

**Before the Decision Makers appointed by the
Canterbury Regional Council**

IN THE MATTER OF The Resource Management
Act 1991

AND

IN THE MATTER OF Application CRC242267,
CRC242268, CRC242269 and
CRC251999 by Christchurch
City Council for a land use (s9)
consent to use land for
earthworks and vegetation
clearance within 10m of a
natural inland wetland; For a
coastal permit (s12) to disturb
the foreshore and seabed, to
deposit material on the
foreshore and seabed, to erect
a structure, to occupy the
Coastal Marine Area and to
reclaim the Coastal Marine
Area; For a discharge permit
(s15) to discharge construction
phase stormwater within 10m
of a natural inland wetland and
to discharge contaminants to
land; and For a discharge
permit (s15) to discharge
contaminants to air.

Section 42A Officer's Report

Date of Report: 11 November 2025

REPORT OF OLIVIA MURRAY

1. My name is Olivia Elizabeth Murray, and I have been employed by the Canterbury Regional Council (CRC) as Consents Planner since July 2022. I hold a Bachelor of Science majoring in Geology from the University of Canterbury. I have experience in processing applications for water permits, gravel extractions, coastal permits, earthworks and stormwater.
2. This report is prepared under the provisions of Section 42A of the Resource Management Act 1991 (RMA). This section allows a Council officer to provide a report to the decision-maker on a resource consent made to the Council and allows

the decision-maker to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker to request and receive from any person who makes a report under Section 42A of the RMA *"any information or advice that is relevant and reasonably necessary to determine the application"*.

3. This report will provide the decision-makers with information and advice related to:
 - a. The background to the application;
 - b. Details of the notification of the application and submission received;
 - c. An outline of the relevant legal and planning provisions;
 - d. Comments on the assessment of environmental effects provided;
 - e. Details of regional policy relevant to the applications;
 - f. Recommendations in relation to the matters specified in Part 2 of the RMA; and
 - g. Recommendations on the decision to be made by the decision-maker including:
 - i. On whether the application can be granted or should be declined;
 - ii. If the application is to be granted what measures are required to avoid, remedy or mitigate any adverse effects; and
 - iii. What monitoring should be undertaken; and
 - h. The duration of the consent.
4. This report also draws on technical reports provided by the following:
 - a. Appendix 1: Ms Alice Butler (CRC Scientist – Contaminated Land);
 - b. Appendix 2: Mr Mitchell Green (CRC Scientist – Groundwater Resources);
 - c. Appendix 3: Mr Philip Grove (CRC Principal Scientist – Land Ecology Science)
 - d. Appendix 4: Mr Jeremy Head (Boffa Miskell – Landscape Architect);
 - e. Appendix 5: Ms Melanie Burns (CRC Senior Scientist – Water Ecology Science);
 - f. Appendix 6: Mr Bruce Gabites (CRC Senior Scientist – Natural Hazards Science).
5. Each expert has prepared a report under the provision of Section 42A of the RMA, supporting the key conclusions that are referenced in this report. The reports are attached to this report as Appendices 1 to 6, respectively.
6. This report will highlight gaps in the information supporting the application and will make recommendations as to how these gaps may be addressed by the Applicant.
7. Any further changes to the proposal and mitigation may affect the conclusions of this report. Where feasible, I will comment on the implications of any changes made during the course of the hearing. Where this is not feasible a separate addendum report may be required.
8. It should be emphasised that any conclusions reached, or recommendations made in this report are not binding on the decision-makers. It should not be assumed that the decision-makers will reach the same conclusion or decision having considered all the evidence to be brought before it by the applicant and submitters.

INTRODUCTION

9. Christchurch City Council (the applicant) has applied for resource consents to upgrade the **inundation protection structures and erosion protection measures** at two locations in Te Ihutai / Avon Heathcote Estuary, at Southshore and South New Brighton Park, within the Coastal Marine Area (CMA) and the adjacent land as shown in Figure 1 below and has applied for:
 - a. A land use permit (CRC242267) to undertake earthworks and vegetation clearance;
 - b. A coastal permit (CRC242268) to disturb the foreshore and seabed, deposit material on the foreshore and seabed, to erect a structure, to occupy the Coastal Marine Area and to reclaim the Coastal Marine Area;
 - c. A discharge permit (CRC242269) to discharge construction phase stormwater and contaminants to land; and
 - d. A discharge permit (CRC251999) to discharge contaminants to air.
10. The proposed works involve the below activities:
 - a. Reclaim part of the foreshore or seabed;
 - b. Placement of structures;
 - c. Disturb the foreshore and seabed;
 - d. Undertake earthworks within 10m of a natural wetland;
 - e. Deposit material in the foreshore and seabed;
 - f. Occupy the Coastal Marine Area associated with the inundation bunds, rock revetments, cobble beaches and gabion baskets.

