA/2021/2059. |
| 11. | In order to avoid impacts of construction disturbance on Australasian bittern, grey duck and marsh crake that may be breeding in the saltmarsh rushland within 45 m of construction works (to the immediate south of SNBP (i.e., Jellicoe Marsh)), works in that area shall only be undertaken:<br><br>a. During the non-breeding season (March to August), or<br><br>b. When it has been confirmed that no birds are breeding within 50m of construction activities. |

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| 12. | No work, with the exception of dust and sediment control, shall be undertaken on public holidays or outside the hours of 7:00 to 19:00 Monday to Friday and 07:00 to 18:00 on Saturday without the Council's prior approval, unless in an emergency. This shall also include cleaning of any sumps that have been affected by any tracked soil or debris. |
| 13. | Roads to and from the site (except for stopped roads in the Specific Purpose Flat Land Recovery Zone) shall be regularly monitored and swept or vacuumed where soil or debris has been tracked into the road by construction equipment. |
| 14. | Any public road, footpath, landscaped area or service structure that has been affected / damaged by the consent holder, contractor(s), or persons involved with the implementation of this consent or vehicles and machinery used in relation to the implementation of this consent shall be reinstated as specified in the Construction Standards Specifications (CSS) at the expense of the Consent Holder, and to the satisfaction of Council. |
| 15. | Landscaping activity shall be undertaken in general accordance with the Landscape Plan submitted with the application. As far as practicable, landscape planting should occur sequentially as erosion protection and inundation bund works in a common area are completed. |
| 16. | The consent holder shall:<br>a. Minimise, where practicable open space closures during heavy periods of use, such as, but not limited to summer holidays and long weekends (i.e. 20 December to 31 January, public holidays and anniversary days).<br>b. Provide wayfaring to direct open space users to facilities.<br>c. Require, where practicable, the Project's CTMP and CEMP to minimise road, car park and pedestrian access closures/disruptions.<br>d. Require, where practicable, the Project's CTMP to provide alternative pedestrian and cyclist access to the important linkage connecting SNBP to Southshore Spit Reserve where disruptions occur.<br>e. Undertake on-going communication with residents, sports clubs (including the football and cricket clubs, organisers of the annual Sport Canterbury Tough Kid event) and local education facilities (e.g., South New Brighton Primary School and playcentre) to inform of temporary open space closures, access and drop-off zone disruptions. |
| 17. | All landscaping required for this consent shall be maintained for the first two years following completion of all planting. During this period, any tree that dies or becomes diseased shall be replaced with a similar species as soon as practicable. |
| 18. | Any losses of saltmarsh ribbonwood, knobby clubrush, or native celery in the saltmarsh ribbonwood / marram grass grassland area should be remedied by propagation and planting of those species in grassland areas adjacent to the inundation bund, following construction. |
| *Management Plans* | |
| 19. | Prior to construction, the following management plans are to be provided to Council:<br>a. Construction Environment Management Plan (CEMP); |

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| | b. Erosion, Sediment and Dust Control Plan (ESDCP);<br>c. Construction Traffic Management Plan (CTMP);<br>d. Heritage Management Plan (HMP);<br>e. Lizard Management Plan (LMP); and<br>f. Saltmeadow Offset Plan (SOP). |
| *Construction Environment Management Plan* | |
| 20. | The Consent Holder shall prepare a Construction Environmental Management Plan (CEMP) which clearly sets out the measures to be undertaken to comply with the conditions of this consent. The CEMP shall be submitted to rcmon@ccc.govt.nz, at least five working days prior to construction works commencing and shall be adhered to by the Consent Holder. The CEMP shall include but not be limited to:<br>a. A map showing the location of all works;<br>b. Details of the construction methods proposed for the seawall;<br>c. A programme of works including an indicative timeframe and sequence of works;<br>d. The methodology for stabilising the site if works are abandoned;<br>e. Controls on the disturbances within the CMA, including the placement of geotextiles or geofabrics in excavations;<br>f. Construction noise and vibration controls;<br>g. Water quality management<br>h. Procedures for managing hazardous substances and preventing hazardous spills<br>i. Archaeological and Cultural Discovery protocols,<br>j. Site notices to inform the public of the works and direct people safely to alternative routes.<br>k. The monitoring and visual observations, required in accordance with condition (x) to (x).<br>*ADVICE NOTE: The CEMP may be prepared as a combined document that also addresses the matters required by the Canterbury Regional Council suite of consents.* |
| 21. | The Consent Holder shall prepare an Erosion, Sediment and Dust Control Plan (ESDCP) which clearly sets out the measures to be undertaken to comply with the conditions of this consent. The ESDCP shall be submitted to the Christchurch City Council, at least five working days prior to construction works commencing and shall be adhered to by the Consent Holder. The ESDCP shall include but not be limited to:<br>a. Detailed plans showing the location and design of sediment control measures, on-site catchment boundaries and sources of run-off;<br>b. An erosion and sediment control plan including drawings and specifications of designated sediment control measures;<br>c. Methods to manage the discharge of contaminants, including the screening of material prior to placement;<br>d. Inspection and maintenance for sediment control measures; |

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| | e. The methodology for stabilising the site and decommissioning erosion and sediment control measures after works have been completed.<br>f. Dust control measures.<br>*ADVICE NOTE: The ESDCP may be prepared as a combined document that also addresses the matters required by the Canterbury Regional Council suite of consents.* |
| *Construction Traffic Management Plan* | |
| 22. | The Consent Holder shall prepare a Construction Traffic Management Plan (CTMP) which clearly sets out the measures to be undertaken to comply with the conditions of this consent. The Construction Traffic Management Plan (CTMP) may include but not be limited to the following:<br>a. Methods to manage the effects of temporary traffic management activities on traffic.<br>b. Measures to manage the safety of all transport users.<br>c. The estimated numbers, frequencies, routes and timing of construction traffic movements, including any specific non-working or non-movement hours to manage vehicular and pedestrian traffic near educational facilities and childcare facilities or to manage traffic congestion.<br>d. Details on temporary facilities for pedestrians to ensure connectivity if the existing facilities cannot be safely and reasonably maintained.<br>e. Details of wayfinding signage for cyclists and pedestrians.<br>f. Site access routes and access points for heavy vehicles, the size and location of parking areas for plant, construction vehicles and the vehicles of workers and visitors.<br>g. Location of areas for the loading and unloading of trucks with excavation or fill material<br>h. Methods to maintain vehicle access to property and/or private roads where practicable, or to provide alternative access arrangements when it will not be.<br>i. Methods to engage with residents and open space users.<br>j. The management approach to loads on heavy vehicles, including covering loads of fine material and the timely removal of any material deposited or spilled on public roads outside active construction areas. |
| 23. | The content of the CTMP shall be communicated to all transportation contractors and a copy of the plan shall be provided to them to utilise for the duration of the consent. This shall be the responsibility of the Consent Holder. |
| *Heritage Management Plan* | |
| 24. | The Heritage Management Plan prepared by Underground Overground shall be complied with at all times throughout the construction period. |
| *Lizard Management Plan* | |
| 25. | The Lizard Management Plan prepared for the project by Boffa Miskell Ltd (ref) shall be complied with at all times throughout the construction period. |

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| *Saltmeadow Offset Plan* | |
| 26. | The Saltmeadow Offset Plan prepared for the project by Boffa Miskell Ltd (ref) shall be complied with at all times throughout the construction period and in accordance with the post-construction measures as set out in that plan. The Plan shall be submitted to rcmon@ccc.govt.nz, at least five working days prior to works on the offset area commencing.<br><br>*ADVICE NOTE: The SOP may be prepared as a combined document that also addresses the matters required by the Canterbury Regional Council suite of consents.* |
| *Management Plan Revisions* | |
| 27. | The management plans required by these conditions may be amended at any time. Any amendments shall be:<br>a. Only for the purpose of improving the efficiency of the proposed works including erosion, sediment and dust control measures;<br>b. Consistent with the conditions of this resource consent; and<br>c. Submitted in writing to the Christchurch City Council prior to any amendment being implemented. |

## 8.10 Summary

The Assessment of Effects on the Environment above has addressed the construction and operational phase impacts of the Project. This assessment considers the sensitivity of the receiving environment to adverse effects associated with construction-phase and operational activities.

It is considered appropriate that the permitted baseline is applied to the current application, given that the Project will be undertaken within an established brownfield location. The Project area has been subject to historic development, including coastal protection works and open space improvements.

There are numerous positive effects of the Project that provide significant positive impacts particularly culturally, amenity and landscape improvements. The majority of the existing infrastructure is dilapidated, and the proposed activities of the Project represent a positive step change for the wider Project area.

An adaptive environmental management plan framework is put forward as part of this consent to manage both the construction and operational phases of the Project. This will ensure that at each stage of the Project the environmental impacts are appropriately avoided, remedied and mitigated.

Overall, after recognising the context of the receiving environment and the nature of the existing infrastructure, as well as taking into account the proposed positive effects of the Project and the proposed construction methodology, the effects of the proposal are considered to be no more than minor.

# 9. Notification Assessment

## 9.1 Public Notification (Section 95A)

The tests that must be considered by the consent authority when deciding whether or not to publicly notify an application are set out in section 95A of the RMA.

Step 1: Mandatory public notification in certain circumstances.

No mandatory notification is required as:

- the applicant has not requested that the application is publicly notified (s95A(3)(a))
- there are no outstanding or refused requests for further information (s95C and s95A(3)(b)), and
- the application does not involve any exchange of recreation reserve land under s15AA of the Reserves Act 1977 (s95A(3)(c)).

Step 2: If not required by step 1, public notification precluded in certain circumstances.

The application is not precluded from public notification as:

- the activities are not subject to a rule or national environmental standard (NES) which precludes public notification (s95A(5)(a)), and
- the application for resource consent is for a restricted discretionary activity, but it is neither a residential activity nor a boundary activity and therefore not precluded from public notification (s95A(5)(b)).

Step 3: If not precluded by Step 2, public notification in certain circumstances.

The application is precluded from public notification as:

- the activities are not subject to a rule or national environmental standard (NES) which require public notification (s95A(5)(a)), and
- It is considered overall that the activities will not have adverse effects on the environment that are more than minor (s95A(8)(b)).

Step 4: Special circumstances

Section 95A(9) of the Act states that an application may be publicly notified if 'special circumstances' exist, notwithstanding the satisfaction of the statutory tests that would allow for non-notification. 'Special circumstances' are not defined in the Act. Case law has identified 'special circumstances' as something outside the common run of things which is exceptional, abnormal or unusual but less than extraordinary or unique. A 'special circumstance' would be one which makes notification desirable despite the general provisions excluding the need for notification. The local authority should be satisfied that public notification may elicit additional information on the aspects of the proposal requiring resource consent.

It is considered that earthquake legacy repair works associated with this Project, whilst extensive, do not qualify as abnormal or unusual for the Canterbury Region. It is considered that special circumstances are not relevant to this Project. There are no 'special circumstances' that exist to justify the public notification of this application.

Overall, it is considered that public notification of the application under s95A is not precluded. However, based on the assessment that effects for the overall Project are no more than minor, it is considered that public notification is <u>not</u> required.

## 9.2 Limited Notification Assessment (Section 95B)

Step 1: Certain affected protected customary rights groups must be notified.

Section 62(3) of the Marine and Coastal Act (Takutai Moana) Act 2011 states that before a person may lodge an application that relates to a right conferred by a customary marine title order or agreement, that person must –

a. notify the applicant group about the application; and

b. seek the views of the group on the application.

There are two applicant groups for customary marine title in the area where the works are proposed, as follows:

1. Ngai Tahu whānui (MAC-13-002); and

2. Ngāi Tūāhuriri Hapu (MAC-13-003;

Notice of the application is to be provided to these parties along with a request for feedback.

Step 2: If not required by step 1, limited notification precluded in certain circumstances.

Notwithstanding the application of Step 1 the application is not precluded from limited notification as:

- the activities are not subject to a rule or national environmental standard (NES) which precludes limited notification (s95B(6)(a)), and
- the application for resource consent is for a non-complying activity and is therefore not precluded from limited notification (s95B(6)(b)).

Step 3: If not precluded by Step 2, certain other affected person must be notified.

It is considered by the Project team that the following parties are affected given their direct interest in the land and the Project area, where it could be considered impacts are more than minor for these parties (noting overall conclusion that the impacts of the Project are less than minor):

- Te Ihutai Ahu Whenua Trust
- Department of Conservation
- Pleasant Point Yacht Club
- South New Brighton Holiday Park
- Avon/Heathcote Ihutai Estuary Trust
- Landowners impacted by Project works:
  - 44A Rocking Horse Road
  - 78 Rocking Horse Road
  - 168A Rocking Horse Road
  - 172D Rocking Horse Road
  - 184B Rocking Horse Road

Step 4: Further notification in special circumstances

The application does not warrant notification to any other persons not already determined to be eligible for limited notification under this section.

Overall, if written approvals of these parties are obtained it is considered that the application can be processed non-notified. The Project team do not consider any other parties to be affected by the Project to a more than minor degree. If written approval of these parties cannot be obtained it is considered that the application be limited notified to those parties identified above (please refer to Section 7.2 for further information on consultation and engagement).

# 10. Statutory Assessment

## 10.1 Part 2 – Purpose and Principles of the RMA

The overriding purpose of the RMA is "to promote the sustainable management of natural and physical resources" (Section 5). The broader principles (Sections 6 to 8) are to inform the achievement of that purpose.

When considering an application for a resource consent and any submissions received, the consent authority must, subject to Part 2, have regard to those matters listed under Section 104 of the RMA.

With regards to the application under Section 104, case law has determined that decision makers may now only have recourse to Part 2 of the RMA if it is determined that one of three exceptions apply:

- If any part or the whole of the relevant plan(s) are invalid;
- If the relevant plan(s) did not provide complete coverage of the Part 2 matters; and
- If there is uncertainty of the meaning of provisions as they affect Part 2.

In essence, what this means is that decisions makers only need to 'go back to' Part 2 of the Act if the relevant planning documents have not fully addressed the Part 2 matters. If a Regional or District Plan has not fully addressed the Part 2 matters, then decision makers can 'go up the tree' to the RPS and to any relevant NPS in relation to any Part 2 matters.

Plans which have to 'give effect' to the higher order statutory planning documents (RPS and NPS's), should have appropriately addressed Part 2 of the RMA.

It is considered that none of the three exceptions listed above apply and that the Part 2 matters have adequately been addressed through the relevant statutory plans, including the CLRWP, CARP, RCEP and the District Plan.

Based on the assessment of the proposal being consistent with the relevant policy statements and plans, as discussed, the proposal is considered to be consistent with Part 2 of the RMA.

## 10.2 Section 104

## 10.3 Section 104(1)(a) – Actual and Potential Effects

This section of the Act requires that regard is given to any actual and potential effects on the environment of allowing the activity. The actual and potential effects of the proposal have been addressed in Section 8 above, with the overall conclusion being that there are adverse effects that are more than minor.

### 10.3.1 Section 104(1)(b)(i)

This section of the Act requires that regard is given to any relevant provisions of a national environmental standard.

*National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS)*

The NES-CS is relevant to this application. Christchurch City Council holds a global resource consent (RMA/2021/2094, CCC Global NESCS Consent) under the NES-CS, and this consent is being relied upon for the Project. No other consents are required under the NES-CS. The NES-CS has been discussed in Section 6 of this AEE.

*National Environmental Standards for Freshwater (NES-F)*

The NES-F set requirements for carrying out certain activities that pose risks to freshwater and freshwater ecosystems. This NES is relevant insofar as it relates to the protection of natural inland wetlands. The consent requirements under the NES are addressed in Section 6.1of this AEE, and the actual and potential effects on the natural inland wetland, comprising the area of saltmeadow affected by the proposal, is addressed in detail in the Ecological Assessment and in the Assessment of Effects section of this report. The conclusion of the effects assessment is that the overall impacts on natural inland wetlands is no more than minor when taking into account the offsetting and mitigations proposed in the Saltmeadow Offset Plan.

### 10.3.2 Section 104(1)(b)(ii) – Other Regulations

This section of the Act requires that regard is given to any relevant provisions of other regulations. The following legislation has been considered as part of this application:

- Wildlife Act 1953;
- Heritage New Zealand Pouhere Taonga Act 2014;
- Marine and Coastal Area (Takutai Moana) Act 2011; and
- Local Government Act 2002.

This legislation has been appropriately addressed through various technical assessments found in the AEE.

### 10.3.3 Section 104(1)(b)(iii) – National Policy Statements

This section of the Act requires that regard is given to any relevant provisions of a national policy statement. The following National Policy Statements are relevant to this proposal:

- National Policy Statement for Freshwater Management (NPS-FM)
- National Policy Statement on Indigenous Biodiversity (NPS-IB)

#### 10.3.3.1 NPS-FM Regulations

Table 21 below identifies the relevant provisions of the NPS-FM for the Project.

Table 21 National Policy Statement for Freshwater Management

| Objective/Policy | Analysis |
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| 2.1 Objective<br><br>*(1) The objective of this National Policy Statement is to ensure that natural and physical resources are managed in a way that prioritises:*<br><br>*(a) first, the health and well-being of water bodies and freshwater ecosystems*<br><br>*(b) second, the health needs of people (such as drinking water)*<br><br>*(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.* | It is considered that the National Policy Statement for Freshwater Management 2020 is relevant to areas of the Project that are not in the CMA area. It is considered that areas of saltmeadow, are above the line of MHWS and meet the definition of natural inland wetland, where they meet the hydrology requirements of a wetland .<br><br>The NPS-FM requires as a first order of priority the health and well-being of freshwater ecosystems. The saltmeadow is considered to be a natural inland wetland. Whilst it is in the coastal environment, it is not in the coastal marine area (as defined).<br><br>The loss of 0.2 ha of saltmeadow habitat cannot be avoided, remedied or mitigated, and hence this represents a net loss of significant habitat. Wider habitat benefits (ecological enhancements) associated with implementation of the planting plan are considered insufficiently relevant to the loss of saltmeadow to constitute a remedy, mitigation. On this basis, an offset is required. The proposed offset involves creation of at least 0.36 ha of saltmeadow habitat at nearby Southshore Spit Reserve. The offset is described in the Saltmeadow Management Plan included as part of Appendix M of this |

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| | report. It is concluded that this will result in a net gain of saltmeadow for the Project. By taking a 'no net loss' approach to the Project and enhancing the saltmeadow where possible it is considered that the Project is consistent with Objective 2.1. |
| Policy 1 - Freshwater is managed in a way that gives effect to Te Mana O te Wai<br><br>Policy 2 - Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori freshwater values are identified and provided for. | It is considered that by adopting a 'net gain' approach to identified natural inland wetland habitats and enhancing other habitats that are consistent with cultural values achieves consistency with this Policy 1 and 2. |
| Policy 3 - Freshwater is managed in an integrated way that considers the effects of the use and development of land on a whole-of-catchment basis, including the effects on receiving environments. | This Policy requires a holistic view of the Project. It is identified that it is likely that areas of existing saltmeadow will have to be removed to allow the Project to proceed in accordance with its current objectives. However, as identified under Objective 2.1, there is the ability for natural inland wetlands as a whole to be regenerated, extended and accommodated in other areas of the Project that result in 'net gain' of saltmeadow habitat. |
| Policy 4 - Freshwater is managed as part of New Zealand's integrated response to climate change. | The Project does not provide explicitly for sea level rise, other climate change factors (e.g. increased wind climate, changed fluvial/pluvial flood frequency) or further land subsidence along the shoreline.<br><br>However, close to the design level of protection is able to be maintained for 20 years of sea level rise or future land subsidence to allow time for decisions with communities on longer-term adaptative planning responses to climate change and sea level rise to be made and implemented. Furthermore, adaptation planning is underway and this Project is not pre-empting longer term adaptation matters along the Estuary edge.<br><br>It is considered that the approach identified in Objective 2.1 provides an integrated response to climate change for saltmeadow habitat until a more formal adaptation strategy is adopted. |

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| Policy 5 - Freshwater is managed through a National Objectives Framework to ensure that the health and well-being of degraded water bodies and freshwater ecosystems is improved, and the health and well-being of all other water bodies and freshwater ecosystems is maintained and (if communities choose) improved. | Saltmeadow habitat in some areas will be removed. However, by taking a 'net gain' offsetting approach and improving communities where possible, it is considered that the saltmeadow freshwater ecosystem can be enhanced. |
| Policy 6 – Natural Inland Wetlands<br><br>*There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.*<br><br>*Section 3.22 - The loss of extent of natural inland wetlands is avoided, their values are protected, and their restoration is promoted, except where:*<br><br>*(a) the loss of extent or values arises from any of the following:*<br><br>*(i) the customary harvest of food or resources undertaken in accordance with tikanga Māori*<br><br>*(ii) restoration activities*<br><br>*(iii) scientific research*<br><br>*(iv) the sustainable harvest of sphagnum moss*<br><br>*(v) the construction or maintenance of wetland utility structures (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020)*<br><br>*(vi) the maintenance or operation of specified infrastructure, or other infrastructure (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020*<br><br>*(vii) natural hazard works (as defined in the Resource Management (National Environmental Standards for Freshwater) Regulations 2020); or* | A natural inland wetland in the NPS-FM means a wetland (under the RMA definition) that is not in the CMA. The saltmeadow areas are the only natural inland wetlands in the works envelopes.<br><br>As discussed in 6.1.1of this AEE, the erosion protection works and inundation protection bund are considered to be flood protection works and therefore fall within the definition of specified infrastructure. The works are therefore within the ambit of part (vi) of Policy 6 and are therefore supported by the policy.<br><br>The Project ecologists have identified that the areas of saltmeadow are a recently established feature, having become established because of sea spray across the landward side of the CMA boundary where areas of edge protection have failed.<br><br>Despite finding support in Policy 6(a)(vi), an area has been identified as an offset area to compensate for the loss of the areas of saltmeadow. As identified in the Assessment of Effects, this area is approximately 0.36 ha in area. As the offset area is larger than the area being lost (0.2 ha), overall, this represents a net gain. |

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| Policy 15 - Communities are enabled to provide for their social, economic, and cultural wellbeing in a way that is consistent with this National Policy Statement. | The Project aims to bring a level of flood protection to South New Brighton Park the Southshore community that was enjoyed prior to the Canterbury Earthquake Sequence. As an earthquake legacy project this provides for social wellbeing, health and safety (removing dilapidated structures etc). Noting that:<br>▪ Restoring the estuary edge to pre-earthquake levels of protection is considered appropriate, particularly since works are happening at the location where existing protection structures (compromised) are present.<br>▪ Functionally, erosion protection must occur on the estuary edge within the CMA to achieve the objectives of the project. The erosion protection is a function of flood protection in addition to the inundation protection bund.<br>▪ Adverse effects on seagrass, saltmarsh and specific locations of critical importance to 'at-risk' sea birds are avoided. While some areas of saltmeadow may be compromised (above MHWS but still in the coastal environment) a net gain approach has been proposed for saltmeadow habitat.<br>▪ The Project is set to have a net positive effect on historic heritage. There is better understanding of cultural/archaeological heritage as a result of the initial archaeological investigations. The design at SNBP will protect identified archaeological features. A 'do nothing' approach would see these features eroded result in a loss of cultural/heritage value.<br>It is considered that by taking a holistic approach the Project is consistent with Policy 15. |
| *Section 3.22 (b) the regional council is satisfied that:*<br>*(i) the activity is necessary for the construction or upgrade of specified infrastructure; and* | Avoiding the saltmeadow is more difficult for the Project compared to the seagrass and salt marsh below MHWS. This is as the saltmeadow straddles the erosion protection and inundation protection works. Removing the area of saltmeadow is necessary to facilitate the construction of the edge protection and inundation bund in parts of the Southshore end of the project. It is noted that the saltmeadow has developed post-earthquakes because of the intrusion of salt water and spray, enabled by the fact that the edge protection has failed. |

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| | The impacts of upgrading the erosion protection works (to current design) will mean that the environment that has created the saltmeadow will be lost. There are no practicable alternatives to undertake the project, as discussed in Section 1.2 and Section 4, and the removal of the saltmeadow is therefore necessary, and the proposal is therefore supported by this Policy. |
| Section 3.22(b)(ii) - *the specified infrastructure will provide significant national or regional benefits; and* | There are over 500 properties in the Southshore area across a 350 m wide spit. This spit is going to be susceptible to hazards with inundation and erosion being relevant, and these works will provide protection for these properties. The erosion protection and inundation protection works will provide significant benefit to the Southshore community to restore the level of protection to pre-earthquake levels. It is considered that it is a regionally significant benefit to restore communities to a level of protection that was enjoyed pre-earthquake. |
| Section 3.22(b)(iii) - *there is a functional need for the specified infrastructure in that location; and* | The Southshore portion of the project site provides significant benefit to the local and regional community in terms of providing open space and recreational opportunities adjacent to and within the estuary. The works overall will enhance the open space area and make it more accessible and attractive to the regional community. |
| Section 3.22(b)(iv) - *the effects of the activity are managed through applying the effects management hierarchy.* | The effects management hierarchy is defined in the NPS-FM under Clause 3.21:<br><br>*effects management hierarchy, in relation to natural inland wetlands and rivers, means an approach to managing the adverse effects of an activity on the extent or values of a wetland or river (including cumulative effects and loss of potential value) that requires that:*<br><br>*(a) adverse effects are avoided where practicable; and*<br><br>*(b) where adverse effects cannot be avoided, they are minimised where practicable; and*<br><br>*(c) where adverse effects cannot be minimised, they are remedied where practicable; and* |

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| | *(d) where more than minor residual adverse effects cannot be avoided, minimised, or remedied, aquatic offsetting is provided where possible; and*<br><br>*(e) if aquatic offsetting of more than minor residual adverse effects is not possible, aquatic compensation is provided; and*<br><br>*(f) if aquatic compensation is not appropriate, the activity itself is avoided.*<br><br>Following the effects management hierarchy, it is essential that where effects on the saltmeadow cannot be avoided, that they are minimised where practicable. Where they cannot be minimised, they are to be remedied. Following this step, where they cannot be avoided, minimised, or remedied, aquatic compensation is to be provided. Given that the removal of the saltmeadow is necessary to facilitate the construction of the works, an offset area has been identified as identified in the ecological assessment. This offset area is considered appropriate and is consistent with the effects management hierarchy. |

#### 10.3.3.2 Summary of NPS-FM

Overall, the proposal is considered to be consistent with the NPS-FM. The NPS-FM has limited application to the project area, being relevant to the areas of saltmeadow that have developed post-earthquake as a result of the failure of the coastal edge protection structures, which allowed saltwater intrusion landward of the CMA. Although these areas are relatively small, their significance is such that it is considered appropriate to provide an offset area (resulting in a 'net gain' of saltmeadow habitat) that can be developed as saltmeadow, identified as being south of the Project area. It is also noted that the Project falls within the definition of specified infrastructure and therefore finds support in the NPS-FW. Furthermore, provision of this area is consistent with the effects hierarchy and overall, the project is considered to be consistent with the NPS-FW.