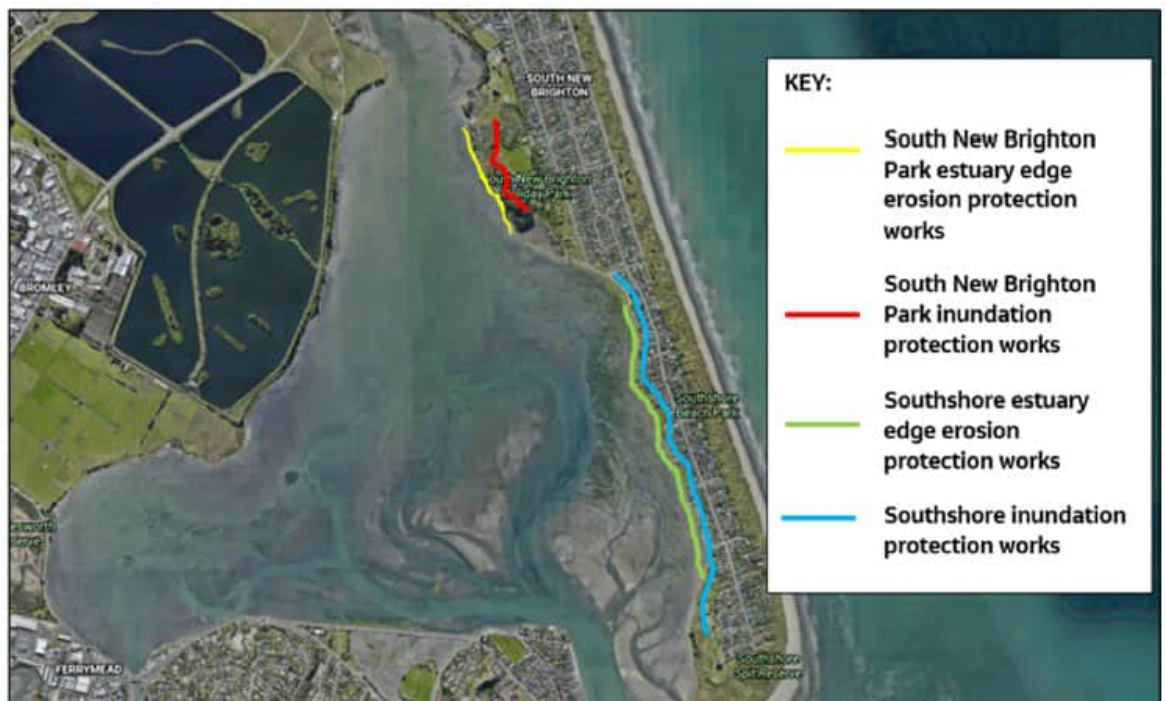


Figure 1: Site Locations

11. The original application and associated assessment of effects on the environment (AEE) has been submitted by Ryan McCone of Jacobs (the consultant) on behalf of the applicant. During the processing of this application, the consultant for this

application changed to Ms Jess Bould of Town Planning Group. I note that Ms Bould was previously with Aurecon prior to the notification of this application.

12. The application was submitted on 13 December 2023.
13. A site visit was undertaken on 17 July 2025 to assess where each of the proposed protection structures will be located along the estuary edge, and in relation to where reclamation and declamation will occur as part of the proposal.

BACKGROUND

Changes to Application Post Notification

14. Post the notification of this application, the applicant has made amendments to the proposal to mitigate effects on the environment. These include:
 - a. Removal of reclamation from the proposal with the exception of two locations; 44a Rocking Horse Road, and the middens at South New Brighton Park;
 - b. Moving the majority of the structures landward to avoid seagrass beds, Saltmarsh and Saltmeadow;
 - c. Reducing the estuary accesses to two locations at Tern Street and Godwit Street which will be stepped and greater than 30 m from any seagrass;
 - d. A soft edge beach trial at South New Brighton Park instead of a cobble beach as a natural edge;
 - e. A Saltmeadow Remediation Plan;
 - f. Monitoring and Adaptive Management Plan; and
 - g. Seagrass and Saltmarsh Management Plan, which includes mapping prior to any construction works so that any disturbance and the proposed structures such as the stepped facilities will avoid seagrass beds.

DESCRIPTION OF THE ACTIVITY

15. The purpose of the proposed works is to re-establish the erosion protection and inundation protection structures which include gabion baskets, cobble beaches, rock revetments and inundation bunds at South New Brighton Park and Southshore.
16. A duration of 10 years is sought for all construction-phase related activities, and a duration of 20 years is sought for all enduring occupation of all proposed structures to be constructed within the CMA.
17. All construction activities will be carried out in accordance with a Construction Environmental Management Plan (CEMP) which is required to be sent to Canterbury Regional Council for approval prior to works. The environmental management procedures will include, but are not limited to the below:
 - a. Ensuring that the area of physical disturbance beyond the project footprint is minimised;
 - b. The discharge of suspended sediment into the marine environment is minimised;
 - c. The potential effect of deposited sediment is minimised; construction noise and vibration is minimised;
 - d. Potential dust emissions are appropriately managed; and
 - e. Emergency response and complaints procedures are in place.



Figure 2: Overall footprint of erosion and inundation protection structure footprint (yellow) and construction boundary (red) at South New Brighton Park

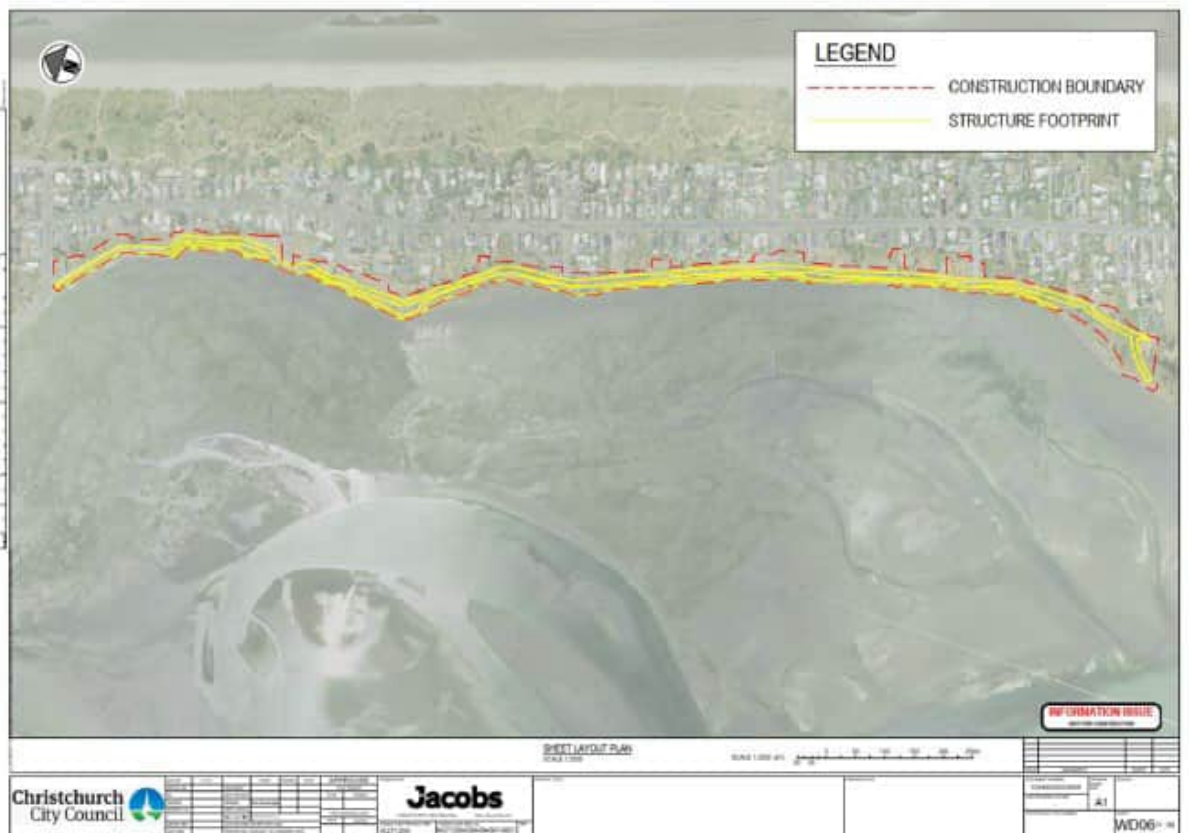


Figure 3: Overall footprint of erosion and inundation protection structure footprint (yellow) and construction boundary (red) at Southshore.

Inundation Protection works (South New Brighton & Southshore)

18. As part of the inundation protection works, the applicant proposes to construct inundation bunds at a design elevation of 11.5 m to provide protection in a 50-year return period extreme estuary water level event. The bunds will range in height from between 0.3 m and 1 m above the existing ground level.
19. The inundation bunds will have a setback of approximately 5 m from the crest of the erosion protection structures (cobble beach and rock revetment) and will also have a shared pathway, which will be provided on the top of the inundation bund.