#### 10.3.3.3 NPS-IB Regulations

Table 22 below identifies the relevant provisions of the NPS-FM for the Project.

Table 22 National Policy Statement for Indigenous Biodiversity

| Objective/Policy | Analysis |
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| (1) The objective of this National Policy Statement is: | |

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| (a) to maintain indigenous biodiversity across Aotearoa New Zealand so that there is at least no overall loss in indigenous biodiversity after the commencement date; and<br>(b) to achieve this:<br>(i) through recognising the mana of tangata whenua as kaitiaki of indigenous biodiversity; and<br>(ii) by recognising people and communities, including landowners, as stewards of indigenous biodiversity; and<br>(iii) by protecting and restoring indigenous biodiversity as necessary to achieve the overall maintenance of indigenous biodiversity; and<br>(iv) while providing for the social, economic, and cultural wellbeing of people and communities now and in the future. | The NPS-IB is relevant given the presence of numerous indigenous species across the Project. Specifically, however, it is saltmeadow that will be impacted via its removal, whilst impacts on other indigenous species are avoided.<br>While saltmeadow is to be removed in order to facilitate construction of the edge protection and inundation bund, as specified infrastructure, an area of land outside the project area has been identified as an offset area. This area is some 0.36 ha in area, which exceeds the area of saltmeadow being lost. This is considered a net gain in indigenous vegetation.<br>The proposal has been developed in consultation with mana whenua and their views and values have informed the design of the landscaping solutions for the project.<br>Overall, indigenous vegetation cover is promoted by this project, and with appropriate offsetting of saltmeadow the project overall is considered to be consistent with the NPS-IB. |
| Policy 1: Indigenous biodiversity is managed in a way that gives effect to the decision-making principles and takes into account the principles of the Treaty of Waitangi.<br>Policy 8: The importance of maintaining indigenous biodiversity outside SNAs is recognised and provided for<br>Policy 13: Restoration of indigenous biodiversity is promoted and provided for<br>Policy 14: Increased indigenous vegetation cover is promoted in both urban and non[1]urban environments. | |

### 10.3.4 Section 104(1)(b)(iv) – New Zealand Coastal Policy Statement (NZCPS)

This section of the Act requires that regard is given to a New Zealand Coastal Policy Statement. The relevant provisions of the NZCPS are set out and assessed in Table 26.

Table 23 New Zealand Coastal Policy Statement (NZCPS)

| Objective/Policy | Analysis |
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| *Objective 1*<br><br>*To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:*<br><br>▪ *maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature;*<br><br>▪ *protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand's indigenous coastal flora and fauna; and*<br><br>▪ *maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity.* | In summary, Objective 1 stipulates that integrity, form, functioning and resilience of the coastal environment are safeguarded. It also stipulates that ecosystems of the coastal environment are sustained.<br><br>Adverse effects on 'at risk' seagrass are to be avoided for the Project. It is also stipulated that saltmarsh (captured under Policy 11(b) as predominantly indigenous vegetation in the coastal environment will also be avoided, wherever possible .<br><br>Saltmeadow cannot be retained to meet the objectives of the Project. However, offsetting has been provided for saltmeadow can be colonised south of the Project area, to provide a net gain in saltmeadow habitat.<br><br>It is considered that the natural biological processes of the coastal environment can be at least maintained by examining the Project area as a whole. Where hard engineering is preferred it has been through a rigorous optioneering process (refer to policies 24-27).<br><br>It is considered that representative or significant natural ecosystems are protected by avoiding adverse effects on seagrass and saltmarsh (where possible). The Project team will have to ensure that any loss of saltmeadow habitat is effectively offset.<br><br>Water quality discharges are limited to construction phase activities. A comprehensive management plan framework including a CEMP and ESDCP will form part of the resource consent application, identifying how adverse effects from the construction phase activities can be avoided, remedied and mitigated.<br><br>It is considered that the Project remains consistent with Objective 1 of the NZCPS. |

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| *Objective 2*<br><br>*To preserve the natural character of the coastal environment and protect natural features and landscape values through:*<br><br>*• recognising the characteristics and qualities that contribute to natural character, natural features and landscape values and their location and distribution;*<br><br>*• identifying those areas where various forms of subdivision, use, and development would be inappropriate and protecting them from such activities; and*<br><br>*• encouraging restoration of the coastal environment.* | In summary, Objective 2 stipulates that natural character of the coastal environment is preserved and natural features and landscape values are protected.<br><br>Natural Character:<br><br>Policy 13(a) required avoidance of adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character. Under the Christchurch District Plan Te Ihutai/Avon-Heathcote Estuary is listed as having high natural character despite significant modifications along its edges. Under the Regional Coastal Environment Plan for Canterbury (RECP) the Project is identified as an Area of Significant Natural Value. The estuary is identified as having the following characteristics under Schedule 1 of the RCEP;<br><br>▪ Māori cultural values;<br>▪ Protected areas;<br>▪ Wetland, estuaries and coastal lagoons;<br>▪ Marine birds and mammals; and<br>▪ Ecosystems, Flora and Fauna habitats<br><br>The Project area encompasses the edge where significant modifications have occurred. Furthermore, following the CES, these have been left in a state of disrepair. It is considered that removing the piece-meal structures (which in part are dangerous) and re-forming the edge will improve the natural character of the edge.<br><br>Furthermore, saltmarsh, seagrass habitats and critical locations for at-risk coastal bird species avoided. Any saltmeadow that is to be removed is to be offset at other areas in the Project, resulting in a 'net gain' to that habitat.<br><br>Natural Features: |

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| | Policy 15(a) requires that adverse effects on outstanding natural features are avoided. The estuary as a whole is identified as an outstanding natural feature under the Christchurch District Plan. The following natural features of the estuary are identified as relevant to the Project:<br>▪ Important bird feeding and breeding site, nationally important for wading birds – the estuary is a broader habitat than the Project envelope. Under Policy 11(a) of the NZCPS critical locations for 'at risk' coastal birds will be avoided during construction and for the project footprint.<br>▪ Where habitat restoration is set to occur under the Saltmeadow Offset Plan it is considered that habitat will improve. Post construction, it is not expected that the feeding and breeding sites will be affected. It is considered that this natural feature is sufficiently protected.<br>▪ Significance in relation to Māori Heritage due to extensive settlement, occupation and use of Te Ihutai/ Avon-Heathcote Estuary as a major mahinga kai – The Archaeological Assessment has identified culturally significant midden sites that have been exposed at South New Brighton Park due to erosion. It is the objective of the Project to alter the design to protect these cultural site(s), which would otherwise ordinarily erode and lose an element of their heritage and cultural values. There are likely to be some temporary, transient effects only during the construction phase that may result in a level of adverse effects. A construction has been produced to reduce impacts during this phase. Overall, it is considered that the Project will provide significant positive outcomes to these natural feature by encapsulating it and protecting it from further erosion/loss of extent.<br>▪ Te Ihutai/Avon-Heathcote Estuary is particularly popular for recreational use – Following the Canterbury Earthquake Sequence access and recreational values to the estuary at the Project locations have been compromised. The Project has sought community feedback on accommodating and enhancing recreational values and the design will result in a positive net effect on recreational use of the estuary, particularly by enhancing access, safety and recreational values of the estuary edge. |

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| | Natural landscape:<br><br>Policy 15(a) requires that adverse effects on outstanding natural landscapes are avoided. The Christchurch District Plan does not recognise Te Ihutai/Avon-Heathcote Estuary as an outstanding natural landscape. Furthermore, following the CES, the estuary edge has been left in a state of disrepair. The piece-meal structures (which in part are dangerous) and re-forming the edge with an extensive planting programme will improve the natural character of the edge. The Landscape Master Plan is consistent with indigenous vegetation objectives and the estuarine environment.<br><br>Overall, it is considered that the values of natural character, features and landscape are sufficiently protected and, in some instances, enhanced for the Project. The net effect on these values is considered to be positive.<br><br>Inappropriate land use and development:<br><br>Objective 2 refers to preserving and protecting from 'inappropriate development. What is 'inappropriate' is to be assessed by reference to what Objective 2 seeks to preserve or protect. Following the analysis above it is concluded that the Project protects (and in some instances improves) natural features, landscapes and character. It is concluded therefore that the Project development is not inappropriate.<br><br>Encouraging restoration of the coastal environment:<br><br>Through the implementation of the Landscape Management Plan restoration of the coastline is an outcome of this Project. Restoration does not in this instance necessarily need to equate to naturalisation of the edge. The objective of the Project is to return the estuary edge to a state of protection that was incumbent prior to the Canterbury Earthquake Sequence. The proposed approach allows time for council to work with the community about wider climate change adaptation. This project is based on addressing present day inundation and erosion risk and water levels and for structures with a minimum of 20 year design life. The intent was not to develop options to address climate change at |

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| | this time as the council is currently underway with their Coastal Hazards Adaptation Program (CHAP), which will work with the local community to develop specific adaptation plans. Any decisions on the future use of or adaptation of the proposed inundation and erosion protection will be made with the community under the CHAP process.<br><br>The rock revetment is a hard engineering structure, which does not provide restoration of the coastal environment. Instead, it provides a like for like replacement of vertical walls. To achieve the objectives of the Project, rock revetment is required in certain locations to prevent substantial landward erosion where there is currently a vertical drop created by existing structures. It is recognised these areas will provide an element of 'coastal squeeze' but these structures can also be adapted to sea level rise beyond their 20 year design life (refer to Policies 24-27). |

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| *Objective 3*<br><br>*To take account of the principles of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki and provide for tangata whenua involvement in management of the coastal environment by:*<br><br>• *recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources;*<br><br>• *promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act;*<br><br>· *incorporating mātauranga Māori into sustainable management practices; and*<br><br>• *recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua.* | In summary, Objective 3 stipulates the principles of the Treaty of Waitangi are taken into account, the role of tangata whenua (as kaitiaki) is recognised and tangata whenua involvement in management of the coastal environment is provided for.<br><br>The Project team recognise that tangata whenua are best placed to answer whether this is satisfied for the Project. Council have engaged with the Trust and they have been involved since early design stages and have provided feedback on concept design as well as providing input on landscape design to improve cultural values of the area.<br><br>Also, it is worth noting under Policy15(a) adverse effects on outstanding natural features are to be avoided (including cultural elements). By protecting the identified cultural heritage sites, it is considered that this can be achieved.<br><br>Early and ongoing engagement with the Trust has enabled Objective 3 to be satisfied for the Project. |

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| *Objective 4*<br><br>*To maintain and enhance the public open space qualities and recreation opportunities of the coastal environment by:*<br><br>*• recognising that the coastal marine area is an extensive area of public space for the public to use and enjoy;*<br><br>*• maintaining and enhancing public walking access to and along the coastal marine area without charge, and where there are exceptional reasons that mean this is not practicable providing alternative linking access close to the coastal marine area; and*<br><br>*• recognising the potential for coastal processes, including those likely to be affected by climate change, to restrict access to the coastal environment and the need to ensure that public access is maintained even when the coastal marine area advances inland* | In summary, Objective 4 stipulates that public open space qualities and recreation opportunities of the coastal environment are maintained and enhanced.<br><br>The Project will enhance the public open space qualities and recreational opportunities of the coastal environment in the following ways:<br><br>▪ Making the estuary edge safe from dilapidated structures;<br>▪ Providing a pathway on top of the bund for recreational use;<br>▪ Providing improved access points along the estuary edge based on consultation outcomes;<br>▪ Improving landscaping of the dilapidated edge and in some instances improving coastal processes with the proposed saltmarsh regeneration; and<br>▪ Public access is maintained to provide for a 50-year return period for maximum levels in the estuary.<br><br>The Project will result in net positive outcomes in regard to Objective 4. |

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| *Objective 5*<br><br>*To ensure that coastal hazard risks taking account of climate change, are managed by:*<br><br>• *locating new development away from areas prone to such risks;*<br><br>• *considering responses, including managed retreat, for existing development in this situation; and*<br><br>• *protecting or restoring natural defences to coastal hazard* | In summary, Objective 5 stipulates that coastal hazard risks, taking account of climate change, are appropriately managed.<br><br>The Project is not a new development. It is providing a level of protection to existing infrastructure that was in place prior to the Canterbury Earthquake Sequence.<br><br>The design of the structures has a 20-year design life and is designed in such a way that it is adaptable to sea level rise in the future. This project is based on addressing present day inundation and erosion risk and water levels and for structures with a minimum of 20-year design life. The intent was not to develop options to address climate change at this time as the council is currently underway with their Coastal Hazards Adaptation Program (CHAP), which will work with the local community to develop specific adaptation plans. Any decisions on the future use of or adaptation of the proposed inundation and erosion protection will be made with the community under the CHAP process.<br><br>The Project is restoring defences to coastal hazards resulting from the Canterbury Earthquake Sequence. The cobble beach provides beach nourishment. Other hard engineering (rock revetment) d is explained in further detail under Policies 24-27 below. |

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| *Objective 6*<br><br>*To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:*<br><br>*• the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits;*<br><br>*• some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the social, economic and cultural wellbeing of people and communities;*<br><br>*• functionally some uses and developments can only be located on the coast or in the coastal marine area;*<br><br>*• the coastal environment contains renewable energy resources of significant value;*<br><br>*• the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities;*<br><br>*• the potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land;*<br><br>*• the proportion of the coastal marine area under any formal protection is small and therefore management under the Act is an important means by which the natural resources of the coastal marine area can be protected; and*<br><br>*• historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use, and development.* | In summary, Objective 6 stipulates people and communities are able to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development of the coastal environment.<br><br>The Project aims to bring a level of inundation protection to SNBP the Southshore community that was enjoyed prior to the CES. As an earthquake legacy project this provides for social wellbeing, health and safety (removing dilapidated structures etc). Noting that:<br><br>▪ Restoring the estuary edge to pre-earthquake levels of protection is considered appropriate, particularly since works are happening at the location where existing protection structures (compromised) are present.<br><br>▪ Functionally, erosion protection must occur on the estuary edge within the CMA to achieve the objectives of the project. The erosion protection will be put forward as a function of flood protection in addition to the inundation protection bund.<br><br>▪ Adverse effects on seagrass, saltmarsh and specific locations of critical importance to 'at-risk sea birds are avoided. While some areas of saltmeadow are compromised (above MHWS but still in the coastal environment) offsetting is provided resulting in a 'net gain'.<br><br>▪ The Project is set to have a net positive effect on historic heritage. There is better understanding of cultural/archaeological heritage as a result of the initial archaeological investigations. Also, as agreed, design is being amended to protect identified archaeological features. A 'do nothing' approach would see these features eroded result in a loss of cultural/heritage value.<br><br>Taking a holistic approach, it is considered the Project is consistent with Objective 6. |

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| *Policy 1 Extent and characteristics of the coastal environment*<br><br>*(1) Recognise that the extent and characteristics of the coastal environment vary from region to region and locality to locality; and the issues that arise may have different effects in different localities.*<br><br>*(2) Recognise that the coastal environment includes:*<br><br>*(a) the coastal marine area;*<br><br>*(b) islands within the coastal marine area;*<br><br>*(c) areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these;*<br><br>*(d) areas at risk from coastal hazards;*<br><br>*(e) coastal vegetation and the habitat of indigenous coastal species including migratory birds;*<br><br>*(f) elements and features that contribute to the natural character, landscape, visual qualities or amenity values;*<br><br>*(g) items of cultural and historic heritage in the coastal marine area or on the coast;*<br><br>*(h) inter-related coastal marine and terrestrial systems, including the intertidal zone; and*<br><br>*(i) physical resources and built facilities,* | The landward extent of the coastal environment is deliberately not defined. Under the Christchurch District Plan a majority of the Project (including landward works) is occurring in the Open Space Coastal Zone. By adopting a precautionary approach, the author of this document considers that Project works are occurring within the coastal environment and are subject to the NZCPS. Of note, the coastal environment for this Project includes:<br><br>▪ The Project encompasses a tidal estuarine environment including saltmarsh, seagrass and saltmeadow, as well as coastal wetlands that extend above MHWS. It is also a habitat for a large variety of coastal bird species which are mapped (noting specific locations of critical importance are avoided).<br><br>▪ Through design alterations natural character and natural features outlines will be protected and enhanced (where possible), arguably resulting in a net positive benefit to natural character and natural features (specifically including identified areas cultural heritage, recreational access, and the protection (and in some case enhancement) of saltmarsh and seagrass. The removal of saltmeadow is set to be offset.<br><br>▪ The landscape features of the estuary edge have been compromised following the CES (resulting in a series of piece-meal dilapidated structures). The clean-up of this area, a specific planting regime under the Landscape Master Plan and new erosion protection and inundation structures should result in a positive net benefit on landscape values.<br><br>▪ Identified archaeological midden sites are to be protected by implementing a change in design (resulting in a net positive effect on the identified sites). |

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| *Policy 2 The Treaty of Waitangi, tangata whenua and Māori heritage In taking account of the principles of the Treaty of Waitangi (Te Tiriti o Waitangi), and kaitiakitanga, in relation to the coastal environment:*<br><br>*(a) recognise that tangata whenua have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived and fished for generations;*<br><br>*(b) involve iwi authorities or hapū on behalf of tangata whenua in the preparation of regional policy statements, and plans, by undertaking effective consultation with tangata whenua; with such consultation to be early, meaningful, and as far as practicable in accordance with tikanga Māori;*<br><br>*(c) with the consent of tangata whenua and as far as practicable in accordance with tikanga Māori, incorporate mātauranga Māori in regional policy statements, in plans, and in the consideration of applications for resource consents, notices of requirement for designation and private plan changes;*<br><br>*(d) provide opportunities in appropriate circumstances for Māori involvement in decision making, for example when a consent application or notice of requirement is dealing with cultural localities or issues of cultural significance, and Māori experts, including pūkenga2, may have knowledge not otherwise available;*<br><br>*(e) take into account any relevant iwi resource management plan and any other relevant planning document recognised by the appropriate iwi authority or hapū and lodged with the council, to the extent that its content has a bearing on resource management issues in the region or district; and*<br><br>*(i) where appropriate incorporate references to, or material from, iwi resource management plans in regional policy statements and in plans; and*<br><br>*(ii) consider providing practical assistance to iwi or hapū who have indicated a wish to develop iwi resource management plans;* | Please refer to response to Objective 3 (above). |

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| *(f) provide for opportunities for tangata whenua to exercise kaitiakitanga over waters, forests, lands, and fisheries in the coastal environment through such measures as:*<br><br>*(i) bringing cultural understanding to monitoring of natural resources;* | |

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| *Policy 3 Precautionary approach*<br><br>*(1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.*<br><br>*(2) In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change, so that:*<br><br>*(a) avoidable social and economic loss and harm to communities does not occur;*<br><br>*(b) natural adjustments for coastal processes, natural defences, ecosystems, habitat and species are allowed to occur; and*<br><br>*(c) the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations* | Policy 3 provides that when the risk of potential significant adverse or irreversible environmental effects cannot be adequately assessed (because of uncertainty about the nature and consequences of human activities or other processes) that a precautionary approach to risk management becomes appropriate.<br><br>Comprehensive ecological mapping has allowed the Project team to ascertain the environmental risks and pivot design where possible to avoid adverse effects on seagrass, saltmarsh, and significant locations for critical 'at-risk' coastal bird species (if applicable).<br><br>The Project development (even with design adjustments) is not able to avoid adverse effects on saltmeadow to achieve Project objectives. Offsetting of saltmeadow is proposed in the Saltmeadow Offset Plan resulting in a net gain of saltmeadow. The conservative approach to these mapped environmental constraints is considered consistent with the precautionary approach.<br><br>Climate change<br><br>Policy 3(2) stipulates that forward thinking is required in regard to climate change. The Project is required to include a level of forward-thinking and consider the development of appropriate strategies for the future management of coastal resources. The Project is not a new development. It is providing a level of protection to existing infrastructure that was in place prior to the Canterbury Earthquake Sequence. The design of the structures has a 20-year design life and is designed in such a way that it is adaptable to sea level rise in the future. This project is based on addressing present day inundation and erosion risk and water levels and for structures with a minimum of 20-year design life. The intent was not to develop options to address climate change at this time as the council is currently underway with their Coastal Hazards Adaptation Program (CHAP), which will work with the local community to develop specific adaptation plans. Any decisions on the future use of or adaptation of the proposed inundation and erosion protection will be made with the community under the CHAP process. |

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| *Policy 4 Integration*<br><br>*Provide for the integrated management of natural and physical resources in the coastal environment, and activities that affect the coastal environment. This requires:*<br><br>*(a) co-ordinated management or control of activities within the coastal environment, and which could cross administrative boundaries, particularly:*<br><br>*(i) the local authority boundary between the coastal marine area and land;*<br><br>*(ii) local authority boundaries within the coastal environment, both within the coastal marine area and on land; and*<br><br>*(iii) where hapū or iwi boundaries or rohe cross local authority boundaries;*<br><br>*(b) working collaboratively with other bodies and agencies with responsibilities and functions relevant to resource management, such as where land or waters are held or managed for conservation purposes; and*<br><br>*(c) particular consideration of situations where:*<br><br>*(i) subdivision, use, or development and its effects above or below the line of mean high water springs will require, or is likely to result in, associated use or development that crosses the line of mean high water springs; or*<br><br>*(ii) public use and enjoyment of public space in the coastal environment is affected, or is likely to be affected; or*<br><br>*(iii) development or land management practices may be affected by physical changes to the coastal environment or potential inundation from coastal hazards, including as a result of climate change; or*<br><br>*(iv) land use activities affect, or are likely to affect, water quality in the coastal environment and marine ecosystems through increasing sedimentation; or*<br><br>*(v) significant adverse cumulative effects are occurring, or can be anticipated.* | It is noted that this Policy is directed more towards regulatory authorities but still has relevance to this Project.<br><br>This Project covers both sides of the coastal marine area boundary. A bundled application provides the holistic approach to the Project and ensures cross-jurisdictional matters and cross-boundary matters are appropriately collectively considered.<br><br>The Project is specifically dealing with land management as the result of physical changes in the coastal environment. It is worth noting that while sea level rise will be an issue for the area in the future, this Project is dealing with the lowered level of protection/enjoyment/safety of the estuary edge resulting from exacerbated inundation (and erosion) as a result of the slumping of the edge occurring as a result of the Canterbury Earthquake Sequence. |

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| *Policy 6 Activities in the coastal environment*<br><br>*(1) In relation to the coastal environment:*<br><br>*(a) recognise that the provision of infrastructure, the supply and transport of energy including the generation and transmission of electricity, and the extraction of minerals are activities important to the social, economic and cultural well-being of people and communities;*<br><br>*(b) consider the rate at which built development and the associated public infrastructure should be enabled to provide for the reasonably foreseeable needs of population growth without compromising the other values of the coastal environment;*<br><br>*(c) encourage the consolidation of existing coastal settlements and urban areas where this will contribute to the avoidance or mitigation of sprawling or sporadic patterns of settlement and urban growth;*<br><br>*(d) recognise tangata whenua needs for papakāinga, marae and associated developments and make appropriate provision for them;*<br><br>*(e) consider where and how built development on land should be controlled so that it does not compromise activities of national or regional importance that have a functional need to locate and operate in the coastal marine area;*<br><br>*(f) consider where development that maintains the character of the existing built environment should be encouraged, and where development resulting in a change in character would be acceptable;*<br><br>*(g) take into account the potential of renewable resources in the coastal environment, such as energy from wind, waves, currents and tides, to meet the reasonably foreseeable needs of future generations;*<br><br>*(h) consider how adverse visual impacts of development can be avoided in areas sensitive to such effects, such as headlands and prominent ridgelines, and* | A majority of the Project is occurring within the coastal environment (refer to analysis of Policy 1). Policy 6 states specific principles about the location and scale of activities in the coastal environment. Priority is given to activities with a functional need to locate and operate in the CMA, and provide for these activities in appropriate places.<br><br>Reasonably foreseeable needs - Policy 6(1)(b)<br><br>In regard to reasonably foreseeable needs the Project is based on a 20-year design life with the ability for design to be adapted to climate change/sea level rise in the future. Policies 24-27 direct a planning horizon of 100 years to assess hazard risks. This policy does not specify a planning horizon.<br><br>Following the Canterbury Earthquake Sequence a lot of the Project land has been red-zoned following damage to residential dwellings. This Project provides for protection of remaining infrastructure and encourages the consolidation of the existing coastal settlement (remembering the Project will provide a level of flood protection enjoyed prior to the Canterbury Earthquake Sequence).<br><br>Functional need - Policy 6(1)(e) and Policy 6(2)<br><br>As traversed in detail already, there is a functional need for flood protection works to be located in the coastal marine area (ancillary erosion protection works) to prevent further erosion and scour, provide a level of inundation protection to protect the residential infrastructure behind it, and to achieve the objectives of the Project as agreed by CCC and councillors.<br><br>It is considered this Project is important to the social and economic well-being of the Southshore and South New Brighton communities.<br><br>Natural character/visual landscape/open space - Policy 6(1)(f)/(h)<br><br>There is an opportunity for the Project to provide a net positive benefit to the character/landscape of the existing edge following the Canterbury Earthquake |