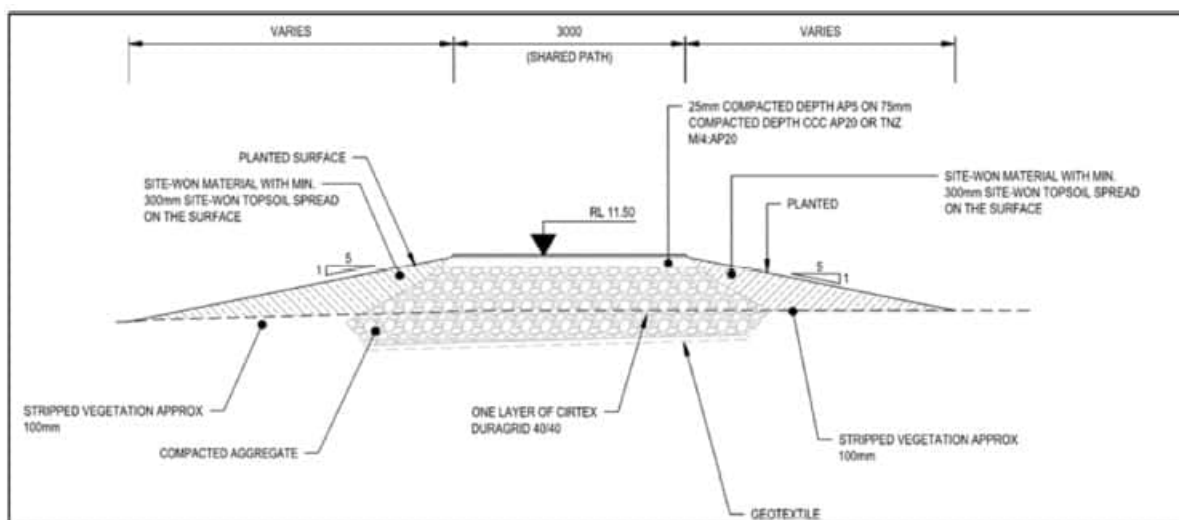


Figure 4: Inundation Bund Design

Inundation Bunds Construction Methodology

20. Inundation bunds will be constructed as follows:
 - a. Stripping of topsoil and stockpiling for future respreading.
 - b. Excavation of the existing bund and new bund to formation levels.
 - c. Placement of aggregate to compact and shape to design profile.
 - d. Placement of general fill from stockpiles to shape and compact to form final inundation bund profile and infill the erosion protection and the inundation bund.
 - e. Placement of topsoil from stockpiles adjacent to active work area, place and level.

Erosion Protection measures

Cobble Beaches

21. As illustrated in Figure 5 below, the proposed 330 metres cobble beach is a low angle loose rounded cobble stone structure with its toe places around the current failed edge protection structures of the Estuary, grading up to its design height. The crest will be placed on the current coastal edge, and the toe will be landward of the existing failed structures.
22. The cobble beach has a shallow slope (1V:6H) and generally will not involve excavation.

23. Stone material used will typically be smaller and smoother than for the proposed revetment as discussed below.

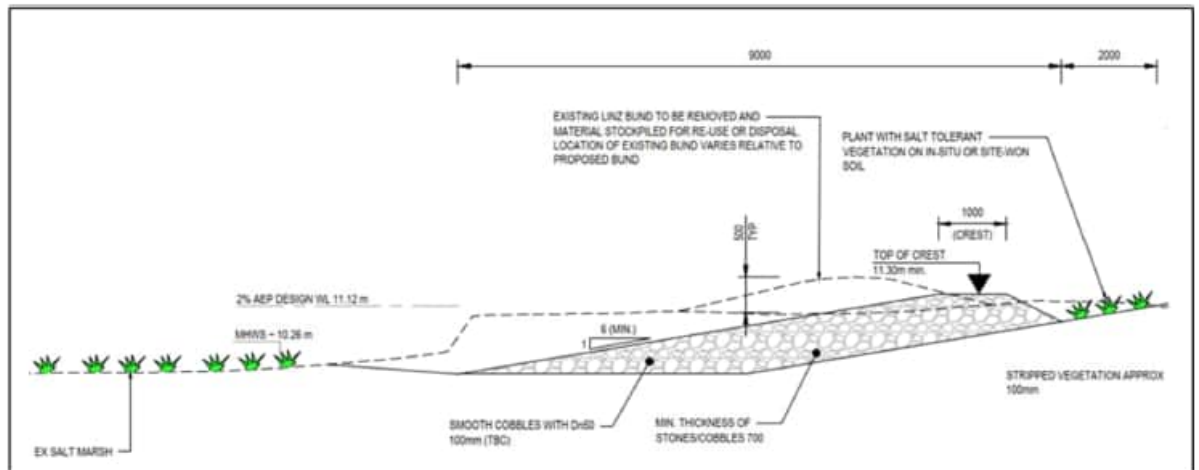


Figure 5: Cross Section of Cobble Beach

Cobble Beaches Construction Methodology

24. The applicant proposes to construct the cobble beaches as follows:
- Leftover debris from the red zone demolitions and disposed offsite at an approved facility if an option for encapsulation on site cannot be identified and consented.
 - Topsoil will be stripped and stockpiled for future respreading.
 - Disturbance to the estuary bed through excavation to formation levels and place at toe of completed rock revetment sections.
 - The cobble beach and rock revetment within the tidal zone will be placed soon after excavation to avoid the risk of erosion from wave action.

Rock Revetments

25. The applicant proposes to construct 1,230 metre rock revetments along the estuary edge.
26. Rock is steeply sloping (1V:5H) and requires excavation into the estuary bed for the toe.
27. Rock revetment will be made of larger rock material than the cobble beaches.
28. Stepped access points to the estuary will be constructed on the top of the proposed rock revetment as illustrated in Figure 7 below.