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| *as far as practicable and reasonable apply controls or conditions to avoid those effects;*<br><br>*(i) set back development from the coastal marine area and other water bodies, where practicable and reasonable, to protect the natural character, open space, public access and amenity values of the coastal environment; and*<br><br>*(j) where appropriate, buffer areas and sites of significant indigenous biological diversity, or historic heritage value.*<br><br>*(2) Additionally, in relation to the coastal marine area:*<br><br>*(a) recognise potential contributions to the social, economic and cultural wellbeing of people and communities from use and development of the coastal marine area, including the potential for renewable marine energy to contribute to meeting the energy needs of future generations:*<br><br>*(b) recognise the need to maintain and enhance the public open space and recreation qualities and values of the coastal marine area;*<br><br>*(c) recognise that there are activities that have a functional need to be located in the coastal marine area, and provide for those activities in appropriate places;*<br><br>*(d) recognise that activities that do not have a functional need for location in the coastal marine area generally should not be located there; and*<br><br>*(e) promote the efficient use of occupied space, including by:*<br><br>*(i) requiring that structures be made available for public or multiple use wherever reasonable and practicable;*<br><br>*(ii) requiring the removal of any abandoned or redundant structure that has no heritage, amenity or reuse value; and* | Sequence. Enhancing access along the estuary edge will also likely be a positive outcome for the publicly shared open space areas of the Project.<br><br>Indigenous biological diversity – Policy 6(1)(j)<br><br>By avoiding adverse effects on seagrass and saltmarsh and offsetting saltmeadow habitat loss it is considered there are appropriate buffer areas to significant areas of biological diversity.<br><br>Historic heritage – Policy 6(1)(j)<br><br>The protection of midden sites via encapsulation (that adopts a conservative construction methodology) results in a net positive benefit for historical/cultural heritage of the Project area.<br><br>Social, economic and cultural wellbeing – Policy 6(2)(a)<br><br>It is considered that the Project provides a level of immediate protection to the Southshore community and both private and public infrastructure to return the level of protection to pre-earthquake levels. The design itself provides opportunity for further adaptation beyond its 20-year design life.<br><br>Removal of abandoned/redundant structures<br><br>Lastly, in relation to the efficient use of occupied space, removing dilapidated (a lot of them are not consented) structures will result in safety and visual improvements along the estuary edge. |

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| *(iii) considering whether consent conditions should be applied to ensure that space occupied for an activity is used for that purpose effectively and without unreasonable delay.* | |

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| *Policy 10: Reclamation and de-reclamation*<br><br>*(1) Avoid reclamation of land in the coastal marine area, unless:*<br><br>*(a) land outside the coastal marine area is not available for the proposed activity;*<br><br>*(b) the activity which requires reclamation can only occur in or adjacent to the coastal marine area;*<br><br>*(c) there are no practicable alternative methods of providing the activity; and*<br><br>*(d) the reclamation will provide significant regional or national benefit.* | Fundamentally, the project seeks to restore the damaged estuary edge through the creation of engineered edges, cobble beaches and the replacement of failed gabion baskets. In order to facilitate the placement of these structures, minor encroachments into and reclamation of parts of the coastal marine area are required. Overall, the total area to be reclaimed is approximately 1827m$^2$, with some 2706m$^2$ to be 'declaimed" leading to a net declamation of 879m$^2$.<br><br>As identified throughout this AEE, as an earthquake legacy project, the project's objectives are to restore the edge and prevent further erosion, considering the topography and the community's wishes. The area between the CMA and the bund alignment is not available for the proposed activity as that would allow the existing edge to further erode back to that point (i.e. buried wall). The project overall, and the minor areas of reclamation required, are for the specific purpose of restoring a level of estuary edge protection and inundation protection to pre-earthquake levels. The level of protection to the community has been lowered as a result of the CES and the subsequent (and necessary) land clearances that followed, which in turn have resulted in further erosion following the earthquakes. The reclamation cannot practically be avoided, and it is therefore considered overall that the proposal is not contrary to this policy.<br><br>With respect to part (b) of the Policy, it is noted that the erosion protection works can only occur in/adjacent to the CMA, unless the objective of the Project to provide erosion protection to pre-earthquake levels were changed. Even if this were the case, there are no other locations for this work that would realistically protect the estuary edge from further erosion. The current project objective has been agreed in extensive consultation with the community and approved by the Council. If the objective were changed to set the erosion works back (i.e. further landward) the community would face further loss of land and the erosion protection would look quite different from the current proposed design (requiring more room and additional disposal costs). Additionally, placing erosion protection works inland would compromise the values of the existing open space along the estuary edge. The proposal is not contrary to this policy. |

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| | The optioneering of practicable alternatives were discussed in the 2020 report – these were practicable options for the activity of restoring the level of the protection to what was pre-earthquake, and not losing any more land. To be able to achieve this outcome in this environment, hard engineered solutions are the most practicable option – and the design of the cobble beach and revetments in the specifically identified locations are the most practicable of those options. As there are no practicable alternative methods, the proposal is not contrary to part (c) of the policy.<br><br>There are over 500 private properties in the Southshore area and considerable public infrastructure across Southshore and SNBP. The Spit is going to be susceptible to hazards, including erosion. The proposed areas to be reclaimed are small in the overall context of the project. The reclamations are necessary to facilitate the construction of the rock revetment which will provide protection for the land and properties on the spit. Protection of the existing community is a regionally significant benefit, as the project not only provides for the adjacent residential communities but affords ongoing protection of the coastal edge which is used recreationally by many people. The proposal is therefore considered to be consistent with this policy. |

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| *Policy 11(a) Indigenous Biological Diversity (biodiversity)*<br><br>*To protect indigenous biological diversity in the coastal environment:*<br><br>*(a) avoid adverse effects of activities on*<br><br>*(i) Indigenous taxa that are listed as threatened or at risk in the New Zealand Threat Classification System lists;*<br><br>*(ii)taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened;*<br><br>*(iii) indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare*<br><br>*(iv) habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare*<br><br>*(v) areas containing nationally significant examples of indigenous community types*<br><br>*(vi) areas set aside for full or partial protection of indigenous biological diversity under other legislation* | ▪ Seagrass is identified as 'At-risk declining'. The project has been designed to avoid areas of seagrass, which at times has required the rock revetment to be pulled inland to a small degree. No at risk or threatened plant species have been identified within the salt marsh or saltmeadow communities.<br><br>▪ Based on information received from Project ecologists there are a number of 'At Risk' coastal bird species in the general area. The design of the footprint has been developed in order to avoid locations that are of critical importance to these species. The species of relevance to (ii) are already captured under (i). Conditions of consent require that construction not be undertaken before checks have been undertaken to determine whether any birds are nesting in the area.<br><br>▪ Estuaries are identified as a naturally rare 'ecosystem'. The Christchurch District Plan identifies the estuary as a Site of Ecological Significance because it is 'an originally rare ecosystem that contains indigenous vegetation communities that have been greatly reduced within the Low Plains Ecological District, and is also of local, national and international importance in terms of it supporting a representative assemblage of indigenous and migratory birdlife, including 23 threatened species.' It is considered that avoiding of habitats through design appropriately avoids adverse effects on this ecosystem. Also, noting saltmeadow will be offset resulting in a net gain of habitat.<br><br>▪ The Project envelope does not contain nationally significant examples of indigenous community types.<br><br>▪ Relevant legislation for the protection of the estuary includes the following:<br>- Conservation Act 1987;<br>- Marine Reserves Act 1971;<br>- Marine Mammals Protection Act 1978; and<br>- Wildlife Act 1953. |

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| | ▪ An analysis of protected areas has identified that the estuary does not have full or partial protection of indigenous biological diversity under the identified legislation.<br>▪ Potential effects on indigenous biodiversity have been addressed in detail in the Ecological Assessment prepared by Boffa Miskell Ltd. As discussed in the Assessment of Effects, any effects on these species will be avoided and it is therefore considered the proposal is not contrary to this Policy. |
| *Policy 11(b)*<br><br>*(b)avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on:*<br><br>*(i) areas of predominantly indigenous vegetation in the coastal environment;'*<br><br>*(ii) habitats in the coastal environment that are important during the vulnerable life stages of indigenous species;*<br><br>*(iii) indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands, intertidal zones, rocky reef systems, eelgrass and saltmarsh;*<br><br>*(iv) habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;*<br><br>*(v) habitats, including areas and routes, important to migratory species; and*<br><br>*(vi) ecological corridors, and areas important for linking or maintaining biological values identified under this policy.*<br><br>*adverse effects and overall is consistent with this policy.* | ▪ Policy 11(b) requires in the first instance that significant adverse effects be avoided, and that other effects avoided, remedied or mitigated. The threshold for significant adverse effects is much higher and is one that is likely to have a serious adverse impact on the environment.<br>▪ The RMA uses MHWS as a jurisdictional boundary for coastal management. This is relevant for the application of the boundary of the application of the RCEP. However, the coastal environment can extend landward as identified under Policy 1 of the NZCPS. Areas of Salt marsh will fall under the jurisdiction of Policy 11(b). Saltmeadow and terrestrial vegetation that form part of the 'coastal environment' above MHWS is included by adopting a precautionary approach. The saltmeadow lost during the construction phase will be offset.<br>▪ As identified in the technical reports, and as discussed in the Assessment of Effects, there will be no significant adverse effects arising from the proposed works. The proposal avoids significant adverse effects and overall is consistent with this policy. |

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| Policy 13(a) – Preservation of Natural Character<br><br>*(1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development:*<br><br>*(a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character*<br><br>*(b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment; including by:*<br><br>*(c) assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and*<br><br>*(d) ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions.*<br><br>*(2) Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as:*<br><br>*(a) natural elements, processes and patterns;*<br><br>*(b) biophysical, ecological, geological and geomorphological aspects;*<br><br>*(c) natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks;*<br><br>*(d) the natural movement of water and sediment;*<br><br>*(e) the natural darkness of the night sky;*<br><br>*(f) places or areas that are wild or scenic;*<br><br>*(g) a range of natural character from pristine to modified; and* | Policy 13(a) distinguishes areas of 'outstanding' natural character. The RCEP only contemplates outstanding natural character once and defines Banks Peninsula as an area of outstanding natural character in an explanation of Policy 8.15. The estuary does not incur this status under the RCEP.<br><br>Conversely, Appendix 9.2.9.15 of the Christchurch District Plan identifies Areas of outstanding and high (and very high) natural character in the coastal environment. The edge of the Avon-Heathcote Estuary/Te Ihutai does not meet the threshold of outstanding natural character and instead is listed as having high natural character (despite having significant modifications):<br><br>*Avon-Heathcote Estuary/ Te Ihutai:*<br><br>*A. Active estuary with shifting channels and dynamic tidal system with <u>high</u> natural character despite significant modifications along its edges.*<br><br>*B. The saltmarsh areas and mudflats are important habitats.*<br><br>*C. Important bird feeding and breeding site.*<br><br>*D. Ngāi Tahu settlements and mahinga kai sites around the edge of the estuary that made use of the extensive food resources, including Te Kai a Te Kāroro, Ohikuparapara, Raekura and Waipātiki and the former Māori fishing reserve called Te Ihutai.*<br><br>The actual and potential effects on the natural character of the Southshore and SNBP have been addressed in the Coastal Processes Assessment and the Landscape and Visual Assessment.<br><br>The Coastal Processes Assessment has confirmed that proposed works will not have an adverse effect on the coastal processes within the estuary. While the rock revetments will not appear as a natural form in the landscape, they will provide protection to the estuary edge and avoid any further erosion. Similarly, the landscape assessment has confirmed that there will not be any significant |

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| *(h) experiential attributes, including the sounds and smell of the sea; and their context or setting.* | effects on natural character arising from the proposed works. The proposal is therefore not contrary to this Policy. |
| *Policy 15 Natural Features and Natural Landscapes*<br><br>*To protect the natural features and natural landscapes (including seascapes) of the coastal environment from inappropriate subdivision, use, and development:*<br><br>*(a) avoid adverse effects of activities on outstanding natural features and outstanding natural landscapes in the coastal environment;*<br><br>*(b) avoid significant adverse effects and avoid, remedy, or mitigate other adverse effects of activities on other natural features and natural landscapes in the coastal environment; including by::*<br><br>*(c) identifying and assessing the natural features and natural landscapes of the coastal environment of the region or district, at minimum by land typing, soil characterisation and landscape characterisation and having regard to:*<br><br>*(i) natural science factors, including geological, topographical, ecological and dynamic components;*<br><br>*(ii) the presence of water including in seas, lakes, rivers and streams;* | Policy 15(a) distinguishes areas of 'outstanding' natural features and landscapes. The RCEP only contemplates outstanding natural features and landscapes once and defines the Banks Peninsula as an area of outstanding natural feature and landscape in an explanation of Objective 6.2. The estuary does not incur this status under the RCEP.<br><br>Under the Christchurch District Plan Appendix 9.2.9.1.1 Te Ihutai/Avon-Heathcote Estuary is recognised as an outstanding natural feature. This is examined in further detail below:<br><br>*Te Ihutai / Avon-Heathcote Estuary:*<br><br>*A. The formative processes, tidal influence and shifting channels of the Ōtākaro / Avon and Heathcote / Ōpāwaho rivers mouths and the adjacent New Brighton sand spit make the estuary a highly legible landscape feature.*<br><br>*B. The series of caves and rocky headlands from the mouth of the Heathcote / Ōpāwaho River to Scarborough Heads are significant geological features with important heritage, archaeological and cultural values.*<br><br>*C. Important bird feeding and breeding site, nationally important for wading birds.* |

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| *(iii) legibility or expressiveness - how obviously the feature or landscape demonstrates its formative processes;*<br><br>*(iv) aesthetic values including memorability and naturalness;*<br><br>*(v) vegetation (native and exotic);*<br><br>*(vi) transient values, including presence of wildlife or other values at certain times of the day or year;*<br><br>*(vii) whether the values are shared and recognised;*<br><br>*(viii)cultural and spiritual values for tangata whenua, identified by working, as far as practicable, in accordance with tikanga Maori; including their expression as cultural landscapes and features;*<br><br>*(ix)historical and heritage associations; and*<br><br>*(x)wild or scenic values;*<br><br>*(d) ensuring that regional policy statements, and plans, map or otherwise identify areas where the protection of natural features and natural landscapes requires objectives, policies and rules; and*<br><br>*(e) including the objectives, policies and rules required by (*d) in plans. | *D. Shag Rock / Rapanui, Tuawera / Cave Rock and Clifton Cliffs are of geological interest, visually prominent, and are of significance to Ngāi Tahu*<br><br>*E. Significance in relation to Māori heritage due to extensive settlement, occupation and the use of Te Ihutai / Avon-Heathcote Estuary as a major mahinga kai.*<br><br>*F. Te Ihutai / Avon-Heathcote Estuary and Sumner beach / Matuku-takotako are particularly popular for recreational use.*<br><br>Parts C, E and F may apply to this Project. Under Policy 11(a) critical locations for 'At-Risk' Coastal birds will be avoided, which is sufficient to avoid adverse effects on the matters of concern in C (I*mportant bird feeding and breeding site, nationally important for wading birds).*<br><br>The archaeological report identifies significant archaeological and heritage areas along the Project alignment. These are to be protected through the design response. Similarly, cultural concerns have been addressed through the engagement with mana whenua and their input into the final landscape design.<br><br>With respect to part F above, the Project will enhance access to the estuary edge and the estuary itself for recreational use following the damage to structures in the CES. It is considered that there will only be positive recreational effects arising from the project.<br><br>The application of 'outstanding natural feature' to the Project areas of the estuary is limited. The residual matters that could be construed to be avoided include C, E and F identified above. For the reasons identified it is considered that the adapted design proposed as part of this application is consistent with Policy 11 and the protection of eroding middens, adverse effects will be avoided.<br><br>For any residual impacts relevant under Policy 15(b) significant adverse effects are avoided, as identified in the Landscape Assessment. |

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| *Policy 17 Historic heritage identification and protection*<br><br>*Protect historic heritage in the coastal environment from inappropriate subdivision, use, and development by:*<br><br>*(a) identification, assessment and recording of historic heritage, including archaeological sites;*<br><br>*(b) providing for the integrated management of such sites in collaboration with relevant councils, heritage agencies, iwi authorities and kaitiaki;*<br><br>*(c) initiating assessment and management of historic heritage in the context of historic landscapes;*<br><br>*(d) recognising that heritage to be protected may need conservation;*<br><br>*(e) facilitating and integrating management of historic heritage that spans the line of mean high water springs;*<br><br>*(f) including policies, rules and other methods relating to (a) to (e) above in regional policy statements, and plans;*<br><br>*(g) imposing or reviewing conditions on resource consents and designations, including for the continuation of activities;*<br><br>*(h) requiring, where practicable, conservation conditions; and*<br><br>*(i) considering provision for methods that would enhance owners' opportunities for conservation of listed heritage structures, such as relief grants or rates relief.* | The Project is set to provide a net positive benefit to historic heritage (identification and protection).<br><br>Erosion at SNBP has exposed midden sites of cultural significance along the estuary edge. The Project design has been tweaked to provide protection to these heritage sites via encapsulation to prevent further loss and exposure of the site to erosion. It is considered that any temporary (negative) construction phase effects on this site will be outweighed by the enduring protection of the site. |

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| *Policy 18 Public open space*<br><br>*Recognise the need for public open space within and adjacent to the coastal marine area, for public use and appreciation including active and passive recreation, and provide for such public open space, including by:*<br><br>*(a) ensuring that the location and treatment of public open space is compatible with the natural character, natural features and landscapes, and amenity values of the coastal environment;*<br><br>*(b) taking account of future need for public open space within and adjacent to the coastal marine area, including in and close to cities, towns and other settlements;*<br><br>*(c) maintaining and enhancing walking access linkages between public open space areas in the coastal environment;*<br><br>*(d) considering the likely impact of coastal processes and climate change so as not to compromise the ability of future generations to have access to public open space;*<br><br>*and*<br><br>*(e) recognising the important role that esplanade reserves and strips can have in contributing to meeting public open space needs.*<br><br>*Policy 19 Walking Access*<br><br>*Recognise the public expectation of and need for walking access to and along the coast that is practical, free of charge and safe for pedestrian use.*<br><br>*(2) Maintain and enhance public walking access to, along and adjacent to the coastal marine area, including by:*<br><br>*(a) identifying how information on where the public have walking access will be made publicly available;* | Compatibility of open space<br><br>The location and treatment of public open space is considered closely in this Project. The open space area at Southshore outside of the South New Brighton Park is relatively new following the Canterbury Earthquake Sequence as the result of red-zoned residential dwellings. The Project provides an opportunity to enhance the public open space and its interaction with identified natural landscape, natural feature and natural character values.<br><br>Impacts of coastal processes and climate change<br><br>See analysis of Policies 24-27.<br><br>Walking access<br><br>Walking access along the Southshore estuary edge is enhanced as a result of this Project by the provision of a continuous coastal pathway on top of the flood protection bund. It is considered that the amenity value of the area is likely to be improved by removing dilapidated structures and via the implementation of the Landscape Master Plan and Saltmeadow Offset Plan.<br><br>Overall, it is considered that the public open spaces and walking access is improved with the Project. |

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| *(b) avoiding, remedying or mitigating any loss of public walking access resulting from subdivision, use, or development; and*<br><br>*(c) identifying opportunities to enhance or restore public walking access, for example where:*<br><br>*(i) connections between existing public areas can be provided; or*<br><br>*(ii) improving access would promote outdoor recreation; or*<br><br>*(iii) physical access for people with disabilities is desirable; or*<br><br>*(iv) the long-term availability of public access is threatened by erosion or sea level rise; or*<br><br>*(v) access to areas or sites of historic or cultural significance is important; or*<br><br>*(vi) subdivision, use, or development of land adjacent to the coastal marine area has reduced public access, or has the potential to do so.*<br><br>*(3) Only impose a restriction on public walking access to, along or adjacent to the coastal marine area where such a restriction is necessary:*<br><br>*(a) to protect threatened indigenous species; or*<br><br>*(b) to protect dunes, estuaries and other sensitive natural areas or habitats; or*<br><br>*(c) to protect sites and activities of cultural value to Māori; or*<br><br>*(d) to protect historic heritage; or*<br><br>*(e) to protect public health or safety; or*<br><br>*(f) to avoid or reduce conflict between public uses of the coastal marine area and its margins; or*<br><br>*(g) for temporary activities or special events; or* | |

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| *(h) for defence purposes in accordance with the Defence Act 1990; or*<br><br>*(i) to ensure a level of security consistent with the purpose of a resource consent; or*<br><br>*(j) in other exceptional circumstances sufficient to justify the restriction.*<br><br>*(4) Before imposing any restriction under (3), consider and where practicable provide for alternative routes that are available to the public free of charge at all times.* | |
| *Policy 20 Vehicle access*<br><br>*(1) Control use of vehicles, apart from emergency vehicles, on beaches, foreshore, seabed and adjacent public land where:*<br><br>*(a) damage to dune or other geological systems and processes; or*<br><br>*(b) harm to ecological systems or to indigenous flora and fauna, for example marine mammal and bird habitats or breeding areas and shellfish beds; or*<br><br>*(c) danger to other beach users; or*<br><br>*(d) disturbance of the peaceful enjoyment of the beach environment; or*<br><br>*(e) damage to historic heritage; or*<br><br>*(f) damage to the habitats of fisheries resources of significance to customary, commercial or recreational users; or*<br><br>*(g) damage to sites of significance to tangata whenua;*<br><br>*might result.*<br><br>*(2) Identify the locations where vehicular access is required for boat launching, or as the only practicable means of access to private property or public* | No vehicle access is required on the estuary bed for the Project. All activities will be conducted from the bank top, including the placement of gabion baskets at SNBP. The plan for the implementation of all structures is to work from the bank top. |

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| *facilities, or for the operation of existing commercial activities, and make appropriate provision for such access.*<br><br>*(3) Identify any areas where and times when recreational vehicular use on beaches, foreshore and seabed may be permitted, with or without restriction as to type of vehicle, without a likelihood of any of (1)(a) to (g) occurring.* | |
| *Policy 24 Identification of coastal hazards*<br><br>*(1) Identify areas in the coastal environment that are potentially affected by coastal hazards (including tsunami), giving priority to the identification of areas at high risk of being affected. Hazard risks, over at least 100 years, are to be assessed having regard to:*<br><br>*(a) physical drivers and processes that cause coastal change including sea level rise;*<br><br>*(b) short-term and long-term natural dynamic fluctuations of erosion and accretion;*<br><br>*(c) geomorphological character;*<br><br>*(d) the potential for inundation of the coastal environment, taking into account potential sources, inundation pathways and overland extent;*<br><br>*(e) cumulative effects of sea level rise, storm surge and wave height under storm conditions;*<br><br>*(f) influences that humans have had or are having on the coast;*<br><br>*(g) the extent and permanence of built development; and*<br><br>*(h) the effects of climate change on:* | Policy 24 lays the foundation for risk-based coastal hazard management. Areas that will potentially be affected by coastal hazards are to be identified (giving priority to high-risk areas). Hazard risks over at least the next 100 years are to be assessed for those areas (having regard to the identified factors that affect hazard risks and the effects of climate change on each of those factors).<br><br>Project risk of coastal hazards<br><br>Due to the CES the estuary edge has slumped in places increasing the risk to the edge from inundation and associated erosion.<br><br>The objective of the Project is to return the estuary edge to a level of protection that was enjoyed prior to the CES.<br><br>However, close to the design level of protection is able to be maintained for 20 years of sea level rise or future land subsidence. This allows time for longer-term adaptative planning responses to climate change and sea level rise to be made and implemented. Note that the physical lifetime of the designed structures will be longer than twenty years. Furthermore, adaptation planning is underway, and this Project is not pre-empting longer term adaptation matters along the estuary edge.<br><br>Design Criteria<br><br>The current design level provides for a maximum storm scenario (waves and water level) protection in a 50-year return period (2% EAP) extreme estuary |

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| *(i) matters (a) to (g) above;*<br><br>*(ii) storm frequency, intensity and surges; and*<br><br>*(iii) coastal sediment dynamics;*<br><br>*taking into account national guidance and the best available information on the likely effects of climate change on the region or district.* | water level event combined with waves generated by a 50-year return period (2% AEP) southwest or westerly wind event blowing across the estuary.<br><br>Tsunamis<br><br>Tsunamis are considered as part of the natural hazard assessment for the Project. The risks from local source tsunamis are considerably less than for far field tsunamis. ECan (2019) reviewed the tsunami modelling undertaken by Bosserelle et al (2019) for this area and classified the whole Southshore and South New Brighton Park Area as an 'Orange' evacuation zone, indicating that the area would likely be inundated in a 1:500 year RI tsunami event. The inundation during this event is high, and would result in a significant area of land in the SNBP and the Southshore area becoming flooded. Given that the current approximate elevation of the Southshore bund is 11.2 m CDD, in this sized event there could be large levels of water overflowing the bund. The design has been balanced against the level of risk and level of possible protection and it is considered that protection from a large offshore tsunami is not viable. |
| *Policy 25 Subdivision, use, and development in areas of coastal hazard risk In areas potentially affected by coastal hazards over at least the next 100 years:*<br><br>*(a) avoid increasing the risk of social, environmental and economic harm from coastal hazards;*<br><br>*(b) avoid redevelopment, or change in land use, that would increase the risk of adverse effects from coastal hazards;*<br><br>*(c) encourage redevelopment, or change in land use, where that would reduce the risk of adverse effects from coastal hazards, including managed retreat by relocation or removal of existing structures or their abandonment in extreme circumstances, and designing for relocatability or recoverability from hazard events;* | Policy 25 directs that in areas that will potentially be affected by coastal hazards over at least the next 100 years, an increase in the risk of social, environmental and economic harm from coastal hazards is to be avoided. This policy encourages redevelopment or change in land use that would reduce risk, and also contains policy relating to all redevelopment and changes in land use infrastructure; hard protection structures and alternatives to them; and tsunami.<br><br>Avoid increasing risk of social, environmental and economic harm<br><br>It is identified that the Project area is likely affected by coastal hazards over at least the next 100 years.<br><br>There is a requirement that the Project avoids increasing the risk of social environmental and economic harm from coastal hazards. This phrase indicates that decision-makers should take a broad view and consider the potential harm |

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| *(d) encourage the location of infrastructure away from areas of hazard risk where practicable;*<br><br>*(e) discourage hard protection structures and promote the use of alternatives to them, including natural defences; and*<br><br>*(f) consider the potential effects of tsunami and how to avoid or mitigate them.* | to biodiversity, natural character, public space, public access and amenity values, as well as to settlements and infrastructure.<br><br>It is considered that this Project (for the period of its design life and proposed consent term of 20 years) avoids adverse effects on natural character, public space, public access and amenity values for the reasons considered earlier in this memorandum. Biodiversity values are set to be maintained by utilising an offsetting approach, particularly in regard to saltmeadow habitats, while other critical flora and fauna habitats are avoided.<br><br>Change in land use<br><br>Following the CES a lot of the Project area has been re-zoned and residential dwellings removed following earthquake damage. The Project will provide protection for remaining infrastructure and provide enhanced open space on the landward edge (for a period of at least 20 years) while a longer-term strategy is formulated for adaptation.<br><br>Discourage hard protection structures<br><br>The protection type recommended in each unit is the best fit for the physical characteristics present in that location, therefore allowing for some diversity of the edge.<br><br>a) Rock revetment<br><br>Through a multi-criteria analysis the option of replacement rock revetments (hard engineering) at Southshore scored higher for all design factors (adaptability, safety, performance, durability and earthquake resilience) but not natural environment factors. Rock revetment is proposed to encapsulate existing loose rubble located along the edge, as well as encapsulating the remnants of former vertical walls (presenting a like for like hard engineering solution). The revetments can also be adapted for future sea level rise or future land subsidence beyond the 20-year timeframe by increasing the crest height and width and can be easily maintained over a longer term by |

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| | replacing/readjusting rocks on an as-required basis following large estuary water level events.<br><br>Where rock revetment is predominantly proposed, there is an existing vertical elevation between the estuary bed and the landward edge. Naturalisation of the edge in this position would involve quite significant shifts landward as erosion would encroach some distance inland (contrary to the objectives of the Project). The rock revetment is proposed a like for like solution (with a 20-year design life) to allow for a more certain adaptation strategy to be formulated.<br><br>c) Cobble beach renourishment<br><br>Beach renourishment involves adding volume and elevation to beaches with placement of introduced material cobbles to a design slope and elevation. The principle is to use a larger grain size than that naturally found at the site to reduce erosion by wave action and longshore transport away from the site. This option is best suited to areas where there is limited water depth and the foreshore slope from estuary bed to hinterland is already shallow.<br><br>d) Naturalisation of the edge<br><br>The complete naturalisation of the edge does not align with the project objectives to address earthquake legacy issues. Removing existing structures to replace with complete natural options will likely exacerbate initial erosion and inundation risk (particularly where rock revetment is proposed where there are existing vertical walls). The opportunity for partial naturalisation of the Project is taken with the implementation of a cobble beach as a form of beach nourishment. The objective of the Project is to address earthquake legacy issues and then a future focused conversation can occur to identify adaptation pathways to the impacts of sea level rise. The change to naturalisation of the edge is at odds with the current objectives of the Project to provide earthquake legacy protection. |

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| *Policy 26 Natural defences against coastal hazards*<br><br>*(1) Provide where appropriate for the protection, restoration or enhancement of natural defences that protect coastal land uses, or sites of significant biodiversity, cultural or historic heritage or geological value, from coastal hazards.*<br><br>*(2) Recognise that such natural defences include beaches, estuaries, wetlands, intertidal areas, coastal vegetation, dunes and barrier islands.* | Policy 26 elaborates on the use of natural defences as a preferred alternative to hard protection structures. It recognises that reliance on protected, restored and/or enhanced natural defences rather than on hard protection structures (like seawalls or groynes) can reduce the risks of long-term social, environmental and economic harm from coastal hazards.<br><br>Where rock revetment is proposed it is replacing like for like structures. Given the objectives of the Project to restore the level of protection prior to the Canterbury Earthquake Sequence it is considered that rock revetment remains appropriate to meet the objectives and protect the existing community infrastructure from further social harm for the design life of these structures.<br><br>It is considered that the implementation of cobble beach is part of an integrated solution to respond and move towards a more naturalised solution. Whilst it is still an engineered solution it provides an opportunity to protect, restore and enhance the coastline while a more enduring adaptation strategy is formulated. It is considered this integrated approach provides adequate protection to the existing communities, whilst allowing for adaptation to climate change through adaptability in design and allowing further future adaptation. |
| *Policy 27 Strategies for protecting significant existing development from coastal hazard risk*<br><br>*(1) In areas of significant existing development likely to be affected by coastal hazards, the range of options for reducing coastal hazard risk that should be assessed includes:*<br><br>*(a) promoting and identifying long-term sustainable risk reduction approaches including the relocation or removal of existing development or structures at risk;*<br><br>*(b) identifying the consequences of potential strategic options relative to the option of 'do-nothing';* | Policy 27 specifically addresses areas of significant existing development. Policy 27 directs local authorities to develop long-term adaptive strategies for areas of significant existing development by assessing a range of options for reducing coastal hazard risks that include, but are not limited to, those set out in Policy 27(1)(a)-(e). The evaluation of the options selected for assessment is to be guided by the matters set out in Policy 27(2)(a)-(c).<br><br>This Project provides a unit-by-unit approach to protecting the estuary edge from natural. A number of options have been considered and formulated to provide a solution to the earthquake legacy issues (refer to Section 1.2).<br><br>Long term sustainability<br><br>The preparation and implementation of long-term, sustainable risk-reduction strategies that take into account climate change is a rapidly evolving process. It |

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| *(c) recognising that hard protection structures may be the only practical means to protect existing infrastructure of national or regional importance, to sustain the potential of built physical resources to meet the reasonably foreseeable needs of future generations;*<br><br>*(d) recognising and considering the environmental and social costs of permitting hard protection structures to protect private property; and*<br><br>*(e) identifying and planning for transition mechanisms and timeframes for moving to more sustainable approaches.*<br><br>*(2) In evaluating options under (1):*<br><br>*(a) focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions;*<br><br>*(b) take into account the nature of the coastal hazard risk and how it might change over at least a 100-year timeframe, including the expected effects of climate*<br><br>*change; and*<br><br>*(c) evaluate the likely costs and benefits of any proposed coastal hazard risk reduction options.*<br><br>*(3) Where hard protection structures are considered to be necessary, ensure that the form and location of any structures are designed to minimise adverse effects on the coastal environment.*<br><br>*(4) Hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so.* | is considered that the level of response that this Project provides (20-year design life with adaptability for sea level rise and climate change beyond this point) is commensurate to the current risk and provides a starting point for the broader adaptation conversation. It is considered that the design put forward achieves the objectives of the Project and provides a starting point for managed retreat that appropriately balances social/environmental and cultural values.<br><br>'Do-nothing' approach<br><br>This approach would lead to an increased risk of erosion and inundation to the existing (remaining) public and private infrastructure to Southshore and South New Brighton communities.<br><br>Hard protection structures<br><br>Policy 27(1)(c) recognises that there can be a role for hard protection structures in protecting important built infrastructure. It is contended that 'sustaining the potential' for this project includes undertaking the early construction of hard protection structures (with adaptability) as part of a longer-term strategy to meet both the immediate and future needs of the community.<br><br>Considering the environmental and social costs of permitting hard protection structures to protect private property<br><br>The opportunity cost of providing hard protection structures is the lost opportunity cost of providing a naturalised edge. Balanced against the actual social cost of retreating landward it is considered that until an adaptation strategy is firmed up for the area that the balance the Project currently provides is appropriate (noting the overarching objective of the Project to provide earthquake legacy protection). All structures as part of this Project are designed to be adaptable to sea level rise.<br><br>In the future there will be a cost associated with removing/abandoning these protection structures. |

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| | Transition mechanisms and timeframes for moving to more sustainable approached<br><br>Managing climate change and coastal hazard risks in this area will take time in areas of significant existing development. It is contended that this Project provides adequate transitional response options at this point in time by providing allowance for adaptability, as well as solutions that are sympathetic and consistent with naturalisation (i.e. cobble beach).<br><br>Reduce the need for hard protection structures and similar engineering interventions<br><br>The use of hard protection structures (rock revetment and gabion baskets) is put in the context of multi-response approaches or strategies. The hard protection structures proposed as part of this project are an initial part of a long-term strategy that is to be formulated. Allowing for adaptability provides an opportunity for a considered allowance of climate change beyond the 20-year design life of the proposed structures.<br><br>Take into account the nature of coastal hazard risk and how it might change over at least a 100 year timeframe<br><br>A broader coastal adaptation strategy and plan change is being progressed independently to this Project. This Project provides a response to the earthquake legacy impacts on the estuary edge. The design as provided accommodates future adaptability to sea level rise beyond the 20-year design life of the structures.<br><br>Evaluate the likely costs and benefits of any proposed coastal hazard risk reduction options<br><br>It is considered that this Project is a commensurate first iterative step towards coastal hazard risk reduction options. The Project has a design life of 20 years and provides for further adaptation to sea-level rise, whilst more long-term adaptation measures are formalised. This Project provides an element of hard |

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| | engineering balanced to protect social values, whilst also trying to balance better ecological outcomes.<br><br>Where hard protection structures are considered to be necessary, ensure that the form and location of any structures are designed to minimise adverse effects on the coastal environment<br><br>The Project has to consider the availability of alternative approaches, such as enhancing natural defences, relocation or redevelopment to reduce the vulnerability of assets. All the proposed options including the cobble beach and rock revetments are classified as hard protection structures. It is considered that to an extent the cobble beach provides an environmentally compatible engineering solution.<br><br>It is acknowledged that the proposed revetment will increase the 'coastal squeeze' for the period of its design life. The requirement for rock revetment aligns with the objective of the Project to provide a level of protection that is equal to the flood protection enjoyed prior to the Canterbury Earthquake Sequence. This is to an extent incompatible with Policy 27(3). However, by taking a holistic approach to the Project, short term coastal squeeze is necessitated to an extent to reduce the social and economic risk to the community, while a longer-term adaptation strategy is formulated. It is considered that the requirement for hard engineering in this location takes into account the particular circumstances and characteristics of the site.<br><br>Hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so<br><br>Policy 27(4) directs that, unless there is significant public or environmental benefit in locating a private property protection structure on public land, that structure (if found to be necessary) should be located within that private property.<br><br>The Project has been agreed to proceed via a council resolution by CCC councillors. The Project occurs entirely on public land. Whilst it will protect the |

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| | Southshore community and private residences it will also protect public infrastructure such as roads, public open space, culture and heritage, parks and areas with amenity and recreational value. On balance it is considered that private asset protection (residential dwellings) is only a part of the Project and that benefit to the enjoyment of the landward open space to the general public is of equal importance. The proposal does not protect one particular private asset but instead collectively provides flood protection for a community and its collective public/private assets. |

### 10.3.5 Section 104(1)(b)(v) – Canterbury Regional Policy Statement

This section of the Act requires that regard is given to any relevant provisions of a regional policy statement or proposed regional policy statement. The relevant provisions of the Canterbury Regional Policy Statement (RPS) are set out and assessed in the following table.

Table 24 Relevant Objectives and Policies of the Canterbury Regional Policy Statement

| Objective/Policy | Analysis |
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| *Objective 5.2.1*<br><br>*5.2.1 Location, Design and Function of Development (Entire Region)*<br><br>*Development is located and designed so that it functions in a way that:*<br><br>*1. achieves consolidated, well designed and sustainable growth in and around existing urban areas as the primary focus for accommodating the region's growth; and*<br><br>*2. enables people and communities, including future generations, to provide for their social, economic and cultural well-being and health and safety; and which:*<br><br>*a. maintains, and where appropriate, enhances the overall quality of the natural environment of the Canterbury region, including its coastal environment, outstanding natural features and landscapes, and natural values;* | The Project will provide consolidation of the existing urban areas including by providing protection for South New Brighton and Southshore communities from inundation. The Project will provide flood protection to a mixture of private residential, public open space and associated infrastructure.<br><br>The Project will provide for the social, economic, and cultural well-being and health and safety of the people and communities of the South New Brighton and Southshore areas, primarily by replacing the failed estuary edge and constructing an inundation bund that will protect properties from further erosion or inundation during high water events in the estuary. The work will maintain the natural character of the estuary and its surrounding landscape, as discussed in detail in the technical coastal and landscape assessments prepared in support of the proposal. |

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| *...*<br><br>*f. is compatible with, and will result in the continued safe, efficient and effective use of regionally significant infrastructure;*<br><br>*g. avoids adverse effects on significant natural and physical resources including regionally significant infrastructure, and where avoidance is impracticable, remedies or mitigates those effects on those resources and infrastructure;*<br><br>*...*<br><br>*i. avoids conflicts between incompatible activities.* | The works are considered specified infrastructure in terms of the NES-F and will play a critical role in protecting property. The project does not give rise to any more than minor effects and is therefore considered consistent with this objective. |
| *Policy 5.3.2 Development conditions (Wider Region)*<br><br>*To enable development including regionally significant infrastructure which:*<br><br>*1. ensure that adverse effects are avoided, remedied or mitigated, including where these would compromise or foreclose :*<br><br>*a. existing or consented regionally significant infrastructure;*<br><br>*b. options for accommodating the consolidated growth and development of existing urban areas;*<br><br>*c. the productivity of the region's soil resources, without regard to the need to make appropriate use of soil which is valued for existing or foreseeable future primary production, or through further fragmentation of rural land;*<br><br>*d. the protection of sources of water for community supplies;*<br><br>*e. significant natural and physical resources;*<br><br>*2. avoid or mitigate:*<br><br>*a. natural and other hazards, or land uses that would likely result in increases in the frequency and/or severity of hazards;* | Construction of the edge protection and inundation bund will not give rise to any more than minor effects, as identified in the Assessment of Effects. The completed works, and any effects associated with their construction, will not compromise any existing or consented infrastructure in the area, and will not compromise the development of the existing Southshore urban areas. Enhanced edge protection and the security of inundation protection may well provide additional confidence for those living and looking to develop in the area. A 'do nothing' approach increases the risk that the South New Brighton and Southshore areas will have increased frequency and severity of inundation and erosion events.<br><br>It is considered that this Project effectively mitigates these risks in the immediate/short term (providing protection to pre-earthquake levels), whilst allowing longer term design adaptation. A 20-year design life with flexibility for further adaptation will allow a longer-term adaptation strategy to be implemented.<br><br>Similarly, there will be no more than minor effects on natural and physical resources, and overall, the project is considered to be consistent with this Policy. |

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| *Objective 6.2.1 Recovery framework*<br><br>*Recovery, rebuilding and development are enabled within Greater Christchurch through a land use and infrastructure framework that:*<br><br>*1. identifies priority areas for urban development within Greater Christchurch;*<br><br>*2. identifies Key Activity Centres which provide a focus for high quality, and, where appropriate, mixed-use development that incorporates the principles of good urban design;*<br><br>*3. avoids urban development outside of existing urban areas or greenfield priority areas for development, unless expressly provided for in the CRPS;*<br><br>*4. protects outstanding natural features and landscapes including those within the Port Hills from inappropriate subdivision, use and development;*<br><br>*5. protects and enhances indigenous biodiversity and public space;*<br><br>*6. maintains or improves the quantity and quality of water in groundwater aquifers and surface waterbodies, and quality of ambient air;*<br><br>*7. maintains the character and amenity of rural areas and settlements;*<br><br>*8. protects people from unacceptable risk from natural hazards and the effects of sea-level rise;*<br><br>*9. integrates strategic and other infrastructure and services with land use development;*<br><br>*10. achieves development that does not adversely affect the efficient operation, use, development, appropriate upgrade, and future planning of strategic infrastructure and freight hubs;*<br><br>*11. optimises use of existing infrastructure; and*<br><br>*12. provides for development opportunities on Māori Reserves in Greater Christchurch.* | The key objective of the Project is to provide protection to the estuary edge to a level that was enjoyed prior to the CES. The primary focus of the Project is to remediate any earthquake legacy impacts along the estuary edge.<br><br>It is considered that this recovery works effectively protect people from unacceptable risk from natural hazards and the effects of sea-level rise for the 20-year design life period of the proposed infrastructure. This is achieved while balancing the need for protection and enhancing indigenous biodiversity, public space and natural features and landscapes (refer to analysis of Objective 2 of the NZCPS). The project is consistent with the relevant parts of this Objective. |

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| *Objective 6.2.3 Sustainability*<br><br>*Recovery and rebuilding is undertaken in Greater Christchurch that:*<br><br>*1. provides for quality living environments incorporating good urban design;*<br><br>*2. retains identified areas of special amenity and historic heritage value;*<br><br>*3. retains values of importance to Tāngata Whenua;*<br><br>*4. provides a range of densities and uses; and*<br><br>*5. is healthy, environmentally sustainable, functionally efficient, and prosperous.* | The key objective of the Project is to provide protection to the estuary edge to a level that was enjoyed prior to the CES. The primary focus of the Project is to remediate any earthquake legacy impacts along the Estuary edge at Southshore and SNBP.<br><br>The Project will enhance amenity and protect heritage values. The Project has also been developed in partnership with mana whenua.<br><br>Overall, the project is consistent with this Objective. |
| *Policy 6.3.2 Development form and urban design*<br><br>*Business development, residential development (including rural residential development) and the establishment of public space is to give effect to the principles of good urban design below, and those of the NZ Urban Design Protocol 2005, to the extent appropriate to the context:*<br><br>*1. Tūrangawaewae ....*<br><br>*2. Integration ...*<br><br>*3. Connectivity...*<br><br>*4. Safety...*<br><br>*5. Choice and diversity...*<br><br>*6. Environmentally sustainable design...*<br><br>*7. Creativity and innovation...* | This is a high-level policy that addresses good urban design in the context of business and residential development and the establishment of public space.<br><br>This Policy is not directly relevant to the project as it is not creating business or residential development and is not strictly establishing public space. The works are taking place within the existing open space along the Southshore and SNBP, facilitated in part by the demolition of properties following the earthquakes. Recreational opportunities and the ability of the public to interact with the Estuary will be enhanced by the project, rather than created as new opportunities. The project is consistent with this Policy, insofar as it is relevant. |
| *Policy 7.3.3 Enhancing fresh water environments and biodiversity* | There are no freshwater bodies affected by the proposed works. The saltmeadow and indigenous species that it supports will be removed by the project, as discussed in the Ecological Assessment. |

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| *To promote, and where appropriate require the protection, restoration and improvement of lakes, rivers, wetlands and their riparian zones and associated Ngāi Tahu values, and to:*<br><br>*1. identify and protect areas of significant indigenous vegetation and significant habitats, sites of significant cultural value, wetlands, lakes and lagoons/Hapūa, and other outstanding water bodies; and*<br><br>*2. require the maintenance and promote the enhancement of indigenous biodiversity, inland basin ecosystems and riparian zones; and*<br><br>*3. promote, facilitate or undertake pest control.* | An offset area has been provided to compensate for this loss, and will result in an area larger than that being lost. Ngāi Tahu values have been taken into account through the design process and consultation with the Trust, and overall, the project is consistent with this Policy. |
| *Objective 8.2.1 Increasing knowledge of the coastal environment and its resources*<br><br>*A programme of information gathering is undertaken on the natural processes, ecosystems and resources in the coastal environment; with the purpose of providing the basis for:*<br><br>*1. Development of a coastal strategy(ies) within five years to address the management of the coastal environment in Canterbury.*<br><br>*2. Consequential changes to the Canterbury Regional Policy Statement, any relevant regional coastal plan(s) and district plans.* | The assessments undertaken as part of this consent application contribute to the knowledge of the coastal environment in this particular location. |
| *Objective 8.2.2 Provision for appropriate activities in the coastal environment*<br><br>*A framework is provided for appropriate occupation, subdivision, use and development of the coastal environment while managing the adverse effects of those activities.* | This project is being advanced through the framework that provides for development activities in the coastal environment. |
| *Objective 8.2.4 Preservation, protection and enhancement of the coastal environment*<br><br>*In relation to the coastal environment:*<br><br>*1. Its natural character is preserved and protected from inappropriate subdivision, use and development; and* | There will be no more than minor effects on the character of the coastal environment arising from the proposed works. The works are considered appropriate given their function is to protect the coastal edge from further erosion and to provide protection to properties from inundation. Provision is made for the protection of historic heritage, and overall, the ecological effects will not be significant. |

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| *2. Its natural, ecological, cultural, amenity, recreational and historic heritage values are restored or enhanced.* | |
| *Objective 8.2.5 Provision of access*<br><br>*Maintenance and enhancement of appropriate public and Ngāi Tahu access to and along the coastal marine area to enhance recreational opportunities and to enhance the ability of Ngāi Tahu as tāngata whenua to access kaimoana and exercise tikanga Māori.* | Public and Ngāi Tahu access to and along the coast will not be adversely affected by the proposal. Additional opportunities are provided, in the form of steps and viewing platforms, for the community to access the estuary, and overall, the proposal achieves the outcome sought in this Objective. |
| *Objective 8.2.6 Protection and improvement of coastal water*<br><br>*Protection of coastal water quality and associated values of the coastal environment, from significant adverse effects of the point and non-point discharge of contaminants; and enhancement of coastal water quality where it has been degraded.* | Coastal water will be protected from any discharges of contaminants through the construction process through the appropriate use of erosion and sediment control measures, as well as measures to prevent accidental spills. The project is consistent with this Objective. |
| *Policy 8.3.1 Improving understanding of the coastal environment*<br><br>*To improve knowledge and understanding of the coastal environment by:*<br><br>*1. Assessing and prioritising the information requirements needed to develop a strategy for managing the coastal marine area and the coastal environment and for identifying the extent of the coastal environment;*<br><br>*2. Developing efficient means of gathering information;*<br><br>*3. Using best practice methodologies for assessing values and promoting collaboration where appropriate;*<br><br>*4. Integrating information gathering between local authorities and other appropriate agencies.* | The assessments undertaken as part of this consent application contribute to the knowledge of the coastal environment in this particular location. |
| *Policy 8.3.2 Providing for the integration of management of natural and physical resources and activities in the coastal environment* | Consent is sought from both Christchurch City Council and ECan as the project involves work on both sides of the coastal marine area and requires consent from both authorities. The conditions of consent have been developed to manage the effects of the overall project and will appropriately provide for the coordinated |

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| *1. Provide for the co-ordinated management or control of activities within the coastal environment, and which could cross administrative boundaries, through the development of coastal strategies, particularly:*<br><br>*i. across the local authority boundary between the coastal marine area and land;*<br><br>*ii. across local authority boundaries within the coastal environment, both within the coastal marine area and on land; and*<br><br>*iii. where hapū or iwi boundaries or rohe cross local authority boundaries;*<br><br>*2. Work collaboratively with other bodies and agencies with responsibilities and functions relevant to resource management, such as where land or waters are held or managed for conservation purposes* | management of any effects associated with the activity. The proposal achieves the outcomes sought in this Policy. |
| *Policy 8.3.3 Management of activities in the coastal environment*<br><br>*Within the coastal marine area provide a framework for:*<br><br>*1. the use and occupation of coastal space;*<br><br>*2. the use and development of the natural and physical resources of the coastal marine area;*<br><br>*3. the extraction of sand, shingle, shell, or other natural materials;*<br><br>*4. the emission of noise;*<br><br>*5. activities on the water and on the foreshore and seabed;*<br><br>*6. protecting the values of the coastal environment while avoiding, or where this is not practicable, remedying or mitigating adverse effects within the coastal environment on:*<br><br>*a. the life-supporting capacity and/or mauri of coastal ecosystems and the natural processes that sustain them;*<br><br>*b. indigenous species, areas of significant indigenous vegetation and significant habitats of indigenous fauna;* | This Policy establishes the management approach for activities in the CMA. This framework is provided for in the RCEP which requires consents for particular activities in order that their effects may be assessed, and conditions imposed on consents if necessary.<br><br>This application has been prepared in accordance with this framework, and the technical assessments that support it have identified that there are no more than minor effects on the coastal environment, and that conditions of consent can be imposed to manage any residual or ongoing risks.<br><br>Overall, the proposal is consistent with this policy to the extent that the applications are made in accordance with the framework the Policy seeks to create. |

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| *c. natural character (including associated natural processes), outstanding natural features and outstanding natural landscapes;*<br><br>*d. amenity, cultural and recreational values;*<br><br>*e. coastal areas of cultural significance identified in consultation with Ngāi Tahu as tāngata whenua;*<br><br>*f. the health and safety of people;*<br><br>*g. historic heritage values, including historic heritage and historic cultural landscapes;*<br><br>*h. surf breaks of national significance;*<br><br>*i. the efficient and effective operation, maintenance and development of regionally significant infrastructure or other commercial maritime facilities.* | |
| *Policy 8.3.5 Maintenance and enhancement of public and Ngāi Tahu access*<br><br>*To maintain and enhance public and Ngāi Tahu access to and along the coastal marine area, subject to:*<br><br>*1. protecting public health and safety.*<br><br>*2. avoiding significant adverse effects on natural, physical, amenity, recreational, cultural and historic heritage values of the coastal environment.*<br><br>*3. avoiding damage to natural buffers to coastal erosion.*<br><br>*4. protecting Ngāi Tahu sites of special value.*<br><br>*5. protecting the stability, performance, maintenance and operation of regionally significant infrastructure in the coastal environment or other commercial maritime facilities.*<br><br>*6. avoiding conflicts with the legal rights and lawful activities of owners/occupiers of land in the coastal environment.* | Public and Ngāi Tahu access to and along the coast will not be adversely affected by the proposal. Additional opportunities are provided, in the form of steps and viewing platforms, for the community to access the estuary, and overall, the proposal achieves the outcome sought in this Policy. |