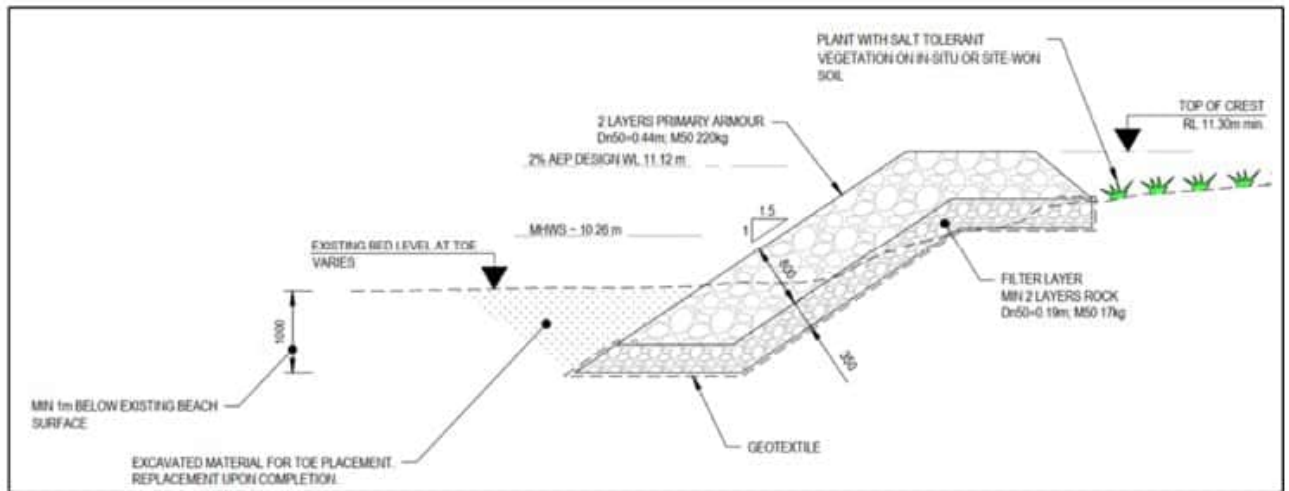


Figure 6: Cross section of Rock Revetment

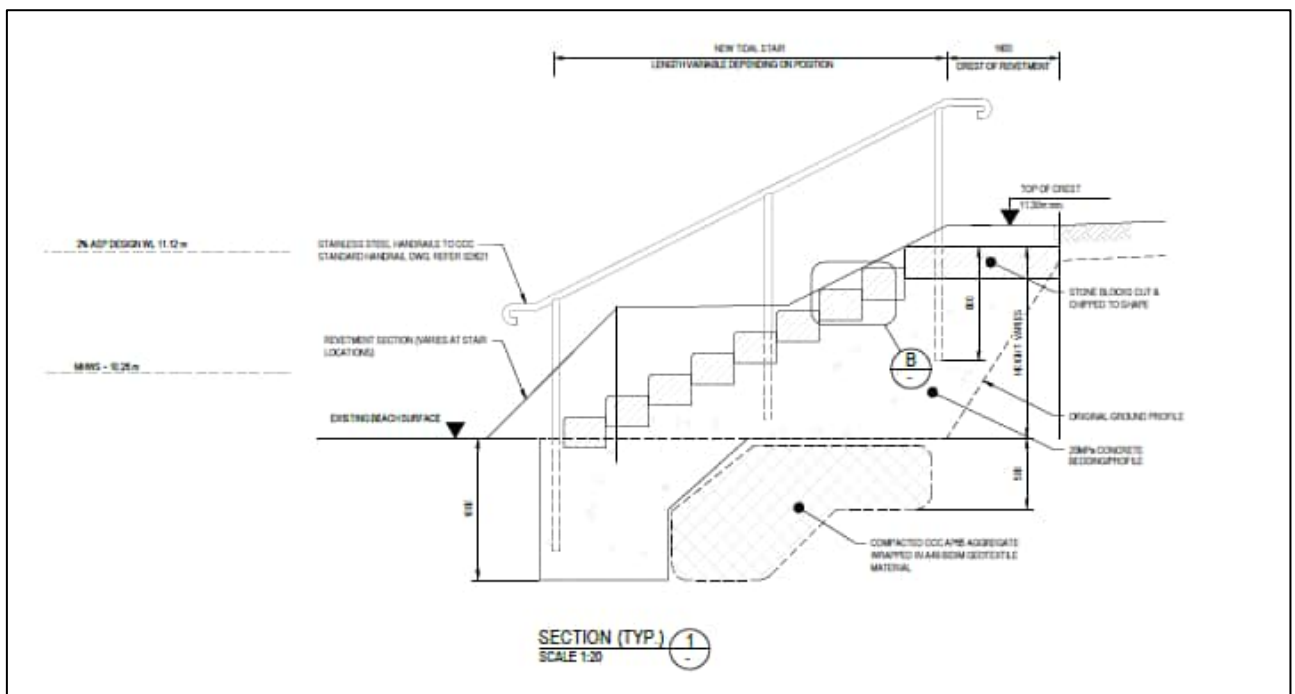


Figure 7: Cross Section of stepped access on Rock Revetment

Rock Revetment Construction Methodology

29. The applicant proposes to construct rock revetments as follows:
 - a. Rock revetments will be located within the tidal zone and will be placed soon after excavation to avoid the risk of erosion from wave action and will not occupy areas of estuary bed/mudflat.
 - b. Leftover debris from the red zone demolitions and disposed offsite at an approved facility if an option for encapsulation on site cannot be identified and consented.
 - c. Topsoil will be stripped and stockpiled for future respreading.
 - d. Excavate estuary bed to formation levels and place at toe of completed revetment sections.
 - e. The placement of geotextiles and to place rock and cobbles.