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| *7. ensuring compliance with legislative maritime security requirements for ships and port facilities.* | |
| *Policy 8.3.8 Discharge of contaminants of coastal water that is in a natural state*<br><br>*To manage discharges of contaminants into the coastal marine area to maintain coastal water quality that is currently in its natural state.* | Coastal water will be protected from any discharges of contaminants through the construction process through the appropriate use of erosion and sediment control measures, as well as measures to prevent accidental spills. The project is consistent with this Objective. |
| *Objective 9.2.1 Halting the decline of Canterbury's ecosystems and indigenous biodiversity*<br><br>*The decline in the quality and quantity of Canterbury's ecosystems and indigenous biodiversity is halted and their life-supporting capacity and mauri safeguarded.* | The actual and potential effects on the Estuary and the surrounding environment have been addressed in detail in the Ecological Assessment prepared for this application. While some areas of saltmeadow will be lost (0.2 ha), a larger area is to be provided as an offset measure (0.36 ha). Conditions of consent and an adaptive management framework will provide for the protection of ecosystems and biodiversity during the construction process, and overall, the project does not give rise to any significant adverse effects on the ecosystems or biodiversity in the project area. The project is therefore considered to be consistent with these provisions. |
| *Objective 9.2.2 Restoration or enhancement of ecosystems and indigenous biodiversity*<br><br>*Restoration or enhancement of ecosystem functioning and indigenous biodiversity, in appropriate locations, particularly where it can contribute to Canterbury's distinctive natural character and identity and to the social, cultural, environmental and economic well-being of its people and communities.* | |
| *Objective 9.2.3 Protection of significant indigenous vegetation and habitats*<br><br>*Areas of significant indigenous vegetation and significant habitats of indigenous fauna are identified and their values and ecosystem functions protected.* | |
| *Policy 9.3.1 Protecting significant natural areas*<br><br>*1. Significance, with respect to ecosystems and indigenous biodiversity, will be determined by assessing areas and habitats against the following matters:*<br><br>*a. Representativeness* | The significance of the biodiversity of the estuary and the landward side of the CMA has been assessed in the Ecological Assessment prepared in support of this application. It has determined that there are no significant adverse effects, and overall, there will be no net loss of indigenous biodiversity or indigenous biodiversity |

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| *b. Rarity or distinctive features*<br><br>*c. Diversity and pattern*<br><br>*d. Ecological context*<br><br>*The assessment of each matter will be made using the criteria listed in Appendix 3.*<br><br>*2. Areas or habitats are considered to be significant if they meet one or more of the criteria in Appendix 3.*<br><br>*3. Areas identified as significant will be protected to ensure no net loss of indigenous biodiversity or indigenous biodiversity values as a result of land use activities.* | values as a result of the project. The project is considered to be consistent with these Policies. |
| *Policy 9.3.2 Priorities for protection*<br><br>*To recognise the following national priorities for protection:*<br><br>*1. Indigenous vegetation in land environments where less than 20% of the original indigenous vegetation cover remains.*<br><br>*2. Areas of indigenous vegetation associated with sand dunes and wetlands.*<br><br>*3. Areas of indigenous vegetation located in "originally rare" terrestrial ecosystem types not covered under (1) and (2) above.*<br><br>*4. Habitats of threatened and at risk indigenous species.* | |
| *Policy 9.3.3 Integrated management approach*<br><br>*To adopt an integrated and co-ordinated management approach to halting the decline in Canterbury's indigenous biodiversity through:*<br><br>*1. working across catchments and across the land/sea boundary where connectivity is an issue for sustaining habitats and ecosystem functioning*<br><br>*2. promoting collaboration between individuals and agencies with biodiversity responsibilities* | Consent is sought from both Christchurch City Council and ECan as the project involves work on both sides of the coastal marine area and requires consent from both authorities. The conditions of consent have been developed to manage the effects of the overall project and will appropriately provide for the coordinated management of any effects associated with the activity. The proposal achieves the outcomes sought in this Policy. |

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| *3. supporting the various statutory and non-statutory approaches adopted to improve biodiversity protection*<br><br>*4. setting best practice guidelines for maintaining indigenous biodiversity values, particularly maintaining conditions suitable for the survival of indigenous species within their habitats, and safeguarding the life-supporting capacity and/or mauri of ecosystems* | |
| *Policy 9.3.4 Promote ecological enhancement and restoration*<br><br>*To promote the enhancement and restoration of Canterbury's ecosystems and indigenous biodiversity, in appropriate locations, where this will improve the functioning and long term sustainability of these ecosystems.* | The proposed 0.36 ha area proposed as an offset area to compensate for the loss of the saltmeadow provides a larger area for the establishment of saltmeadow than the area being lost. This larger area will promote the establishment of an area of saltmeadow in a part of the Southshore that is not subject to development and will therefore be able to develop over time into a significant area of indigenous biodiversity. This is an appropriate ecological enhancement as a result of the project and is therefore considered to be consistent with this Policy. |
| *Policy 9.3.5 Wetland protection and enhancement*<br><br>*In relation to wetlands:*<br><br>*1. To assess an ecologically significant wetland against the matters set out in Policy 9.3.1 and the national priorities listed in Policy 9.3.2 For the purposes of this policy, ecologically significant wetlands do not include areas that are predominantly pasture and dominated by exotic plant species and where they are not significant habits of indigenous fauna.*<br><br>*2. To ensure that the natural, physical, cultural, amenity, recreational and historic heritage values of Canterbury's ecologically significant wetlands are protected.*<br><br>*3. To generally promote the protection, enhancement and restoration of all of Canterbury's remaining wetlands.*<br><br>*4. To encourage the formation of created wetlands that contribute to the restoration of indigenous biodiversity.* | The ecological significance of the saltmeadow has been assessed in the Ecological Assessment. Overall, while the loss of areas of saltmeadow cannot be avoided, the proposed ecological offset area provides an area where saltmeadow can be developed such that there is an overall net gain in the area of saltmeadow provided. Overall, the proposal is not considered contrary to this policy. |

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| *5. To protect adjoining areas of indigenous and other vegetation which extend outside an ecologically significant wetland and are necessary for the ecological functioning of the wetland.* | |
| *Policy 9.3.6 Limitations on the use of biodiversity offsets*<br><br>*The following criteria will apply to the use of biodiversity offsets:*<br><br>*1. the offset will only compensate for residual adverse effects that cannot otherwise be avoided, remedied or mitigated;*<br><br>*2. the residual adverse effects on biodiversity are capable of being offset and will be fully compensated by the offset to ensure no net loss of biodiversity;*<br><br>*3. where the area to be offset is identified as a national priority for protection under Policy 3.2, the offset must deliver a net gain for biodiversity;*<br><br>*4. there is a strong likelihood that the offsets will be achieved in perpetuity; and*<br><br>*5. where the offset involves the ongoing protection of a separate site, it will deliver no net loss, and preferably a net gain for indigenous biodiversity conservation.*<br><br>*Offsets should re-establish or protect the same type of ecosystem or habitat that is adversely affected, unless an alternative ecosystem or habitat will provide a net gain for indigenous biodiversity.* | The proposed offset area satisfies these criteria and is consistent with this policy. Loss of the saltmeadow cannot be avoided, as it will be removed as part of the works to create the edge protection and inundation bund. The loss can be offset, as the establishment of an area of saltmeadow can be provided for in the areas identified in the offsetting plan. The overall area of 0.36 ha exceeds the area being lost (0.2 ha), representing a net gain. It is located outside of the project area and can be protected in perpetuity through conditions of consent and any other measures considered necessary. |
| *Objective 11.2.1 Avoid new subdivision, use and development of land that increases risks associated with natural hazards*<br><br>*New subdivision, use and development of land which increases the risk of natural hazards to people, property and infrastructure is avoided or, where avoidance is not possible, mitigation measures minimise such risks.* | The project will decrease the risk of natural hazards on properties in the Southshore and SNBP area by reinstating edge protection structures and creating an inundation bund. The inundation bund will provide protection for the properties in extreme events, and the edge protection will ensure that ongoing erosion does not adversely affect the inundation bund, as well as reinstating the edge protection that existed prior to the earthquakes. |
| *Objective 11.2.2 Adverse effects from hazard mitigation are avoided or mitigated* | |

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| *Adverse effects on people, property, infrastructure and the environment resulting from methods used to manage natural hazards are avoided or, where avoidance is not possible, mitigated.* | |
| *Objective 11.2.3 Climate change and natural hazards*<br><br>*The effects of climate change, and its influence on sea levels and the frequency and severity of natural hazards, are recognised and provided for.* | |
| *Policy 11.3.6 Role of natural features*<br><br>*The role of natural topographic (or geographic) and vegetation features which assist in avoiding or mitigating natural hazards should be recognised and the features maintained, protected and restored, where appropriate.* | |
| *Policy 11.3.7 Physical mitigation works*<br><br>*New physical works to mitigate natural hazards will be acceptable only where:*<br><br>*1. the natural hazard risk cannot reasonably be avoided; and*<br><br>*2. any adverse effects of those works on the natural and built environment and on the cultural values of Ngāi Tahu, are avoided, remedied or mitigated.*<br><br>*Alternatives to physical works, such as the relocation, removal or abandonment of existing structures should be considered.*<br><br>*Where physical mitigation works or structures are developed or maintained by local authorities, impediments to accessing those structures for maintenance purposes will be avoided.* | Allowing the status quo to continue (i.e. no edge protection or inundation bund) will result in a further loss of land to the coastal erosion that has occurred since the earthquakes and damage to the edge protection that previously existed. There is no other practicable way to avoid this risk without the project. The project has been undertaken in partnership with mana whenua and cultural concerns have been taken into account throughout the project and incorporated into the final landscape design. |
| *Policy 11.3.8 Climate change*<br><br>*When considering natural hazards, and in determining if new subdivision, use or development is appropriate and sustainable in relation to the potential risks from natural hazard events, local authorities shall have particular regard to the effects of climate change.* | The proposed edge protection and inundation bund are not inappropriate in relation to climate change risks. Reinstating the edge protection previously afforded by a range of protection structure is not a new development. While the infrastructure has a design life of approximately 20 years, this will allow the community to be protected while the Council, community and |

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| | other stakeholders consider longer term coastal planning and adaptation responses. |
| *Policy 11.3.9 Integrated management of, and preparedness for, natural hazards*<br><br>*To undertake natural hazard management and preparedness for natural hazard events in a coordinated and integrated manner by ensuring that the lead agencies have particular regard to:*<br><br>*1. the investigation and identification of natural hazards;*<br><br>*2. the analysis and mapping of the consequential effects of the natural hazards identified;*<br><br>*3. the effects of climate change and resulting sea level rise;*<br><br>*4. the setting of standards and guidelines for organisations involved in civil defence and emergency management;*<br><br>*5. the development and communication of strategies to promote and build community resilience; and*<br><br>*6. any other matters necessary to ensure the integrated management of natural hazards in the Canterbury region.* | This policy is not considered directly relevant to the project, as it is not a natural hazard management or preparedness project. While it is necessary as a response to damage resulting from the CES, the project is about restoring edge protection. Preparation of and management for hazards will be part of a larger process to be undertaken at a later stage. |
| *Objective 12.2.1 Identification and protection of outstanding natural features and landscapes*<br><br>*Outstanding natural features and landscapes within the Canterbury region are identified and their values are specifically recognised and protected from inappropriate subdivision, use, and development.* | There will be no adverse environmental effects on the ONF that covers the estuary. The landscape assessment has considered the actual and potential effects on the landscape values of the Southshore or SNBP area. The edge protection works and the inundation bund are necessary to protect the area from coastal activity. The works are considered an appropriate land use, and the project is consistent with these Objectives. |
| *Objective 12.2.2 Identification and management of other landscapes*<br><br>*The identification and management of other important landscapes that are not outstanding natural landscapes. Other important landscapes may include:*<br><br>*1. natural character* | |

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| *2. amenity*<br><br>*3. historic and cultural heritage* | |
| *Objective 12.2.3 Consistency of assessment and management*<br><br>*Ensure consistency of assessment and promote consistency of management of outstanding natural features and landscapes across the Canterbury region.* | Objective 12.2.3 and associated Policies 12.3.1 - 12.3.4 are directive policies concerned with the process of identifying and managing outstanding natural landscapes and features. The project will be undertaken in part within an area that has been identified as an Outstanding Natural Landscape. The works will not have any significant adverse effects on the ONL, or on the landscape values of the wider area. |
| *Policy 12.3.1 Identification of outstanding natural features and landscapes*<br><br>*To identify the outstanding natural features and landscapes for the Canterbury region, while:*<br><br>*1. recognising that the values set out in Appendix 4 indicate the outstanding natural features and landscapes for Canterbury, at a regional scale; and*<br><br>*2. enabling the specific boundaries of outstanding natural features and landscapes, for inclusion in plans, to be determined through detailed assessments which address the assessment matters set out in Policy 12.3.4(1).* | |
| *Policy 12.3.2 Management methods for outstanding natural features and landscapes.*<br><br>*To ensure management methods in relation to subdivision, use or development, seek to achieve protection of outstanding natural features and landscapes from inappropriate subdivision, use and development.* | |
| *Policy 12.3.3 Identification and management of other important landscapes*<br><br>*Identifying and managing other important landscapes that are not outstanding natural landscapes, for natural character, historic cultural, historic heritage and amenity purposes.* | |
| *Policy 12.3.4 Consistency of identification and management of outstanding natural features and outstanding natural landscapes.*<br><br>*Seek to achieve regional consistency in the identification of outstanding natural features and landscape areas and values by:* | |

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| *1. considering the following assessment matters which address biophysical, sensory and associative values when assessing landscapes in the Canterbury region:*<br>*a. Natural science values*<br>*b. Legibility values*<br>*c. Aesthetic values*<br>*d. Transient values*<br>*e. Tāngata whenua values*<br>*f. Shared and recognised values*<br>*g. Historic values*<br>*2. requiring methods for landscape management to be developed and considered, having regard to the management methods in adjoining districts or regions, and the extent to which these may, in combination, protect outstanding natural features and landscapes.* | |
| *Objective 13.2.1 Identification and protection of significant historic heritage*<br>*Identification and protection of significant historic heritage items, places and areas, and their particular values that contribute to Canterbury's distinctive character and sense of identity from inappropriate subdivision, use and development.* | Middens have been identified in the SNBP portion of the works. They are presently being eroded by the failing edge, and will be protected by the proposed works. The project satisfies this Objective. |
| *Objective 13.2.2 Historic cultural and historic heritage landscapes*<br>*Recognition that cultural and heritage values are often expressed in a landscape setting and to make provision for the protection of such landscapes from inappropriate subdivision, use and development.* | The landscape within which the project is located, and the effects of the project on that landscape, has been assessed in the Landscape Assessment prepared by Boffa Miskell Ltd. The landscape is not identified as a cultural or heritage landscape. |
| *Policy 13.3.1 Recognise and provide for the protection of significant historic and cultural heritage items, places and areas* | The cultural heritage sites in the project corridor, being middens that are located in areas that are at risk from erosion. The sites will |

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| *To recognise and provide for the protection of the historic and cultural heritage resource of the region from inappropriate subdivision, use and development by:*<br><br>*1. identifying and assessing the significance of the historic and cultural heritage resource according to criteria based on the following matters:*<br><br>*a. Historic*<br><br>*b. Cultural*<br><br>*c. Architectural*<br><br>*d. Archaeological*<br><br>*e. Technological*<br><br>*f. Scientific*<br><br>*g. Social*<br><br>*h. Spiritual*<br><br>*i. Traditional*<br><br>*j. Contextual*<br><br>*k. Aesthetic*<br><br>*2. working with Ngāi Tahu to identify items, places or areas of historic heritage significance to them.*<br><br>*3. having regard to any relevant entry in the Historic Places Register in the process of identifying and assessing the historic heritage resource.*<br><br>*4. considering historic heritage items, places or areas of significance or importance to communities in the process of identifying and assessing the historic heritage resource.* | be protected through the project, and this Policy is therefore satisfied. |

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| *5. recognising that knowledge about some historic heritage may be culturally sensitive and support protection of those areas through the maintenance of silent files held by local authorities.* | |
| *Policy 13.3.2 Recognise places of cultural heritage significance to Ngāi Tahu*<br><br>*To recognise places of historic and cultural heritage significance to Ngāi Tahu and protect their relationship and culture and traditions with these places from the adverse effects of inappropriate subdivision, use and development.* | |
| *Policy 13.3.3 Historic cultural and historic heritage landscapes*<br><br>*Significant historic cultural and historic heritage landscapes are to be protected from inappropriate subdivision, use and development. When determining the significance of values of historic cultural or historic heritage landscapes, the following matters will be considered:*<br><br>*1. Heritage fabric*<br><br>*2. Time depth*<br><br>*3. Natural science value*<br><br>*4. Tāngata whenua value*<br><br>*5. Cultural diversity*<br><br>*6. Legibility and evidential value*<br><br>*7. Shared and recognised value*<br><br>*8. Aesthetic value*<br><br>*9. Historic or cultural importance In relation to their management, and determining the appropriateness of scale, form and location of development in these areas, the following matters will be considered:*<br><br>*a. Cultural sensitivity of the proposal.* | |

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| *b. Integrity or intactness of the landscape, items, features or linkages*<br>*c. Vulnerability to change or modification*<br>*d. Recognition of boundaries*<br>*e. Opportunities for maintaining values* | |
| *Objective 17.2.1 Protection from adverse effects of contaminated land*<br>*Protection of people and the environment from both on-site and off-site adverse effects of contaminated land* | As identified in the Assessment of Effects, the DSI prepared for the project identified that all soil within the investigation area does not meet the criteria for cleanfill since contaminant concentrations exceed the adopted background concentrations. It also identified that the concentrations of asbestos (ACM as % of total sample) were above adopted human health criteria for recreational land use in the shallow samples obtained from the estuary edge SS03 and SS07. The report concluded that all soil may be disposed off-site at a licensed solid waste landfill facility (subject to landfill operator approval). Excavation and handling of soil within the investigation area surrounding the estuary and SS03/SS07 is likely to pose an unacceptable risk to human health and as such, any soil disturbance works completed in these areas shall be conducted under 'asbestos-related work' controls in accordance with the NZGAMAS by a person competent in working with asbestos in soil. Provided the soils are managed in this way, there will be no adverse effects on human health and the project will therefore be consistent with these provisions. |
| *Policy 17.3.1 Identify potentially contaminated land*<br>*To seek to identify all land in the region that was historically, or is presently, being used for an activity that has, or could have, resulted in the contamination of that land, and where appropriate, verify the existence and nature of contamination.* | |
| *Policy 17.3.2 Development of, or discharge from contaminated land*<br>*In relation to actually or potentially contaminated land, where new subdivision, use or development is proposed on that land, or where there is a discharge of the contaminant from that land:*<br>*1. a site investigation is to be undertaken to determine the nature and extent of any contamination; and*<br>*2. if it is found that the land is contaminated, except as provided for in Policy 17.3.3, the actual or potential adverse effects of that contamination, or discharges from the contaminated land shall be avoided, remedied or mitigated in a manner that does not lead to further significant adverse effects.* | |

### 10.3.6 Section 104(1)(b)(vi) – Regional / District Plans

This section of the Act requires that regard is given to any relevant provisions of a plan or proposed plan. The relevant plans for this application are as follows:

- Canterbury Land and Water Regional Plan
- Regional Coastal Environment Plan for the Canterbury Region
- Canterbury Air Regional Plan
- Christchurch District Plan.

Each of these are assessed in the following sections.

#### 10.3.6.1 CLWRP

Table 25 identifies the relevant objectives and policies of the CLWRP.

Table 25 Relevant Objectives and Policies of CLWRP

| Objectives/Policies | Analysis |
|---|---|
| *Objective 3.6*<br><br>*Water is recognised as essential to all life and is respected for its intrinsic values*<br><br>*Objective 3.19*<br><br>*Natural character values of freshwater bodies, including braided rivers and their margins, wetlands, hapua and coastal lagoons, are protected.*<br><br>*Objective 3.23*<br><br>*Soils are healthy and productive, and human-induced erosion and contamination are minimised).*<br><br>*Objective 3.24*<br><br>*All activities operated at "good environmental practice" or better to optimise efficient resource use and protect the region's fresh water resources from quality and quantity degradation.* | There will be no significant adverse effects on the character of the coastal environment arising from the proposed works. The works are considered appropriate given their function is to protect the coastal edge from further erosion and to provide protection to properties from inundation. Provision is made for the protection of historic heritage, and overall, the ecological effects will not be significant.<br><br>The proposal involves the removal of some contaminated soil to facilitate the construction of the bund (which will be appropriately managed under NES-CS global consent), as well as the deposition of soil /aggregate for the creation of the bund, as well as the placement of rocks/cobbles within parts of the CMA to create the new edge protection for the Estuary.<br><br>During the construction period, the Project will result in the discharge of construction phase stormwater to land. This will be managed through erosion and sediment controls to prevent uncontrolled sediment discharges into the Estuary. Only limited earthworks will occur in the CMA, largely to excavate sufficient areas to replace the gabion baskets. Any earthworks in the CMA will take place at low tide to avoid giving rise to excessive sedimentation. The water quality and ecosystems of the Avon-Heathcote Estuary will therefore be maintained. |

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| *Policy 4.13*<br><br>*The effects of any discharge of contaminants into or onto land or surface water bodies are avoided or minimised.*<br><br>*Policy 4.14B*<br><br>*Have regard to Ngai Tahu values, and in particular those expressed within an iwi management plan, when considering applications for discharges to surface waterbodies.*<br><br>*Policy 4.15*<br><br>*Cumulative effects of stormwater discharges are avoided.*<br><br>*Policy 4.17 Stormwater run-off does not cause or exacerbate inundation, erosion or damage to property or risks to human safety downstream.*<br><br>*Policy 4.18*<br><br>*Discharges from earthworks and construction are avoided or minimised.*<br><br>*Policy 4.22*<br><br>*Sedimentation of water bodies as a result of land clearance, earthworks and cultivation is avoided or minimised.*<br><br>*Policy 4.85*<br><br>*Water quality, indigenous biodiversity and ecosystem health are enhanced through riparian planting).* | Engagement with mana whenua has occurred throughout the design process. The activity does not conflict with the provisions of the Mahaanui Iwi Management Plan.<br><br>Areas where earthworks have been undertaken and that are left exposed during construction will be grassed or planted upon completion of works and as part of the implementation of the landscape planting proposed as part of the Project. This will assist with the longer-term management of stormwater run-off.<br><br>Overall, the project is considered to be consistent with the relevant Objectives and Policies of the LWRP. |

### 10.3.6.2 RCEP

The RCEP applies to all works or activities undertaken within the CMA. The Plan is therefore relevant to the aspects of the proposal that include any reclamation, deposition of materials (rocks etc.), or discharges. The relevant provisions, particularly those that relate to the Avon-Heathcote estuary, include those set out and assessed in Table 26

below. Please note that a comprehensive assessment of the NZCPS has been provided for in Section 10.3.4. As a higher order planning instrument significant effort has been undertaken in providing a response to the NZCPS objectives and policies. The RCEP as a lower order planning instrument gives effect to the NZCPS. By demonstrating consistency with the NZCPS in Section 10.3.4 the consistency with objectives and policies in the RCEP is inferred. Analysis of the RCEP should be read in conjunction with Section 10.3.4

Table 26 Relevant Objectives and Policies of the RCEP

| Objectives/Policies | Analysis |
|---|---|
| *Objective 6.1*<br><br>*To protect, and where appropriate enhance, … areas, sites and habitats of high natural, physical, heritage or cultural value:*<br><br>*Policy 6.1*<br><br>*a. Within the Coastal Marine Area Environment Canterbury will:*<br><br>*i. control activities and development to remedy or mitigate adverse effects on:*<br><br>• *coastal ecosystems and processes,*<br><br>• *the identified values of Areas of Significant Natural Value,*<br><br>• *the identified values of areas of high natural, physical, heritage or cultural value, and*<br><br>• *natural character in areas of the coastal environment where natural character predominates; and*<br><br>*ii. control activities and development to avoid any significant adverse effects on:*<br><br>• *coastal ecosystems and processes,*<br><br>• *the identified values of Areas of Significant Natural Value,*<br><br>• *the identified values of areas of high natural, physical, heritage or cultural value, and* | Only minor elements of the project will involve any work within the CMA. This will largely be related to excavations to replace the damaged gabion baskets and to create the rock revetments that form the engineered edge to the Estuary.<br><br>These works will be minor and will not result in significant disturbance of the CMA. All works will be undertaken from the bank top. The duration of any works below MHWS will be minimal, with no work during high tide to avoid the creation of sedimentation.<br><br>Actual and potential effects on the coastal environment have been considered in the Coastal Processes and Natural Hazards Effects Assessment, the Ecological Assessment and the Landscape Assessment. Given the outcome of the assessment under the NZCPS and these technical assessments it is considered that the project is consistent with the relevant provisions of the RCEP. |