Gabion Baskets

30. Gabion basket structures will be located south of the Yacht Club for approximately 180 m and will be placed on the excavated bed and constructed to the same 11.3 metre height as the crest of other edge protection structures. The area between the placed gabions and the current eroded edge will be filled.
31. Works will result in a net reclamation of 780 m² of estuary bed.

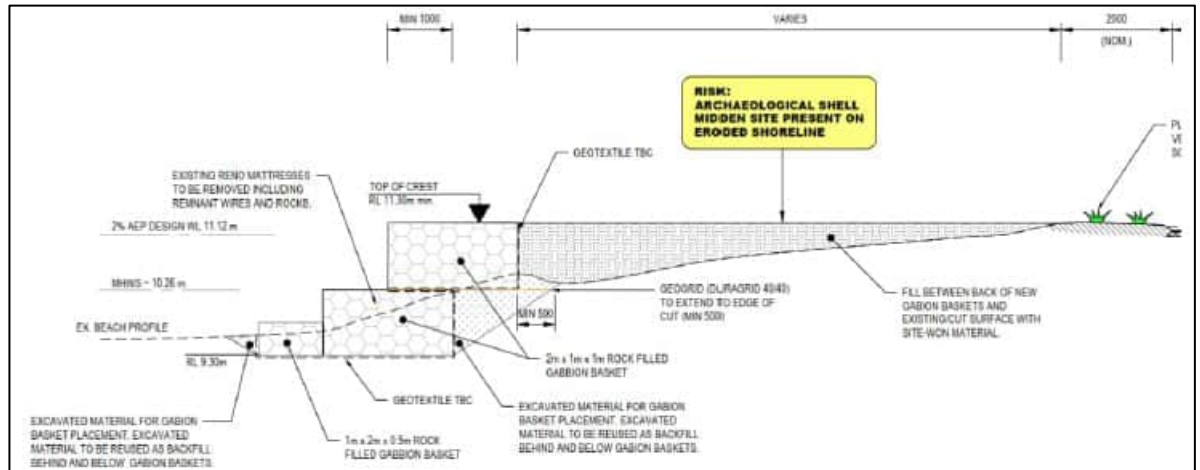


Figure 8: Cross Section of gabion baskets

Gabion Baskets Construction Methodology

32. Gabion Baskets will be installed as follows:
 - a. Debris on site will be removed and disposed of off-site.
 - b. Removal of existing reno mattresses, including remnant wires and rocks.
 - c. Stripping of topsoil and stockpiling for future respreading.
 - d. Excavation of estuary bed to formation levels and place toe of gabion baskets.
 - e. Place geotextile to design profile and placement of lower gabion baskets.
 - f. Fill and secure gabion baskets.
 - g. Place estuary bed material from temporary stockpiles as backfill behind the gabion baskets, encapsulating midden on the eroded shoreline.
 - h. Place geogrid and geotextile as per the cross section in Figure 7 above, and placement of the upper gabion basket.
 - i. Placement of estuary bed material at toe embedded at the gabion basket, and behind the crest to achieve a minimum ground elevation of 11.3 m CDD.

44a Rocking Horse Road

33. The applicant has proposed an inundation bund and a rock revetment specific for this section of Southshore as there is limited land available. There will be no separation between the inundation bund and rock revetment as shown in attached Plan CRC242268E in Appendix 8.
34. The rock revetment face will be armoured due to its proximity to the edge and potential wave effects.
35. The rock revetment structure will occupy the estuary bed/mudflat and reclaim the estuary bed. The area to be reclaimed is calculated to be 476 m².