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| *• natural character in areas of the coastal environment where natural character predominates; unless there are special or extraordinary and unique reasons why those adverse effects cannot be avoided; and*<br><br>*iii. adopt a precautionary approach10 when considering applications for resource consents where the effects, including cumulative effects, are as yet unknown or little understood, or where the functioning of marine ecosystems and coastal processes is poorly understood.* | |
| *Policy 6.2*<br><br>*Environment Canterbury and Territorial Local Authorities will seek to ensure that the adverse effects of subdivision, use and development of land in the coastal environment landward of the Coastal Marine Area, on the identified values of Areas of Significant Natural Value and on the identified values of areas of high natural, physical, heritage, or cultural value, are avoided, remedied or mitigated.* | The Estuary is identified as an Area of Significant Natural Value under the RCEP Schedule 1 for Māori cultural values, protected areas, wetland estuaries and coastal lagoons, marine mammals and birds and ecosystems, flora and fauna habitat.<br><br>It is considered that engagement with mana whenua has been consistent and ongoing and their input into landscaping and providing a cultural narrative for the landscape design above MWHS mitigates any adverse effects on cultural values.<br><br>Saltmeadow as inland natural wetlands cannot be retained to meet the objectives of the Project. However, offsetting has been provided for saltmeadow can be colonised south of the Project area, to provide a net gain in saltmeadow habitat.<br><br>On the basis of the ecological assessment and the measures proposed by the Council, the impacts on 'at-risk coastal bird species protected under Policy 11(a) of the NZCPS are avoided, and the impacts on birds that are afforded protection under 11(b) of the NZCPS are considered to be less than minor. |

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| | It is considered that the adaptive management framework incorporating all the management plans put forward in Section 8 of this application appropriately avoid, remedy and mitigate any adverse effects landward of the CMA. |
| *Policy 6.3*<br><br>*Environment Canterbury will encourage the restoration or rehabilitation of areas or sites within the coastal environment where this would: assist in maintaining or enhancing the integrity or functioning of sites of high natural, physical or cultural value and Areas of Significant Natural Value; contribute to the preservation of natural character; maintain the ecological functioning of the coast; or enhance intrinsic, cultural, heritage or amenity values.* | It is considered that this Project will enhance the cultural value of the area through the implementation of the Landscape Master Plan and associated cultural narrative. Also, the encapsulation and protection of the identified midden sites will enhance the cultural and heritage value of SNBP.<br><br>The project will contribute to the preservation of natural character by removing dilapidated structures and enhancing landscaping, also improving amenity value of the area.<br><br>The project will maintain the ecological functioning of the coast, particularly through the Saltmeadow Offset Plan and Landscape Master Plan.<br><br>Overall, it is considered the Project is consistent with Policy 6.3. |
| *Objective 7.1*<br><br>*Enable present and future generations to gain cultural, social, recreational, economic, health and other benefits from the quality of the water in the Coastal Marine Area, while:*<br><br>*a. maintaining the overall existing high natural water quality of coastal waters;.*<br><br>*b. safeguarding the life-supporting capacity of the water, including its associated: aquatic ecosystems, significant habitats of indigenous fauna and areas of significant indigenous vegetation; Regional Coastal Environment Plan / Chapter 7 Coastal Water Quality Reprinted August 2020 Environment Canterbury Page 46*<br><br>*c. safeguarding, and where appropriate, enhancing its value for providing mahinga kai for Tāngata whenua;* | Water quality will be protected via the methods employed in the Construction Environmental Management Plan and proposed conditions of consent. An ESCDP will be formulated as part of the Project, works will only be undertaken from the top of the bank (and not in the estuary) and works will be managed around high tide.<br><br>Overall, it is considered appropriate mitigation measures are in place during the construction phase to maintain the quality of coastal waters.<br><br>The operational phase of the project will provide enhanced access, mahinga kai opportunities and also results in a net declamation of the Estuary.<br><br>It is considered the project is consistent with Objective 7.1 |

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| *d. protecting wahi tapu and Wāhi taonga of value to Tāngata whenua;*<br><br>*e. preserving natural character and protecting outstanding natural features and landscapes, where water quality is an aspect of their value, from reductions in water quality;*<br><br>*f. maintaining, and where appropriate enhancing, amenity values; and*<br><br>*g. recognising the intrinsic values of ecosystems and any finite characteristics of the coastal environment.* | |
| *Objective 8.1*<br><br>1. To enable people to use the Coastal Marine Area and its resources while avoiding, remedying or mitigating the adverse effects of that use on the environment, including avoiding, remedying or mitigating the adverse effects:<br><br>*a. of conflicts between these uses and people's well-being, health, safety and amenity; and*<br><br>*b. on natural character, and other (natural, ecological, amenity, Tāngata whenua, historic and cultural) values of the coastal environment.* | It is considered that on balance this Project enables use of the CMA (enhanced recreation, enhanced landscaping and amenity, protecting cultural values) in a way that appropriately managed any adverse effects on well-being, safety and amenity. The project will replace and remove dilapidated and contaminated structures (enhancing safety), provide for improved access and amenity and provide a better outcome for the Estuary edge at Southshore and SNBP.<br><br>Overall, it is considered that the proposal is consistent with Objective 8.1. |
| *Policy 8.2*<br><br>*Environment Canterbury will regulate activities in the Coastal Marine Area that may have adverse effects on the environment. These activities include:*<br><br>*c. the emission of noise;*<br><br>*d. reclamations;*<br><br>*g. activities involving: structures, foreshore and sea bed disturbance, deposition of material, occupation, or taking of water or heat or energy from water; where those activities are not authorised as a Permitted Activities;* | Construction phase noise will be managed in accordance with Construction Noise standards Construction noise limits – Construction Noise will comply with the Construction Noise Standard (NZS 6803: 1999) and with the appropriate noise limits for the District Plan zonings as identified in the CEMP (Appendix N).<br><br>Fundamentally, the project seeks to restore the damaged estuary edge through the creation of engineered edges, cobble beaches and the replacement of failed gabion baskets. In order to facilitate the placement of these structures, minor encroachments into and reclamation of parts of the coastal marine area are required. Overall, the total area to be reclaimed is approximately 1827m$^2$, with some 2706m$^2$ to be 'declaimed" leading to a net declamation of 879m$^2$. |

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| | As identified throughout this AEE, as an earthquake legacy project, the project's objectives are to restore the edge and prevent further erosion, considering the topography and the community's wishes. The area between the CMA and the bund alignment is not available for the proposed activity as that would allow the existing edge to further erode back to that point (i.e. buried wall). The project overall, and the minor areas of reclamation required, are for the specific purpose of restoring a level of estuary edge protection and inundation protection to pre-earthquake levels.<br><br>The level of protection to the community has been lowered as a result of the CES and the subsequent (and necessary) land clearances that followed, which in turn have resulted in further erosion following the earthquakes. The reclamation cannot practically be avoided and is required as a non-complying activity under the RCEP, and it is therefore considered overall that the proposal is not contrary to this policy. |
| *Policy 8.4*<br><br>*In considering applications for resource consents to reclaim the Coastal Marine Area, or for the removal of natural materials for commercial purposes, except within the Operational Area of the Port of Lyttelton, Environment Canterbury will have regard to:*<br><br>*a. available alternative sites for the reclamation or for the removal of natural materials and the reasons for the applicant's choice of site for the reclamation or the removal of natural materials; and*<br><br>*b. the need to ensure that material used to create and form a reclamation, or material sited on a reclamation, does not include contaminants that are likely to, or have the potential to, adversely affect the Coastal Marine Area; and*<br><br>*c. the effects of the reclamation or removal of materials on natural coastal processes* | Reclamation that will arise from the proposal is minor in nature, as discussed in the Assessment of Effects. Overall, the reclamation is necessary to support minor extensions into the CMA to facilitate the construction of the coastal edge protection. Given the need for the works to be located along the edge of the estuary, there are no other practical alternatives to the reclamation.<br><br>The reclamations overall are for small areas, and are considered to be consistent with the Policy direction of the NZCPS, and is also consistent with the RCEP. This is particularly the case given that the project results in a net declamation of the Estuary edge. |

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| *Policy 8.5*<br><br>*In considering applications for resource consents to occupy the Coastal Marine Area, except within the Operational Area of the Port of Lyttelton, Environment Canterbury should:*<br><br>*e. have regard to any adverse effects on the values relating to the natural character of the coastal environment, both within and outside the immediate location; and*<br><br>*f. have regard to any adverse effects on the cultural, historic, scenic, amenity, Tāngata whenua, and natural values of the area; and*<br><br>*g. have regard to available alternative sites and the reasons for the applicant's choice of site; and*<br><br>*h. have regard to existing use and development of the area and the extent to which the natural character of the area has already been compromised; and*<br><br>*i. only provide for the period or periods of occupation that are reasonably necessary to meet the purposes for which occupation is sought.* | The landscape and natural character assessment has concluded any adverse effects on natural character, landscape and visual effects will be largely benign given the negligible change to the overall level of modification apparent in the context of the highly developed spit and southern estuary edges. The extent of restoration planting that is proposed as part of the landscape masterplan will result in additional beneficial effects over time, further integrating the proposed works and reinforcing the coastal character of the Southshore estuary edge. As such, the operational effects of visual and landscape effects for the Project are considered to be less than minor.<br><br>Given the level of engagement Council have a level of confidence that the operational cultural effects of the activities being undertaken are negligible as the 'storying' of mana whenua has been prioritised in design and issues are consulted on and acted upon before they materialise. A copy of the resource consent application is being provided to the Trust and written approval is being sought.<br><br>Given the necessity to protect public and private infrastructure to Southshore and SNBP until an adaptation strategy is firmed up, it is considered that there are no alternative locations to provide erosion protection and inundation protection to these communities.<br><br>The occupation of this environment is required until an adaptation strategy is firmed up for the area. |
| *Policy 8.7*<br><br>*Activities in the Coastal Marine Area should not take place where they have, or have the potential to have, a significant or irreversible adverse effect on the natural or cultural values of an Area of Significant Natural Value, or on the natural or cultural values of areas of the coastal environment adjacent to an Area of Significant Natural Value; unless:* | The conclusion of Section 8 identifies that the effects of the proposal across all aspects of the environment are no more than minor. Impacts on indigenous vegetation are appropriately avoided, mitigated or offset. The combination of the Landscape Master Plan and the Saltmeadow Offset Plan result in a net gain for indigenous vegetation. |

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| *a. there are special or extraordinary and unique reasons why the activity should be sited in the area; and*<br><br>*b. any adverse effects on areas of significant indigenous vegetation or significant habitats of indigenous fauna, are avoided, remedied or mitigated.* | On the basis of the ecological assessment and the measures proposed by the Council, the impacts on 'at-risk coastal bird species protected under Policy 11(a) of the NZCPS are avoided, and the impacts on birds that are afforded protection under 11(b) of the NZCPS are considered to be less than minor. |
| *Policy 8.10*<br><br>*Motorised vehicles should not be used on the Ashley River /Rakahuri - Saltwater Creek Estuary, within the Estuary of the Heathcote and Avon Rivers /Ihutai, on the beaches from South Brighton to Spencer Park, on Sumner Beach, on Taylors Mistake Beach, on the beach of Caroline Bay, in Okains Bay Lagoon, or on the eastern shore of Brooklands Lagoon.*<br><br>*Motorised vessels or motorised vehicles should not be used within the southern part of Brooklands Lagoon, and motorised vessels should be kept at 5 knots or less within the Estuary of the Heathcote and Avon Rivers /Ihutai.*<br><br>*These restrictions should not apply where the vehicles or vessels are operated in these areas:*<br><br>*a. for specified regulatory purposes; or*<br><br>*b. for other specified functions carried out by or on behalf of local authorities or government agencies or by the landowner for farm management purposes in the case of the Ashley River/Rakahuri - Saltwater Creek Estuary; or*<br><br>*c. where it is necessary for authorised construction activities; or*<br><br>*d. where it is necessary for the authorised removal of natural or other materials; or*<br><br>*e. by fire fighting, civil defence and rescue organisations ; or*<br><br>*f. in order for a vessel to be launched or recovered from the nearest access point outside the Coastal Marine Area; or* | Motorised vehicles will not be used on the Estuary for this project. All works are to be undertaken from the bank top. This is provided as a condition of consent for the Project. |

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| *g. as part of a convoy conducted by a 4WD club or a district council during winter, where the convoy has been authorised by the district council to operate the vehicles on the adjacent beach area outside the Coastal Marine Area.* | |
| *Policy 8.12*<br><br>*Environment Canterbury and the Department of Conservation will identify unauthorised structures and unauthorised reclamations or dumping of material in the Coastal Marine Area and will require their owners to either remove the structure or material or obtain appropriate resource consents. Authorised Structures that have been abandoned, and those that have fallen into disrepair, will also be identified and their repair or removal sought if they have more than minor adverse effects on the environment. Where structures have historical value, the first consideration will be in seeking their retention and, where appropriate, their restoration.*<br><br>*In granting applications for resource consents to erect or place structures in the Coastal Marine Area, Environment Canterbury should, where this will be practicable, provide for the structures to be removed from the Coastal Marine Area when they are no longer required by their owners.* | This Project will remove a lot of unsafe and unauthorised structures in the CMA area that have been further exposed following the CES It is considered that removing and replacing these structures will improve the safety and enhance the amenity of the area. Particularly since the dilapidated structures present a current risk to health and safety. |
| *Policy 8.14*<br><br>*In considering applications for resource consents for coastal protection works in the Coastal Marine Area in order to protect existing subdivision, use or development, Environment Canterbury will:*<br><br>*a. only grant the consent where the works are the best practicable option for the future; and*<br><br>*b. consider the option of abandonment or relocation of existing structures;*<br><br>*and* | This inundation and erosion protection work will protect a mixture of public and private infrastructure at SNBP and Southshore. It is considered that the protection works to bring the Estuary edge to pre-earthquake levels is the best practicable option until an adaptation strategy is formulated for the Project area. The effects on coastal processes of the Project are considered to be negligible for the proposal. |

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| *c. ensure that any such works are located and designed so as to avoid significant adverse effects on the environment to the extent practicable* | |

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| *Objective 9.1*<br><br>*a. To minimise the need for hazard protection works, and avoid or mitigate the actual or potential effects of coastal hazards by locating use and development away from areas that are subject to coastal erosion and sea water inundation.*<br><br>*b. To avoid, remedy or mitigate significant adverse effects on the environment as a result of measures used to manage coastal hazards.*<br><br>*Policy 9.1*<br><br>*b. Any new development in the coastal environment should be designed or located in such a way that the need for coastal protection works, now and in the future, is minimised.*<br><br>*c. The continued use and protection of essential infrastructure and services should be provided for, where no reasonable alternative exists, in areas subject to coastal hazards, provided adverse effects on the coastal environment are avoided, remedied or mitigated.*<br><br>*d. New coastal protection works for existing use and development should only be considered where they represent the best practical option for natural hazard mitigation or avoidance, and adverse effects can be avoided, remedied or mitigated.*<br><br>*e. Natural features that buffer the effects of coastal hazards should be protected.*<br><br>*f. Any significant adverse effects from the location, type and design of coastal hazard damage minimisation measures should be avoided, remedied or mitigated.*<br><br>*g. Environment Canterbury will provide information, including information on the incidence of natural occurrences, to encourage people to avoid locating in hazard prone areas.* | The Project will protect a mixture of *existing* public and private infrastructure and return this infrastructure to a level of coastal hazard protection that was enjoyed prior to the earthquake. Until a coastal adaptation strategy is firmed up for the Project area and surrounding communities this Project remains the best practicable option for natural hazard mitigation or avoidance. The conclusion of Section 8 identifies that the effects of the proposal across all aspects of the environment are no more than minor. |

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| *h. New coastal protection works should be assessed, and measures taken or advocated as appropriate, to remedy or mitigate*<br><br>*i. To avoid, remedy or mitigate significant adverse effects on the environment as a result of measures used to manage coastal hazards. any significant adverse effects or remove redundant structures, to assist in restoration and rehabilitation of the natural character of the areas concerned.* | |

#### 10.3.6.3 CARP

The CARP manages air quality in the Canterbury Region. The following table identifies objectives and policies relevant to the construction phase of this Project. Although, no consenting triggers under the CARP are identified a high-level analysis is still provided below in Table 27.

Table 27 Relevant Objectives and Policies of the CARP

| Objectives/Policies | Analysis |
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| Objective 5.1<br><br>Air quality protects the mauri and life supporting capacity of the environment<br><br>Objective 5.5<br><br>Air quality is managed in a way that provides for the cultural values and traditions of Ngāi Tahu.<br><br>Objective 5.6<br><br>Amenity values of the receiving environment are maintained<br><br>Policy 6.1<br><br>Discharges of contaminants into air, either individually or in combination with other discharges, do not cause:<br>▪ adverse effects on human health and wellbeing; or<br>▪ adverse effects on the mauri and life supporting capacity of ecosystems, plants or animals; or<br>▪ significantly diminished visibility; or<br>▪ significant soiling or corrosion of structures or property.<br><br>Policy 6.2<br><br>Recognise the value of air quality as a taonga to Tāngata whenua and manage adverse effects of discharges into air on wāhi tapu, wāhi taonga, and places of significance to Ngāi Tahu. | The proposed works for the Project will proceed as a permitted activity under the CARP. It is considered that all potential dust impacts will be appropriately avoided, remedied and mitigated by the utilisation of an ESDCP will be prepared for the works in accordance with Schedule 2 of the CARP.<br><br>Any discharge related to unsealed surfaces and the handling and storage of bulk solid materials will not cause an offensive or objectionable effect beyond the boundary of the property of origin when appropriately managed in accordance with the ESDCP. |

#### 10.3.6.4 Christchurch District Plan

The relevant Objectives and Policies of the District Plan are set out in Table 28 below.

Table 28 Relevant Objectives and Policies of the Christchurch District Plan

| Strategic Direction | |
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| Objective/Policy | Assessment |
| 3.3.1 Objective – Enabling recovery and facilitating the future enhancement of the district<br><br>a. The expedited recovery and future enhancement of Christchurch as a dynamic, prosperous and internationally competitive city, in a manner that:<br>i. Meets the community's immediate and longer term needs for housing, economic development, community facilities, infrastructure, transport, and social and cultural wellbeing; and<br>ii. Fosters investment certainty; and<br>iii. Sustains the important qualities and values of the natural environment. | The Project is an earthquake legacy project, providing a level of protection that was present prior to CES. This project provides a level of protection that assists the recovery of Southshore. |
| 3.3.6 Objective – Natural Hazards<br><br>a. New subdivision, use and development (other than new critical infrastructure or strategic infrastructure to which paragraph b. applies):<br>i. is to be avoided in areas where the risks from natural hazards to people, property and infrastructure are assessed as being unacceptable; and<br>ii. in all other areas, is undertaken in a manner that ensures the risks of natural hazards to people, property and infrastructure are appropriately mitigated.<br>b. New critical infrastructure or strategic infrastructure may be located in areas where the risks of natural hazards to people, property and infrastructure are otherwise assessed as being unacceptable, but only where:<br>i. there is no reasonable alternative; and<br>ii. the strategic infrastructure or critical infrastructure has been designed to maintain, as far as practicable, its integrity and form during natural hazard events; and<br>iii. the natural hazard risks to people, property and infrastructure are appropriately mitigated. | This project is not to enable new land use or development. It is to repair earthquake damaged land as part of the earthquake recovery. It is considered that the Project aligns with Objective 3.3.6. |

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| c. There is increased public awareness of the range and scale of natural hazard events that can affect Christchurch District.<br>d. The repair of earthquake damaged land is facilitated as part of the recovery. | |
| 3.3.9 Objective – Natural and Cultural Environment<br><br>a. A natural and cultural environment where:<br>i. People have access to a high quality network of public open space and recreation opportunities, including areas of natural character and natural landscape; and<br>ii. Important natural resources are identified and their specifically recognised values are appropriately managed, including:<br>A. outstanding natural features and landscapes, including the Waimakariri River, Lake Ellesmere/Te Waihora, and parts of the Port Hills/Nga Kohatu Whakarakaraka o Tamatea Pokai Whenua and Banks Peninsula/Te Pātaka o Rakaihautu; and<br>B. the natural character of the coastal environment, wetlands, lakes and rivers, springs/puna, lagoons/hapua and their margins; and<br>C. indigenous ecosystems, particularly those supporting significant indigenous vegetation and significant habitats supporting indigenous fauna, and/or supporting Ngāi Tahu mana whenua cultural and spiritual values; and<br>D. the mauri and life-supporting capacity of ecosystems and resources; and<br>iii. Objects, structures, places, water/wai, landscapes and areas that are historically important, or of cultural or spiritual importance to Ngāi Tahu mana whenua, are identified and appropriately managed. | The recreational value and access to public open space is enhanced as part of this project. Revitalising public open space in an area of land red zones after the CES will improve the amenity value of both Southshore and SNBP.<br><br>There will be positive effects overall recreationally arising from the proposed work, as discussed in the Assessment of Effects. The proposal is considered to be consistent with this Objective. |
| Chapter 5 Natural Hazards | |
| 5.2.2.1.1 Policy – Avoid new development where there is unacceptable risk | This Project is an earthquake legacy project with the purpose of protecting existing infrastructure and returning the level of erosion and inundation protection of the estuary edge to pre-earthquake levels. It is considered this policy does not meet the definition of new development, now does it pose an unacceptable risk. |
| 5.2.2.1.2 Policy – Manage activities to address natural hazard risks | The Project provides a commensurate response to the level of risk from erosion and inundation. The project provides protection to pre-earthquake levels and |

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| a. Manage activities in all areas subject to natural hazards in a manner that is commensurate with the likelihood and consequences of a natural hazard event on life and property. | re-instates inundation protection to existing infrastructure to these levels for the design-life of these structures (20 years).<br><br>The proposed design provides adaptability beyond this 20-year period to allow for alignment with a broader adaptation strategy. |
| 5.2.2.1.3 Policy – Infrastructure<br><br>a. Avoid locating new critical infrastructure where it is at risk of being significantly affected by a natural hazard unless, considering functional and operational requirements, there is no reasonable alternative location or method.<br>b. Enable critical infrastructure to be designed, maintained and managed to function to the extent practicable during and after natural hazard events.<br>c. Recognise the benefits of infrastructure and the need for its repair, maintenance and ongoing use in areas affected by natural hazards. | The Project is providing improved inundation and erosion protection (following the CES) to a mixture of private and public infrastructure in areas that are affected by natural hazards. |
| 5.2.2.1.4 Policy – No transferring of natural hazard risk<br><br>a. Ensure that subdivision, use and development (including proposals for hazard mitigation works or hazard removal) do not transfer or create unacceptable natural hazard risk to other people, property, infrastructure or the natural environment. | This Project is a proposal for hazard mitigation works, specifically to mitigate and manage the risks of inundation and erosion following the CES. The Project provides a level of erosion and inundation protection to pre-earthquake levels. The project does not transfer or create unacceptable natural hazard risk to other people, property or infrastructure. |
| 5.2.2.1.5 Policy – Natural features providing hazard resilience<br><br>a. Protect natural features which assist in avoiding or reducing the risk of natural hazards, such as natural ponding areas, coastal dunes, wetlands, water body margins and riparian vegetation from inappropriate subdivision, use and development and where appropriate restore, maintain or enhance the functioning of these features. | Saltmarsh habitats are effective at trapping sediment and mitigating erosion impacts from wave energy. These habitats are avoided and enhanced where possible as part of the Project.<br><br>The areas of saltmeadow that have developed as 'natural wetland areas' are the by-product of existing failed infrastructure (i.e. edge protection structures) and do not assist in reducing the risk of natural hazards. |
| 5.2.2.1.6 Policy – Awareness of natural hazards<br><br>a. Ensure people are informed about the natural hazards relating to their properties and surrounding area, including through provision of relevant | The Project provides for sea level rise over the 20-year design life period (and consenting period). The Project provides for the protection of the estuary edge and properties in the Southshore area while longer term adaptation strategies are identified and implemented. The proposed design is adaptable to align with future broader adaptation strategies. |

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| information on Land Information Memoranda and hazard mapping on the Council's website.<br>b. Encourage property owners to incorporate measures into buildings including earthquake damaged buildings beyond existing use rights or minimum building standards to avoid or mitigate natural hazards affecting their property. | |
| 5.2.2.1.7 Policy – Repair of earthquake damaged land<br><br>a. Facilitate recovery by enabling property owners to make repairs to earthquake damaged land for residential purposes, where these repairs will appropriately manage adverse effects on people, property or the natural environment.<br>b. Recognise that the repair of other earthquake damaged land is necessary as part of recovery. | This project is entirely consistent with this policy as an earthquake legacy project. It is facilitating the recovery of subsided public earthquake damaged land to protect both public and private infrastructure against erosion and inundation risks.<br><br>This project recognises that the repair of the repair of this land is necessary as part of the wider earthquake recovery. |
| 5.2.2.1.8 Policy – Assessment of hazards<br><br>a. Ensure that the level of assessment undertaken for plan changes, subdivision or development reflects the potential scale and significance of the hazard; and the nature and scale of the rezoning, subdivision or development and its susceptibility to those hazards. | This project provides earthquake legacy protection, and the proposed structures are adaptable beyond their 20-year design life. This allows time for a more formal adaptation strategy to be implemented which can specifically provide for the management of the Project area in the longer term. |
| 5.2.2.2.1 Policy Flooding<br><br>a. Map hazard risk for the Flood Management Area based on:<br>i. a modelled 0.5% AEP (1 in 200-year) rainfall event plus a 5% AEP (1 in 20-year) tide event plus 250mm freeboard; OR a modelled 5% AEP (1 in 20-year flood event) plus a 0.5% AEP (1 in 200-year) tide event plus 250mm freeboard; OR 11.9m above Christchurch City Council Datum (the maximum 200-year tidal contour) plus 250mm freeboard; whichever is the greater; and<br>ii. allowance for 1 metre of sea level rise and an increase in rainfall intensity by 16% through to 2115 as a result of climate change; and<br>iii. a maximum buffer extension of the modelled rainfall event areas by 60 metres in a north/south and east/west direction.<br>b. In the High Flood Hazard Management Area:<br>i. provide for development of a residential unit on residentially zoned land where the flooding risk is predominantly influenced by sea-level rise and where | The Project includes providing inundation protection within a High Flood Hazard Management Area. Importantly, this activity will decrease the potential risk to people's safety, well-being, and property by protecting existing infrastructure. The flood memo has identified that the loss of flood storage for pluvial flooding (landward) are minor.<br><br>Overall, the Project provides enhanced inundation and erosion protection for public and private infrastructure and will improve the area's defences against flooding. |

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| appropriate mitigation can be provided that protects people's safety, well-being and property from unacceptable risk; and<br>ii. within the Specific Purpose (Ōtākaro Avon River Corridor) Zone, provide for structures in accordance with Policy 13.14.2.1.8.<br>iii. in all other cases, avoid subdivision, use or development where it will increase the potential risk to people's safety, well-being and property.<br>c. .... | |
| 5.2.2.3.1 Policy – Management of liquefaction risk<br><br>a. Map the Liquefaction Management Area based on a district-wide assessment of where damaging liquefaction is more likely to occur.<br>b. Provide for rezoning, subdivision, use and development on flat land where liquefaction risk has been appropriately identified and assessed, and can be adequately remedied or mitigated. | The Project is occurring within a Liquefaction Management Area. The project is an earthquake legacy project to provide inundation and erosion protection where the land has slumped following the CES. It is recognised that this is a liquefaction prone area, and the Project works are occurring to mitigate increased risks created by the CES. |
| Chapter 7 – Transport | |
| 7.2.2.2 Policy - Activities within the Transport Zone<br><br>a. Enable activities for transport purposes and ancillary activities within the Transport Zone that seek to provide, maintain or improve:<br><br>the safety, amenity values, efficiency and functionality of the Transport Zone, in particular the strategic transport network; and<br>structures, facilities, services and installations of the transport network.<br>Enable non-transport related activities which contribute to public amenity values and/or provide a public place for community activities, including opportunities for people to interact and spend time whilst not having an adverse effect on:<br>i. the safety, amenity, efficiency and functionality of the transport function of the Zone; and<br>ii. the potential for the full width of the Transport Zone to be utilised for transport use in the future. | Traffic impacts of construction phase activities are minimal and all proposed construction traffic fits within the permitted activity limits of Rule 7.4.2.1 P10.<br><br>Elements of the project are being undertaken within Transport Zone, including within the road ends (however these have been legally stopped and no longer have Transport usage).<br><br>Treatment of these areas is shown in the Landscape Plans for the project, and will include parking and soft landscaping. These areas will still provide for public access to the CMA. Any short term works, or ongoing use of these areas by the public, will not give rise to any adverse effects, and will not have any adverse effects on the safe and efficient operation of the roading network. The road ends (beyond the stopped area) are presently accessible and will remain so, with the project essentially improving their appearance and integrating them into the Project. The proposal is not contrary to these provisions. |

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| Outside the Central City, where land in the Transport Zone is not immediately required for transport purposes, enable non-transport related activities that:<br>i. will not give rise to reverse sensitivity effects that would undermine transport activities in the zone;<br>ii.do not prevent land designated for transport purposes reverting to a transport use when required;<br>iii.do not undermine the future transport use of the land designated for transport purposes; and<br>iv. are consistent with the activities provided for in the adjoining zones.<br><br>7.2.2.3 Policy - Effect on adjacent land uses to the Transport Zone<br><br>a. Manage the adverse effect(s) of an activity within the Transport Zone so that the effects of the activity are consistent with the amenity values and activity of adjacent land uses, whilst providing for the transport network, in particular the strategic transport network to function efficiently and safely.<br>b. To ensure adjacent land uses are designed, located and maintained in such a way as to avoid reverse sensitivity effects on the strategic transport network. | |
| Chapter 8 – Subdivision, Development and Earthworks | |
| 8.2.4 Objective – Earthworks<br><br>Earthworks facilitate subdivision, use and development, the provision of utilities, hazard mitigation and the recovery of the district.<br><br>8.2.4.1 Policy - Water quality<br><br>Ensure earthworks do not result in erosion, inundation or siltation, and do not have an adverse effect on surface water or groundwater quality.<br><br>8.2.4.2 Policy - Repair of earthquake damaged land | Earthworks required to construct the project are minor, and will include preparation of the area upon which the bund is to sit and the construction of the bunds themselves. All of the works related to the bund will be landward of mean high water spring and will be managed in accordance with erosion and sediment control measures to avoid any runoff into the Estuary.<br>The overall project is a response to damage to the estuary edge during the CES. The earthworks are necessary to facilitate the construction of the project and will not give rise to any adverse effects on any party.<br><br>The implementation of a CEMP and ESDCP and other management plans provide an adaptive management framework to ensure that any impacts related to earthworks are appropriately avoided, remedied and/or mitigated. |

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| Facilitate recovery by enabling property owners to make repairs to earthquake damaged land for residential purposes, where the repairs will have acceptable adverse effects on people, property and the natural environment.<br>Recognise the need for the repair of other earthquake damaged land as part of recovery.<br>8.2.4.3 Policy - Benefits of earthworks<br><br>Recognise that earthworks are necessary for subdivision, use and development, the provision of utilities, hazard mitigation and the recovery of the district.<br><br>8.2.4.4 Policy – Amenity<br><br>Ensure, once completed, earthworks do not result in any significant shading, visual impact, loss of privacy or other significant detraction from the amenity values enjoyed by those living or working in the locality. | |
| 8.2.5 Objective - Earthworks health and safety<br><br>People and property are protected during, and subsequent to, earthworks.<br><br>8.2.5.1 Policy - Land stability<br><br>Avoid earthworks that will create a significant risk to people and property through subsidence, rockfall, cliff collapse, erosion, inundation, siltation or overland flows.<br><br>8.2.5.2 Policy – Nuisance<br><br>Subject to Policy 8.2.4.3, ensure that earthworks avoid more than minor adverse effects on the health and safety of people and their property, and do not generate continuous or persistent noise, vibration, dust or odour nuisance.<br><br>8.2.5.3 Policy - Vehicle movement | The proposed earthworks will be consistent with these provisions. An ESDCP will be prepared, and the overall CEMP for the works will include the appropriate level of controls on earthworks in order to provide for the safety of people and property.<br><br>A CTMP is being implemented to ensure that impacts on local amenity during the construction phase are appropriately avoided, remedied and mitigated. |

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| Subject to Policy 8.2.4.3, ensure that the transportation to and from a site of earth, construction or filling material is safe and minimises adverse transport network and local amenity value effects.<br><br>8.2.5.4 Policy - Earthworks design<br><br>Ensure that earthworks over identified thresholds are designed to enable the anticipated land use.<br>Subject to Policy 8.2.4.3, ensure that earthworks avoid more than minor adverse effects on the health and safety of people and their property, and do not generate continuous or persistent noise, vibration, dust or odour nuisance.<br><br>8.2.5.3 Policy - Vehicle movement<br><br>Subject to Policy 8.2.4.3, ensure that the transportation to and from a site of earth, construction or filling material is safe and minimises adverse transport network and local amenity value effects. | |
| Chapter 9 – Natural and Cultural Heritage | |
| 9.1.2.1.1 Objective – Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna<br><br>a. Areas of significant indigenous vegetation and significant habitats of indigenous fauna are protected so as to ensure there is no net loss of indigenous biodiversity. | The Project avoids adverse effects on significant habitats of indigenous fauna below MWHS. Key vegetation habitats including seagrass and saltmarsh are avoided with this Project.<br><br>Where areas of saltmeadow cannot be avoided the Project takes a 'no net loss approach'. The project has a functional need to be located in the proposed location and alignment, and it is necessary to remove saltmeadow to implement the inundation and erosion protection. Any adverse effects on saltmeadow are to be offset by providing offsetting. This ensures that there is a net gain of significant indigenous vegetation for the Project. |
| 9.1.2.2.1 Policy – Identification and assessment of sites<br><br>a. Recognise that the Sites of Ecological Significance listed in Schedule A of Appendix 9.1.6.1 do not represent a comprehensive list of sites that are of | The Project area is identified as a site of Ecological Significance listed in Schedule A of Appendix 9.1.6.1 identified as the Avon Heathcote Estuary / Ihutai and environs. |

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| significance for indigenous biodiversity within the Christchurch District; and undertake further work with landowners, Ngāi Tahu, Department of Conservation, Canterbury Regional Council, conservation groups and other stakeholders to identify and assess additional areas of indigenous vegetation or habitats of indigenous fauna that may be of significance.<br>b. Prioritise the assessment of the sites listed in Schedule B of Appendix 9.1.6.1 for potential listing in Schedule A of Appendix 9.1.6.1. Other sites of indigenous vegetation and habitats of indigenous fauna will be assessed over time to identify their potential for significance, taking into account the following factors:<br>i. ecological values, determined by the results of literature searches and / or expert advice;<br>ii. the level of existing legal protection;<br>iii. threats to ecological values;<br>iv. whether the site has been identified as a Recommended Area for Protection in the surveys undertaken by Hugh Wilson (1992) for the Department of Conservation Protected Natural Areas Programme;<br>v. the national priorities for protection in Policy 9.3.2 of the Canterbury Regional Policy Statement; and<br>vi. requests for assessments by landowners. | The Project is subject to the objectives/policies and rules that govern sites of Ecological Significance. The Project has undertaken ecological mapping to ascertain the extent of the ecological constraints for the Project area. This information has informed design and as identified the Project design has started from a presumption of avoiding significant habitats unless there is a functional need and necessity to encroach into these areas, as required by higher order planning instruments. These issues have been assessed in the assessment under the provisions of the NPS-FM and NZCPS. |
| 9.1.2.2.2 Policy – Determination of significance<br><br>a. Significance of indigenous biodiversity will be determined by:<br>i. the identification and assessment of areas of indigenous vegetation and habitats of indigenous fauna in accordance with the process in Policy 9.1.2.2.1; and<br>ii. the assessment of these areas against the significance criteria in the Canterbury Regional Policy Statement Policy 9.3.1 and Appendix 3.<br>b. Following the identification and assessment of significance undertaken in (a) above, the Council will determine the extent of those areas identified as significant and warranting protection. | |

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| 9.1.2.2.3 Policy – Mechanisms for the protection of indigenous biodiversity<br><br>a. Recognise that the maintenance and protection of indigenous biodiversity, including the Sites of Ecological Significance listed in Schedule A of Appendix 9.1.6.1, is dependent on landowner support and will be achieved through a number of mechanisms, including:<br>i. the listing of sites of significant indigenous vegetation and significant habitats of indigenous fauna in Schedule A of Appendix 9.1.6.1;<br>ii. the use of rules regulating the clearance of indigenous vegetation and the disturbance of indigenous habitats;<br>iii. legal protection by way of covenants; and<br>iv. landowner commitment to conservation and stewardship of the natural environment, including through the use of Farm Biodiversity Plans;<br>and that the most appropriate mechanism may vary depending on the indigenous biodiversity and use of the particular site, including by way of an understanding of how land use practices on the site assist with management, maintenance and protection of indigenous biodiversity values. | The Project is recognised as being within a Site of Ecological Significance listed in Schedule A of Appendix 9.1.6.1. It is recognised that indigenous vegetation clearance associated with this Project is a non-complying activity.<br><br>All vegetation clearance is occurring on public land owned or managed by Christchurch City Council on behalf of the Crown. Once the works are complete, and the offset area established, the conditions of consent will provide for its ongoing and enduring management and protection. Any adverse effects on saltmeadow (loss of 0.2 ha) are to be offset by providing offsetting of 0.3. This ensures that there is a net gain of significant indigenous vegetation for the Project. |
| 9.1.2.2.6 Policy – Protection and management of significant indigenous vegetation and habitats of indigenous fauna listed in Schedule A of Appendix 9.1.6.1.<br><br>a. Recognise and protect the indigenous vegetation and habitats of indigenous fauna within each site listed in the Sites of Ecological Significance in Schedule A of Appendix 9.1.6.1 so as to ensure no net loss of indigenous biodiversity by:<br>i. avoiding the adverse effects of vegetation clearance and the disturbance of habitats as far as practicable; then<br>ii. remedying any adverse effects that cannot be avoided; then<br>iii. mitigating any adverse effects that cannot be remedied; and<br>iv. where there are any significant residual adverse effects on the significant indigenous vegetation and significant habitats of indigenous fauna within the site, offsetting them in accordance with Policy 9.1.2.2.14. | The Project is successful in avoiding the disturbance of habitats as far as practical. Areas of seagrass and saltmarsh are avoided.<br><br>Any adverse effects on saltmeadow are to be offset by providing offsetting. This ensures that there is a net gain of significant indigenous vegetation for the Project. |

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| 9.1.2.2.8 Policy – Protection of indigenous vegetation and habitats of indigenous fauna in the coastal environment | This Policy replicates Policy 11 of the NZCPS, which has been assessed above. |
| 9.1.2.2.9 Policy – Land Management<br><br>a. Provide for small-scale, low impact indigenous vegetation clearance where it will enable the continued use of land and the maintenance of existing infrastructure.<br>b. Recognise that the locational, operational and technical requirements of new, or upgrades to, utilities or network infrastructure operated by network utility operators may necessitate the removal of indigenous vegetation and habitats of indigenous fauna, including within Sites of Ecological Significance listed in Schedule A of Appendix 9.1.6.1. | The removal of saltmeadow is small in scale and low in impact because of the offsetting approach taken to saltmeadow habitat. The protection of the estuary edge allows the continued use of the Southshore and SNBP public and private assets.<br>The removal of saltmeadow (in isolated locations) is necessitated by the placement of the inundation bund closer to the estuary edge to provide its flood protection function. |
| 9.1.2.2.10 Policy – Maintenance and enhancement of indigenous biodiversity<br><br>a. Enable activities that maintain and enhance indigenous biodiversity including:<br>i. planting with appropriate indigenous species; and<br>ii. the removal or management of pest plant and animal species and for biosecurity works | The Landscape Master Plan provides enhancement of indigenous biodiversity. Overall, it is considered that indigenous biodiversity is enhanced for the Project. |
| 9.1.2.2.12 Policy – Cultural Heritage and customary rights<br><br>a. Ngāi Tahu mana whenua cultural heritage values associated with indigenous biodiversity will be maintained and enhanced through:<br>i. providing for the customary harvesting of taonga species by Ngāi Tahu, while ensuring such harvest will maintain the indigenous biodiversity of the site;<br>ii. non-regulatory incentives and assistance; and<br>iii. providing for the planting of indigenous vegetation for the purpose of customary harvesting. | Ngāi Tahu values have been taken into account throughout the project. The Ihutai Ahu Whenua Estuary Trust, as mana whenua, have been engaged with in the development of the landscaping plan. The project is consistent with this policy. |
| 9.1.2.2.14 Policy – Offsetting<br><br>a. Allow for a biodiversity offset to be offered by a resource consent applicant where an activity will result in residual adverse effects on a Site of Ecological | An area for a biodiversity offset has been identified on land to the south of the project area and is described in the Ecological Assessment prepared by Boffa Miskell Ltd. |

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| Significance listed in Schedule A of Appendix 9.1.6.1, or on indigenous biodiversity outside such Sites of Ecological Significance.<br>b. Within a Site of Ecological Significance listed in Schedule A of Appendix 9.1.6.1, biodiversity offset will only be considered appropriate where adverse effects on the significant indigenous vegetation and significant habitats of indigenous fauna within the site have been avoided, remedied or mitigated in accordance with the hierarchy established in Policy 9.1.2.2.6; and<br>i. the biodiversity offset is consistent with the framework detailed in Appendix 9.1.6.5; and<br>ii. the biodiversity offset can achieve no net loss of indigenous biodiversity:<br>iii. preferably in the affected area of significant indigenous vegetation or significant habitat of indigenous fauna; or<br>iv. where that is not practicable, in the ecological district in which the affected area of significant indigenous vegetation or significant habitat of indigenous fauna is located. | It is not possible to create the offset area in the Project site given the work that is necessary to create the edge protection and inundation bund. However, the offset area is on the same landform (Southshore Spit) and is in the same ecological district. The offset area is larger than the area being lost and will ensure there is an overall net gain in ecological biodiversity in the Southshore area. The project therefore satisfies this policy. |
| 9.1.2.2.15 Policy – Monitoring<br>a. The Council will undertake regular monitoring of the indigenous biodiversity in the ecological districts identified in Appendix 9.1.6.4 (within the Christchurch District) in order to measure whether no net loss of indigenous biodiversity is being achieved. | This is a directive policy for the Council as regulatory authority and is not directly relevant to the proposal. However, the offsetting proposed ensures that there is no net loss of indigenous biodiversity. |
| Chapter 9.2 Landscapes and Natural Character | |
| 9.2.2.1.1 Objective – Outstanding natural features<br><br>The outstanding natural features of the Christchurch District that are listed in Appendix 9.2.9.1.1 are protected.<br><br>Under Appendix 9.2.1.1 Te Ihutai/Avon-Heathcote Estuary is recognised as an outstanding natural feature, noted for the following characteristics:<br>A. The formative processes, tidal influence and shifting channels of the Ōtākaro / Avon and Heathcote / Ōpāwaho rivers mouths and the adjacent New Brighton sand spit make the estuary a highly legible landscape feature.<br>B. The series of caves and rocky headlands from the mouth of the Heathcote / Ōpāwaho River to Scarborough Heads are significant geological features with important heritage, archaeological and cultural values. | The landscape assessment has assessed the potential effects of the proposal in the landscape values of Te Ihutai/Avon-Heathcote Estuary. These effects are addressed in the Assessment of Effects, and overall, it is noted that the assessment concludes that the Project will avoid effects on the outstanding natural feature or the wider landscape within which it is located. The proposal is therefore considered to be consistent with this policy. |

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| C. Important bird feeding and breeding site, nationally important for wading birds.<br>D. Shag Rock / Rapanui, Tuawera / Cave Rock and Clifton Cliffs are of geological interest, visually prominent, and are of significance to Ngāi Tahu<br>E. Significance in relation to Māori heritage due to extensive settlement, occupation and the use of Te Ihutai / Avon-Heathcote Estuary as a major mahinga kai<br>F. Te Ihutai / Avon-Heathcote Estuary and Sumner beach / Matuku-takotako are particularly popular for recreational use.<br>South Brighton Spit / Te Kōrero Karoro and Estuary entrance is also identified as an Outstanding Natural Feature, notably for the following characteristics:<br>A. The openness and visual separation of the beach from the adjacent urban environment by sand dunes.<br>B. The sand dunes are important landform characteristics of the landscape including the indigenous vegetation occurring on them.<br>C. South Brighton Spit / Te Kōrero Karoro is an important bird habitat and distinctive landscape feature that defines the entrance to Te Ihutai / Avon-Heathcote estuary.<br>D. An area of significance to Ngāi Tahu in relation to mahinga kai, migration and settlement.<br>E. High recreational values of the beach and coastal interface due to the proximity to the city. | |
| 9.2.2.1.2 Objective – Outstanding natural landscapes<br><br>The outstanding natural landscapes of the Christchurch District that are listed in Appendix 9.2.9.1.2 are protected. | The Project area is not identified as an outstanding natural landscape of the Christchurch area under Appendix 9.2.9.1.2 |
| 9.2.2.1.4 Objective – Natural Character<br><br>a. The natural character of the Christchurch District's coastal environment, wetlands, and lakes and rivers and their margins is preserved. | The landscape assessment has identified that the natural character of the coastal environment will not be adversely affected by the project. The coastal edge is already modified, and the proposal is seeking to re-establish edge protection that existed prior to the CES. The proposal achieves this objective. |
| 9.2.2.2.2 Policy – Recognising and protecting the qualities of outstanding natural features | The project is considered to be an appropriate activity in this location. The edge protection and the inundation bund are necessary to protect the estuary edge and properties behind from further coastal erosion. The design response is |

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| a. Recognise the qualities of the identified outstanding natural features described in Appendix 9.2.9.1.1 and protect them from inappropriate subdivision, use and development by:<br>i. avoiding use and development that detracts from extensive open views, or detracts from or damages the unique landforms and landscape features;<br>ii. recognising and providing protection for Ngāi Tahu values in locations of special significance to tāngata whenua;<br>iii. promoting restoration and ecological enhancement initiatives, including through the design of ecological protection measures;<br>Iv... | similar to other areas around the estuary edge, where rock revetments and cobble beaches have bene created. The landscape assessment has determined that there the Project will avoid adverse effects on the ONF. |
| 9.2.2.2.6 Recognition of natural character<br><br>a. Recognise that the following natural elements, patterns, processes and experiential qualities contribute to natural character:<br>i. areas or waterbodies in their natural states or close to their natural state;<br>ii. coastal or freshwater landforms and landscapes;<br>iii. coastal or freshwater physical processes, including the movement of water and sediment;<br>iv. biodiversity;<br>v. biological processes and patterns;<br>vi. water flows and levels, and water quality; and<br>vii. the experience of the above elements, patterns and processes. | Appendix 9.2.9.1.5 considers the estuary to be a location of at least high natural character. As identified in the Landscape Assessment, there are no significant effects on landscape character. The proposal is consistent with these provisions. |
| 9.2.2.2.7 Policy – Recognising and preserving the natural character qualities of the coastal environment | |
| 9.2.2.2.8 Policy – Natural Character of wetlands, and lakes and rivers and their margins<br><br>a. Recognise and preserve the natural character qualities of wetlands, and lakes and rivers and their margins and their protection from inappropriate subdivision, use and development by:<br>i. ensuring that location, intensity, scale and form of subdivision, use and development is appropriate;<br>ii. minimising, to the extent practicable, indigenous vegetation clearance and modification (including earthworks, disturbance and structures); | The proposed edge protection cannot be located in any alternative location. It has a functional need to be along the edge of the Estuary, as its purpose is to prevent further erosion, and to work in tandem with the inundation bund to protect properties from high estuarine water levels.<br><br>There will be no cumulative effect on the character of the project area. The edge protection works will replace the failed edge protection and are not being constructed in addition to other existing measures along the alignment. The edge protection along the Southshore stretch is necessary to protect the toe of the inundation bund from erosion. Overall, the infrastructure is appropriately |

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| iii. encouraging any new activities to consolidate within, and around, existing developments or where the natural character and landscape values have already been compromised to avoid development sprawling;<br>iv. requiring appropriate setbacks of activities from those margins; and<br>v. ensuring development is not readily visible from public places and frequently visited viewpoints. | located to achieve the purpose for which it designed, and as identified in the landscape and coastal processes assessments, will not give rise to any significant adverse effects on the natural character of the area, noting that much of the estuary edge is modified to some degree by similar works (such as along the causeway on the opposite side of the Estuary). Overall, the project is consistent with these policies. |
| 9.2.2.2.9 Policy – Cumulative effects on natural character<br><br>a. Assessments of effects on the natural character of the coastal environment, wetlands, and lakes and rivers and their margins shall include an assessment of the cumulative effects of:<br>i. allowing more of the same activity;<br>ii. allowing a more of a particular effect, whether from the same activities or from other activities causing the same or similar effect; and<br>iii. all activities in the coastal or freshwater environment at the site. | |
| 9.2.2.2.10 Policy – Restoration of natural character<br><br>a. Promote opportunities to restore and rehabilitate natural character, such as through the removal of plant and animal pests, and supporting initiatives for regeneration of indigenous vegetation. | The project provides opportunities to restore natural character to parts of the project area, such as through the areas to be created as cobble beach, and through the landscape planting to be undertaken. Restoring the edge of the Estuary will also prevent further erosion, creating a stable edge and providing opportunities for further development of the areas of saltmarsh and seagrass that have become established in the area. |
| 9.2.2.2.13 Policy – Ngāi Tahu customary use<br><br>a. Recognise and provide for Ngāi Tahu customary uses of natural resources, including land, water and other natural resources as an integral part of areas identified in the Plan as outstanding natural features and landscapes, significant features and rural amenity landscapes, and areas of natural character in the coastal environment. | Mana whenua (the Trust) have been engaged with during the development of the design and the development of the landscaping concept. The cultural values of the area have been better understood and through the Landscape Master Plan The proposal is considered to appropriately provide for Ngāi Tahu values via storytelling, enhanced access and protection of eroding middens. |
| Chapter 9.4 Significant and Other Trees | |
| 9.4.2.1.1 Objective | The Project does not include any significant trees identified in Appendix 9.4.7.1 of the Christchurch District Plan. |

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| a. Maintain and enhance the contribution of the Christchurch District's significant trees listed in Appendix 9.4.7.1, and trees in road corridors, parks, reserves and public open space, to community amenity through:<br>i. landscape character and amenity;<br>ii. heritage and cultural values;<br>iii. purification of air and rainwater;<br>iv. releasing oxygen and storing carbon;<br>v. cooling of the built environment and waterways;<br>vi. stormwater and erosion management; and<br>vii. biodiversity protection and enhancement;<br>while providing for the reasonable use and enjoyment of property and landowner responsibilities. | The Arboricultural Assessment identifies that a number of trees are to be removed to facilitate construction of the project. In accordance with Council policy, trees to be removed will be replaced on at least a 2:1 ratio. The overall Landscape Master Plan will enhance the contribution of trees to the amenity of the project area and the wider community. |
| 9.4.2.2.3 Policy – Tree Protection<br><br>a. Protect from inappropriate physical works:<br>i. trees that are listed in Appendix 9.4.7.1, particularly those trees identified as having exceptional values; and<br>ii. trees in road corridors, parks, reserves and public open space where they provide amenity value and/or collectively contribute to the character and environmental quality of the Christchurch District, to the extent consistent with maintaining the multiple functions of road corridors, parks, reserves and public open space. | No trees in the Project area are listed in Appendix 9.4.7.1. As identified in the assessment of effects, the proposed works are not inappropriate in this location. The project is predicated on reinstating the edge protection that existed prior to the CES. There is no practicable alternative, and overall, the works are not considered inappropriate. The proposal is therefore not at odds with this policy. |
| 9.4.2.2.7 Policy – Felling of trees<br><br>a. ...<br>b. Limit the felling of trees in road corridors, parks, public open space and reserves having regard to size, location and species, except where there are no reasonable alternatives. | The design has identified a number of trees that require removal to facilitate the construction of the bund or to enable the edge protection works to be created. There are no reasonable alternatives to removing these trees, as the alignment of the works has been developed taking into account factors such as site constraints, community wishes to not lose any more land to coastal erosion, and council resolutions. The project is not contrary to this policy, particularly given the implementation of the enhancing Landscape Master Plan. |
| Chapter 9.5 Ngai Tahu Values and the Environment | |