36. The construction methodology will be undertaken as described above.

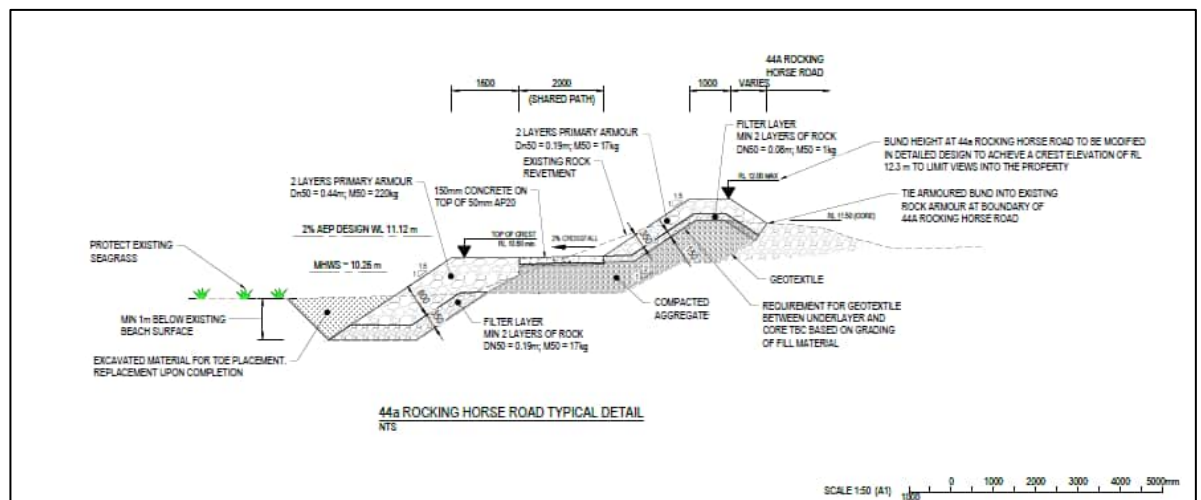


Figure 9: Cross section for 44a Rocking Horse Road

Vegetation Removal

37. Vegetation removal will be required in some locations to enable construction of the bund and allow access to working areas.
38. Vegetation to be cleared will be generally grass, trees and small shrubs. Some indigenous vegetation landward may be cleared.
39. Approximately 0.17 hectares of Saltmeadow is proposed to be removed as part of the proposed vegetation clearance.

Earthworks

40. The applicant states that the maximum depth of earthworks landward of the CMA is expected to be 300 mm beneath the bund.
41. The maximum depth of excavation within the CMA is to be 1.2 m below the foreshore where required.
42. Groundwater is not expected to be encountered.
43. Earthwork volumes are proposed as outlined in Table 1 below:

	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

Table 1: Proposed Earthwork Volumes

Dewatering

44. The applicant does not propose to undertake dewatering as part of the construction of the proposed structures.

Construction-Phase Stormwater

45. Runoff will discharge to ground and to the estuary within the surrounding work area. Erosion and sediment control measures will be installed prior to works to prevent discharges of sediment to the CMA.
46. The applicant will be utilising the CCC global stormwater consent CRC252424 where applicable landward of the CMA.

Re-use of Contaminated Material

47. The applicant proposes to re-use contaminated or potentially contaminated soils where background concentrations allow. The applicant proposes to test soils prior to re-using them onsite.
48. The re-use of contaminated soils is proposed to be encapsulated within the proposed inundation bunds. Volumes and methodology for the encapsulation have not been provided as part of the application.
49. I note that the applicant has proposed a Construction Methodology Plan to be prepared and submitted to Canterbury Regional Council prior to works and I recommend that the methodology for the encapsulation of any reused contaminated soil or potentially contaminated soil is included in this Plan.
50. The re-use of contaminated soils will not intercept groundwater, and it will not result in any overflow or runoff entering surface water.

Reclamation and De-Reclamation

51. Reclamation of parts of the estuary bed will be required in order to facilitate the placement of the erosion protection structures at South New Brighton Park and Southshore.
52. The total area to be reclaimed is approximately 898 m² in both locations. The applicant states that 3,135 m² of the estuary bed is to be 'declaimed' leading to a net declamation of 2,237 m².
53. The applicant stated that the area between the CMA and the bund alignment is not available for the erosion protection works as that would allow the existing edge to further erode back to that point where there is a buried wall.
54. The applicant states that they have made design changes to move landward and minimise the loss of mudflat habitat, but that there are constraints, and it is impossible to shift their position further landward.
55. Overall, the reclamation is required for the specific purpose of restoring a level of estuary edge protection and inundation protection to pre-earthquake levels.

56. South New Brighton Park reclamation: the proposed structures will reclaim approximately 422 m² of mudflat habitat and estuary bed. The application also states that there will be 996 m² of new mudflat habitat created through the removal of existing structures and rock material. Overall, there will be 422 m² reclaimed.
57. Southshore reclamation: the proposed structures will reclaim approximately 476 m² of mudflat habitat. They also state that there will be 2,139 m² of new mudflat habitat created through the removal of existing structures, with an overall net gain of 1,659 m² reclaimed.

Table 18. Amount of mudflat habitat loss and creation*.