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| 9.5.2.1 Objectives<br><br>9.5.2.1.1 Objective - Areas and sites of Ngāi Tahu cultural significance<br><br>The historic and contemporary relationship of Ngāi Tahu mana whenua with their ancestral lands, water, sites, wāhi tapu and other taonga is recognised and provided for in the rebuild and future development of Ōtautahi, Te Pātaka o Rākaihautū and the greater Christchurch Area.<br><br>9.5.2.1.2 Objective - Integrated management of land and water<br><br>Ngāi Tahu cultural values, including as to natural character, associated with water bodies, repo / wetlands, waipuna / springs and the coastal environment of Ōtautahi, Te Pātaka o Rākaihautū and the greater Christchurch Area are maintained or enhanced as part of the rebuild and future development of the District - Ki Uta Ki Tai (from the mountains to the sea).<br><br>9.5.2.1.3 Objective - Cultural significance of Te Tai o Mahaanui and the coastal environment to Ngāi Tahu<br><br>The cultural significance of Te Tai o Mahaanui, including Te Ihutai, Whakaraupō, Koukourārata, Akaroa, Te Waihora, Te Roto o Wairewa and the coastal environment as a whole to Ngāi Tahu is recognised and Ngāi Tahu are able to exercise kaitiakitanga and undertake customary uses in accordance with tikanga within the coastal environment.<br><br>9.5.2.2.2 Policy - Ngā Tūranga Tūpuna<br><br>Iv. enhance the natural character and cultural values of water bodies, waipuna / springs, repo / wetlands and coastal waters, including reinstating original water courses where practicable;<br><br>v. maintain or restore natural features with cultural values within these areas; and | Mana whenua have been engaged throughout the development of the Project, as identified in the AEE. This commenced with a workshop with the project team where the history and significance of Te Ihutai was explained. Mana whenua subsequently worked closely with the landscape team to inform the landscape design and plan. The landscape concept that is included within the application documents includes the species and other values of significance to mana whenua.<br><br>The SNBP portion of the works also includes archaeological sites in the form of middens that are presently under threat from coastal erosion. These are identified and discussed in the Archaeological Assessment. The proposed design, including the cobble beaches and backfilling of coastal structures, will adequately and appropriately protect these middens by ensuring they are covered and protected from further coastal processes. This solution will ensure that these elements of cultural heritage will be protected into the future.<br><br>Overall, given the early and consistent engagement with the Trust the Project is considered to be consistent with these provisions. |

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| 9.5.2.2.4 Policy - Archaeological sites<br><br>Avoid damage to or destruction of Ngāi Tahu mana whenua archaeological sites within identified sites of Ngāi Tahu cultural significance or any unmarked or unrecorded archaeological site when undertaking earthworks, building or utility activities.<br><br>9.5.2.2.5 Policy - Engagement with Rūnanga<br><br>Ngāi Tahu and Council to encourage and facilitate the engagement of landowners and resource consent applicants with the relevant rūnanga prior to undertaking activities and/or applying for resource consent, within or adjacent to identified sites of Ngāi Tahu cultural significance (including silent file areas). Where prior applicant engagement has not been undertaken Council will consult with the relevant rūnanga. | |
| Chapter 9.6 Coastal Environment | |
| 9.6.2.1.1 Objective – The coastal environment<br><br>a. People and communities are able to provide for their social, economic and cultural wellbeing and their health and safety, while maintaining and protecting the values of the coastal environment, including:<br>i. indigenous biodiversity and the maintenance of the ecological function and habitats;<br>ii. natural features and landscapes;<br>iii. natural character;<br>iv. historic heritage;<br>v. Ngāi Tahu cultural values;<br>vi. visual quality and amenity; and<br>vii. recreation values. | The matters of concern in this Objective have been addressed in the technical assessments prepared in support of the application. They have determined, as discussed in the assessment of effects, that there will be no more than minor adverse effects arising from the Project. The values of the coastal environment will be maintained and protected from further erosion and provided enhanced inundation protection following the CES.<br><br>Given the implementation of the Landscape Master Plan and Saltmeadow Offset Plan it is considered that the Project is consistent with this Objective. |

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| 9.6.2.1.2 Objective – Access to and along the coast<br><br>a. Public access to and along the Coastal Marine Area is maintained or enhanced by providing access in places and in forms which are compatible with public health and safety, sensitivity of the receiving environment and protecting the natural, historic and Ngāi Tahu cultural values of the coastal environment.<br>9.6.2.2.2 Policy – Access to and along the coast<br>a. Maintain existing public access to the Coastal Marine Area and provide additional public access where:<br>i. there is demand for public access;<br>ii. there is an acceptably low risk of danger to public health or safety;<br>iii. public access does not compromise the safe and efficient operation of jetty facilities at Lyttelton, Akaroa and Diamond Harbour; and<br>iv. public access is in a form and at a level compatible with the sensitivity of the receiving environment, including farming operations and any sites of particular ecological or cultural sensitivity.<br>b. Facilitate access by Ngāi Tahu mana whenua to and along the Coastal Marine Area for mahinga kai and other customary uses. | Public access to the coast will be maintained. The project's design will provide for continuous public access along the project area. There may be short term restrictions during the construction period for health and safety reasons, however, once the works are complete, the local and wider community will have the benefit of access to the coastal area, including in areas where it is presently unavailable. |
| 9.6.2.2.1 Policy – Effects of activities on the coastal environment<br><br>a. Ensure that subdivision, use and development is of a scale, and located, to maintain and protect the values of the coastal environment, including:<br>i. indigenous biodiversity and the dynamic, complex and interdependent processes of ecosystems;<br>ii. natural features and landscapes;<br>iii. natural character, including the natural integrity and functioning of contributing and associated coastal processes;<br>iv. historic heritage, recognising that historic heritage may span the line of mean high water springs;<br>v. Ngāi Tahu cultural values;<br>vi. visual quality and amenity values; and<br>vii. recreation values. | The project has a functional need to be located adjacent to the coastal edge. As specified infrastructure, the edge protection and inundation bund work in tandem to provide protection to the estuary edge from further coastal erosion and to protect the community from inundation during high water events in the Estuary.<br><br>The location and design have been determined through striking a balance between the need to protect the edge, ensure no more land is lost to the CMA, and to respect the needs of landowners along the alignment. Where indigenous vegetation (in the form of saltmeadow) is to be lost, an offset area has been identified to ensure that there is no net loss of indigenous biodiversity because of the project. |

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| b. Recognise and provide for the operation, maintenance, upgrade and development of strategic infrastructure and utilities that have a technical, locational or functional need to be located in the coastal environment. | The technical assessments have assessed the various actual and potential effects of the project, and overall have determined, as discussed in the Assessment of Effects section, that any adverse effects are no more than minor. Overall, the project is consistent with this Policy. |
| 9.6.2.2.3 Policy – Extent of the coastal environment | A conservative approach is taken to the extent of the coastal environment for this Project, as stipulated by Policy 1 of the NZCPS. It is considered that the majority of this Project sits within the coastal environment. |
| Chapter 13.11.2 Specific Purpose (Flat Land Recovery) Zone | |
| 13.11.2.1 Objective – Activities in the Specific Purpose (Flat Land Recovery) Zone<br><br>a. A largely open environment with a very low density of residential and non-residential activities, that:<br>i. reflects the changes in land uses in the area, including building clearance;<br>ii. recognises the natural hazard risks affecting many properties;<br>iii. recognises the infrastructure limitations of the area;<br>iv. acknowledges the interim nature of this Zone; and<br>v. maintains the longer-term potential of the area to contribute to the recovery and future enhancement of Christchurch.<br>13.11.2.1.3 Policy – Management of effects<br>a. Manage activities within the Specific Purpose (Flat Land Recovery) Zone to:<br>i. reduce adverse amenity effects on occupied residential properties and effects at the interface with surrounding residential zones;<br>ii. sustain the qualities and values of the natural environment. | The Project as stipulated will provide a much-enhanced open environment, following the clearance of residential housing. There is an improvement to landscape, recreational and amenity value with the Project providing enhancement in these areas.<br><br>This is an earthquake legacy Project which recognises and accounts for the inundation and erosion hazard that the CES has created. The Project will protect the mixture of public and private assets within and surrounding the Specific Purpose (Flat Land Recovery) Zone.<br><br>Effects on adjacent landowners will be managed through conditions of consent, including restrictions around hours of operation. The Council has engaged with landowners that immediately about the alignment where necessary, and their particular wishes around privacy have been taken into account.<br><br>Overall, the project will enhance the values of the natural environment. The estuary edge will be protected from further erosion, and opportunities for the public to engage with the estuary and coastal edge will be enhanced. |
| 13.11.2.1.1 Policy – Residential activities<br><br>a. Provide for the use of existing privately owned sites for residential activities, to the extent compatible with the natural hazard risks and infrastructure limitations | Existing privately owned sites adjacent to the alignment have been taken into account in the design, and the discussions held with these parties have confirmed the design approach that is intended to maintain their privacy while providing for the public to pass by particular properties. The Project will cross some private properties. These have been discussed at length in Section 7.2.9 and written approval is being sought from the directly impacted landowners. |

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| 13.11.2.1.2 Policy – Non-residential activities<br><br>a. Only provide for the following non-residential activities:<br>...<br>iii. temporary activities, land management activities, water or hazard management or mitigation activities, and | The Project is provided for by this Policy. It is considered to be hazard mitigation as it is reinstating the Estuary edge to prevent further erosion, as well as providing for protection for the community from inundation during high water events in the estuary through the construction of the inundation bund. |
| Chapter 18.2 Open Space<br>18.2.1.1 Objective - Provision of open spaces and recreation facilities<br><br>A network of open spaces and recreation facilities that:<br>provides a diversity in the type and size of open spaces and recreation facilities to meet the current and future recreation, cultural, health and wellbeing needs of the community;<br><br>contributes to the earthquake recovery of Christchurch and revitalised communities where people enjoy a high quality urban environment and enhanced opportunities for recreation;<br><br>is accessible and distributed to meet the demands generated by population growth, urban intensification and areas of identified deficiency;<br>provides users with a pleasant and safe environment;<br><br>enables temporary and multifunctional uses;<br><br>maintains and enhances amenity values, connectivity and public access, where appropriate;<br><br>recognises and provides for the historic and contemporary relationship of Ngāi Tahu with Christchurch District's land and water resources, and reflects their cultural values;<br><br>recognises and provides for the district's indigenous biodiversity; and<br>maintains and enhances public access to and along the coast. | The proposal will not have a positive net impact on recreational use. Protection of the Estuary edge will ensure that no more land in the open space adjacent to the Estuary will be lost to coastal erosion.<br><br>Public access along the coastline will be maintained, and in many cases enhanced, though the creation of the bund and path on top that will allow for walkers and cyclists along the coastal margin.<br><br>The project has been designed in consultation with mana whenua, and indigenous biodiversity will be maintained and enhanced through the Landscape Management Plan. Cultural values of the area will also be enhanced through improved access for mahinga kai and storytelling through the Landscape design.<br><br>Dilapidated structures will be removed enhancing the visual amenity and safety of the Project area.<br><br>There will be a net gain in areas of saltmeadow as a result of the offset area proposed to account for the removal of some areas of salt marsh.<br><br>Overall, the project will not detract from the features of the coastal environment or detract from the amenity of the coastal environment.<br><br>The project is consistent with these provisions. |

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| 18.2.1.2 Objective - Natural open space, water bodies and their margins<br><br>The inherent qualities of natural open spaces and water bodies are protected, maintained and enhanced, including:<br><br>the natural character, biodiversity, mahinga kai values, health and life supporting capacity of water bodies, their margins and the adjacent open spaces; and<br><br>ecosystems and indigenous biodiversity, including habitats of indigenous fauna.<br>Accessibility of natural open spaces and water bodies and their margins is maintained and, where appropriate, enhanced, for the enjoyment of:<br>their amenity values;<br><br>a range of compatible recreation activities and recreation facilities; and<br>cultural and mahinga kai values.<br><br>18.2.2.1 Policy – The role of open space and recreation facilities<br><br>Avoid activities that do not have a practical or functional need to be located within open space.<br><br>18.2.2.4 Policy - Water bodies and their margins<br><br>Maintain and enhance the natural character, biodiversity, health and life supporting capacity of water bodies and their margins by:<br>limiting development and activities in the vicinity of water bodies to those activities which have a practical and functional need to be located within these areas; and<br><br>rehabilitation of water bodies and their margins and encouraging indigenous vegetation planting. | |

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| Retain and enhance recreation opportunities and public access, where appropriate, to and along water bodies through provision of esplanade reserves or strips, or creation of adjacent open space parks.<br>Recognise the cultural significance of water resources to Ngāi Tahu and ensure they are managed to maintain and enhance mahinga kai and, where appropriate, Ngāi Tahu whānui access to these resources.<br><br>18.2.2.5 Policy - Environmental effects<br><br>Ensure activities and the scale, layout, and design of open spaces and/or the facilities within them are appropriate to the locality and context, and any adverse effects on the amenity values of neighbours, Ngāi Tahu cultural values, conservation activities and programmes, and the wider community are managed, through:<br><br>providing sufficient separation distances and limiting the height of buildings; limiting the floor area and site coverage;<br><br>requiring landscaping and screening;<br><br>mitigating adverse noise, glare, dust and traffic effects;<br><br>restricting the types, duration, hours of operation and frequency of activities; minimising disturbance of natural landforms, cultural landscapes identified in the District Plan, ecosystems or indigenous biodiversity, including fauna habitats;<br><br>avoiding impacts on mahinga kai;<br><br>requiring building setbacks from the banks of water bodies;<br><br>encouraging the planting and maintenance of indigenous vegetation in the setback margins of water bodies; and | |

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| controlling the volume and depth of filling and excavation within the water body setbacks, and removal of vegetation.<br>Ensure the scale, layout, and design of facilities, buildings and structures is consistent with the role and function of the open space, and its anticipated level of spaciousness and character.<br><br>Minimise potential impacts of development within the open space zones on the operation of the Christchurch International Airport by avoiding development which could give rise to reverse sensitivity effects.<br><br>Protect the National Grid and identified electricity distribution lines by avoiding buildings, structures and sensitive activities in the open space zones within setback corridors.<br><br>18.2.2.6 Policy - Flood protection<br><br>Recognise and provide for flood hazard mitigation and protection works when undertaken by the Council, the Canterbury Regional Council or the Crown having regard to potential adverse effects.<br><br>18.2.2.8 Policy - Access to and along the coast<br><br>Ensure public access to and along the coast, including for public use and appreciation:<br><br>is maintained and enhanced, including Ngāi Tahu mana whenua access to mahinga kai and other customary uses, wāhi tapu and wāhi taonga;<br>does not adversely affect the relationship of Ngāi Tahu mana whenua with their ancestral lands, water and sites;<br><br>is maintained and enhanced in places where existing access is provided; and<br>does not give rise to the destruction of features of the coastal environment or detract from the amenity of the coastal environment. | |

### 10.3.6.5 Christchurch City Plan

Until the coastal hazards provisions are added to the Christchurch District Plan, the following policies in the City Plan are still in effect.

Table 29 Relevant Objectives and Policies of the Christchurch City Plan

| Objectives/Policies | Analysis |
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| *Policy 2.5.2 – Limitations on development*<br><br>*To avoid any increased risk of adverse effects on property, wellbeing and safety from natural hazards by limiting the scale and density of development, which:*<br><br>*(a) is within an area subject to moderate to high risk of damage from natural hazards; or*<br><br>*(b) would result in an increased risk of damage from natural hazards elsewhere; or*<br><br>*(c) would adversely affect the functioning of existing flood protection works.*<br><br>*Policy 2.5.4 – Sea level rise*<br><br>*To avoid higher density forms of built development, and adverse effects from inundation, in areas that are projected to*<br><br>*be subject to increased flood levels as a result of accelerated sea level rise* | The Project is not facilitating any additional development of public and private infrastructure. It is providing a level of protection to existing public and private infrastructure that existed prior to the CES. |
| *Policy 2.5.9 – Works*<br><br>*To undertake works to avoid or mitigate the adverse effects of natural hazards as a supplementary measure to regulation of activities, and the provision of information* | It is considered that this erosion protection and inundation provided as part of the Project is a commensurate response following the damage to the area in the CES. An adaptation plan is still to be worked through for these communities. These works will provide a level of protection enjoyed prior to the CES. |
| *Policy 2.6.3 – Coastal development* | This Project is considered to be entirely consistent with this proposal with the inundation and erosion protection works specified. |

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| *To avoid or mitigate the adverse effects of erosion and flooding in the coastal environment* | |
| *Policy 6.3A.6 - Hazards*<br><br>*To ensure that development is avoided, or limited in scale or density in areas subject to natural and other hazards, particularly flooding, erosion, or potential sea level rise, unless these hazards can be adequately remedied or mitigated.* | The Project is not facilitating any additional development of public and private infrastructure. It is providing a level of protection to existing public and private infrastructure that existed prior to the CES. The hazards present in the Project area (inundation and erosion) are being appropriately remedied / mitigated for this Project to pre-earthquake levels. |

### 10.3.7 Section 104(1)(c)

This section of the RMA states that the consent authority may have regard to any other matter that is considered relevant. The following plans and documents are considered relevant matters pursuant to section 104(1)(c):

- National Adaptation Plan
- Mahaanui Iwi Management Plan, and
- Avon-Heathcote Ihutai Management Plan 2020.

#### 10.3.7.1 National Adaptation Plan

New Zealand's first National Adaptation Plan was published in August 2022. The National Adaptation Plan outlines a range of Government-led strategies, policies and proposals that will help New Zealanders adapt to the changing climate and its effects. The current relevant direction in the National Adaptation Plan is provided below.

To assist local government, make good decisions about where and how to develop in the face of climate risk, the Government published interim guidance on the use of new sea-level rise projections in July 2022. The interim guidance updates the Coastal hazards and climate change: Guidance for local government (coastal hazards guidance). A full update to the coastal hazards' guidance will be published in 2023. The interim guidance is non-statutory. However, from 30 November 2022, councils will be required to 'have regard to' this plan when making or changing regional policy statements or regional or district plans.

At this stage, the National Adaptation Plan is relevant to Councils during the plan making process. There is no similar requirement for the resource consent process, as this will follow once the National Adaptation Plan has influenced the development of regional and district policy.

The community raised concerns to council about the increased erosion and inundation risk. This resulted in council investigating options to address the effects of the CES and return a level of service that existed prior to the earthquakes. The community concerns underpin the objectives of the Project which were to hold erosion where it was

and not lose more land. From this process Councillors approved the options that were recommended by the council and supported by the community. The recommended options were:

- An inundation bund located approximately 5m from the estuary edge in Southshore and set further back in South New Brighton Park.
- Estuary edge protection along Southshore to replace failed private structures, protect the bund and stop further erosion comprising sections of cobble beach and rock revetment
- Estuary edge protection along South New Brighton Park to replace failed gabion baskets made up of a mix of gabion baskets and cobble beach.

The proposed approach allows time for council to work with the community about wider climate change adaptation. This project is based on addressing present day inundation and erosion risk and water levels and for structures with a minimum of 20-year design life. The intent was not to develop options to address climate change at this time as the council is currently underway with their Coastal Hazards Adaptation Program (CHAP), which will work with the local community to develop specific adaptation plans. Any decisions on the future use of or adaptation of the proposed inundation and erosion protection will be made with the community under the CHAP process.

#### 10.3.7.2 Mahaanui Iwi Management Plan 2013

The Iwi Management Plan (IMP) is an expression of kaitiakitanga and rangatiratanga, and is a man whenua planning document that reflects the collective efforts of six Papatipu Rūnanga that represent the hapū who hold man whenua rights over lands and waters within the Christchurch takiwā from the Hurunui River to the Hakatere River and inland to Kā Tiritiri o Te Moana.

As the plan identifies, it provides a values-based, plain language policy framework for the protection and enhancement of Ngāi Tahu values, and for achieving outcomes that provide for the relationship of Ngāi Tahu with natural resources across the Christchurch area.

The plan has the mandate of the six Papatipu Rūnanga, and is endorsed by Te Rūnanga o Ngāi Tahu, as the iwi authority. As such, it is applicable to policy and planning processes under the Resource Management Act (RMA) 1991. The relevant provisions are identified as assessed in Table 30 below.

Table 30 Relevant Objectives and Policies of the Mahaanui Iwi Management Plan 2013

| Objectives/Policies | Analysis |
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| Part 5.3: Wai/Water<br><br>Objective 3 | The proposal is considered to be consistent with the provisions of the Mahaanui Iwi Management Plan. The Applicant has engaged with mana whenua throughout the development of the concept design of the Project.<br><br>During this engagement the Trust and Council have adopted a partnership approach through the Project and the Trust have provided input into |

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| Water and land are managed as interrelated resources embracing the practice of Ki Uta Ki Tai, which recognises the connection between land, groundwater, surface water and coastal waters).<br><br>Policy 2.2<br><br>Water is recognised as essential to all life and is respected for its taonga values.<br><br>Policy 6.8<br><br>Oppose the discharge of contaminants to water and to land where contaminants may enter water.<br><br>Part 5.4: Papatūanuku/Land<br><br>Objective 1<br><br>The mauri of land and soil resources is protected.<br><br>Policy 6.2<br><br>Oppose the use of existing natural waterways for the treatment and discharge of stormwater.<br><br>Policy 11.9<br><br>To require stringent and enforceable controls on land use and earthworks activities to protect waterways and waterbodies from sedimentation.<br><br>Part 6.5: Ihutai Catchment<br><br>Objective 3<br><br>Ngai Tahu sense of place and identity is enhanced through the restoration of the cultural health of the Ihutai catchment.<br><br>Objective 6 | landscape design and design solutions to enhance the cultural values of the area. Early and consistent engagement has ensured that mana whenua have had an appropriate level of participation, which is ongoing.<br><br>Overall, both land and water quality will be protected during construction, largely through the implementation of robust erosion and sediment control measures and overarching CEMP. An ESDCP will be required to be prepared by a SQEP and certified by the Council prior to the commencement of works on the site.<br><br>The contractor will be responsible for having spill prevention, and response measures will be in place to prevent accidental discharges to the Avon-Heathcote Estuary throughout the construction process.<br><br>Overall, given the consistent and early engagement with the Trust, the proposal is considered to be consistent with the objectives and policies of the Mahaanui Iwi Management Plan. |

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| The restoration and enhancement of indigenous biodiversity is an essential part of the image and brand of Otautahi<br><br>Policy 6.2 Physical Modification of Waterways<br><br>Policy 7.1 Nga Kaupapa | |

#### 10.3.7.3 Avon-Heathcote Ihutai Management Plan 2013

The Avon-Heathcote Ihutai Management Plan is a non-statutory plan prepared by the Avon-Heathcote Estuary Ihutai Trust, and contains goals relating to the management of the Avon-Heathcote Estuary, including:

- Promoting clean water.
- The Estuary and its surrounds supports healthy ecosystems.
- Wise management of open space.

It is considered that the proposed Project aligns conflict with the goals of the Ihutai Management Plan. It is noted that the goals are largely consistent with the Christchurch District Plan objectives and policies relating to the Open Space Natural zone. The works have been designed to have a low profile and only intrude into the CMA in small areas. Construction phase controls will be in place to protect the Estuary from uncontrolled or sediment laden stormwater during the construction phase.

## 10.4 Summary of s104 Assessment

Having considered the provisions of the relevant statutory and non-statutory documents as required by section 104, overall, it is considered that the proposed activities for which consent are required are not contrary to the relevant provisions of these documents. The proposal is therefore consistent overall with the Objectives and Policies of these documents.

## 10.5 Section 104D

Overall, after bundling all of the activities together under the relevant Plans consent is required for the Project as a non-complying activity. Under Section 104D a consent authority may grant a resource consent for a non-complying activity only if it is satisfied that

a. The adverse effects of the activity on the environment will be minor; or

b. The application is for an activity that will not be contrary to the objectives and policies of relevant planning instruments.

Based on the AEE in Section 8 it is concluded that the effects of the Project are no more than minor. Also, based on the conclusions of the objectives and policies of the relevant planning instruments it is also concluded that the Project is consistent with these instruments.

Given the assessment of the above the Project team conclude that both limbs of the s104D test are satisfied.

# 11. Conclusion

Christchurch City Council are seeking to address earthquake legacy erosion and inundation concerns. Council is proposing to construct improved inundation and erosion protection at Southshore and South New Brighton Park to address the impacts of the Canterbury Earthquake Sequence (CES) on the estuary edge and communities. As a result of the CES there was subsidence of the land and damage to existing hard protection structures along the edge of South New Brighton Park and Southshore. The lowering of and damage to structures has led to more regular overtopping of the coastal edge which has been causing erosion of the estuary edge. The lowering of land also increased costal inundation risk from the estuary.

A comprehensive AEE has been developed to shape the Project. This Assessment of Effects on the Environment (AEE) supports the application for the necessary resource consents from ECan and CCC to construct the chosen designs. Detailed technical investigations into the existing environment have been undertaken covering, coastal processes, terrestrial ecology, estuarine ecology, avifauna and herpetology (lizards), landscape and visual, recreational values, arboriculture, archaeology and flooding issues. These are detailed in technical reports appended to this AEE. The environmental values identified have led to refinements to designs to manage and reduce potential adverse effects. Through the process council have been engaging with local residents and other stakeholders around the approach. Mana Whenua (Te Ihutai Ahu Whenua Trust) have been engaged with the projects landscaping elements.

Overall, after recognising the context of the receiving environment and the nature of the existing infrastructure, as well as taking into account the proposed positive effects (such as a net declamation of 879 $m^2$) of the Project and the proposed construction methodology, the effects of the proposal are considered to be no more than minor.