Mudflat habitat			
	SNBP	Southshore	Total across the project site
Mudflat habitat lost	422 m ²	476 m ²	898 m ²
Mudflat habitat created	996 m ²	2,139 m ²	3,135 m ²
Permanent change	+ 574 m ²	+ 1,663 m ²	+ 2,237 m ²

Table 2: Proposed Reclamation and Declamation of Mudflat Habitat

58. Reclamation material will be sourced from quarry run stone for the rock revetment and cobble beaches from a local quarry.
59. The applicant has provided design plans of the areas of reclamation (red) and declamation (blue), as shown in Figures 10 and 11 below:



Figure 10: Reclamation Area Plan for South New Brighton Park



Discharge of Dust to Air

60. The applicant proposes to operate in accordance with a dust management plan which must be submitted for approval by Canterbury Regional Council prior to works commencing. The dust management plan involves the applicant to detail best practice measures that will be taken to ensure compliance with their consent. This includes:
- a. A description of the activity that will result in the discharge of contaminant to air;
 - b. A description of how often the contaminants will be discharged;
 - c. A description of the intensity and character of the discharge;
 - d. A description of maximum duration of the effect of the discharge;
 - e. A description of the offensiveness of the discharge;
 - f. A description of the location of the discharge, including a description of the activities that occur on neighbouring properties and locations of any sensitive activities that may be affected;
 - g. An explanation as to how any adverse effects on sites that are sensitive to Ngai Tahu, such as statutory acknowledgement areas, silent file areas, or wahi tapu or wahi taonga are to be managed; and
 - h. A description of the management practices being implemented to minimise the discharge or the effects of the discharge of contaminants.

Environmental Management Plans

61. The applicant is proposing to work under the following management plans which are yet to be developed during the construction-phase to mitigate the potential effects. The below management plans must be submitted to Canterbury Regional Council for approval prior to commencing construction works. This is outlined in the proposed conditions in Appendices 7 to 10.
- a. Construction Environmental Management Plan (CEMP) – A draft is provided with the AEE;
 - b. Construction Methodology Plan (CMP);
 - c. Erosion Sediment and Dust Control Plan (ESDCP);
 - d. Contaminated Soils Management Plan (CSMP);
 - e. Heritage Management Plan;
 - f. Lizard Management Plan (LMP);
 - g. Saltmeadow Remediation Plan (SRP);
 - h. Hazardous Substances/Spill Management Plan;
 - i. Dust Management Plan (DMP);
 - j. Seagrass and Saltmarsh Management Plan (SSMP); and
 - k. Soft Edge Monitoring Plan (SEMP).

DESCRIPTION OF THE AFFECTED ENVIRONMENT

62. The affected environment is described within Section 3 of the AEE. Some additional information describing the affected environment was also provided following a request for further information.
- a. The project site is located along the western edge of the South New Brighton Spit; and the eastern edge of the Estuary; extending from South New Brighton Park to approximately 184 Rocking Horse Road.
 - b. The Te Ihutai / Avon Heathcote Estuary is tidally influenced and is part of the CMA.
 - c. The Ōtākaro / Avon River is located to the Northwest of the site, and outside of the project site.
 - d. Ground levels along the estuary (western) shoreline are considerably lower than the dunes. Levels at South New Brighton Park are around 0.5m to 1m higher than Southshore.
 - e. The site is located over the coastal confined aquifer system; the Riccarton gravels are estimated at 40 to 50 m bgl.
 - f. There are no active wells used for community supply within 200m any proposed works areas.
 - g. 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 recovery phase and has been left grassed and available for public recreation activities.
 - h. The project site sits between residential properties and intertidal flats.

- i. The Pleasant Point Yacht Club ('Yacht Club') is within the surrounding area and includes the boat ramp.
- j. The current erosion mitigation measures throughout the project area consist of a piece-meal collection of structures, including private structures which have been left behind in various states of disrepair since the demolition and clearance of properties following the Canterbury Earthquakes.
- k. The proposed works are located within an Area of Significant Natural Value under the Regional Coastal Environment Plan (RCEP).
- l. The water quality status under the RCEP in the area of the proposed works is Class Coastal CR – which is water to be managed for contact recreation and the maintenance of aquatic ecosystems.
- m. The proposed works are within Land of National Significance and Sites of Special Wildlife Significance – Department of Conservation.
- n. The Avon-Heathcote Ihutai Estuary is listed as a Prohibited Area for Vehicles under the RCEP.

Coastal Processes

- o. Geology within the area consists of sand of fixed and semi fixed dunes and beaches, sands are loose to medium dense.
- p. The proposed work area is within a wider area of low-lying coastal land, including residential areas which are protected from the open sea by a high dune ridge along the coastal (eastern) shoreline.
- q. The tidal range in the estuary can be up to 2.1 metres.
- r. The estuary has an average sedimentation rate of 1mm/yr.

Ecology

- s. The Avon-Heathcote Ihutai Estuary is listed as a Canterbury Wetland, which has been mapped through ground survey.
- t. The project area contains areas of saltmarsh meadows and seagrass beds.
- u. Within the project site, areas of support southern grass skink, classed as 'At Risk-Declining'.
- v. Avifauna species in the project site survey identified Red-billed gulls which are 'At Risk-Declining'.
- w. The overall vegetation is dominated by representative indigenous species.
- x. Epifauna present include bivalves, crabs, limpets, and snails.

Archaeological / Heritage

- y. There are no listed protected Recreational, Cultural or Historic structures or sites nearby the proposed works under the RCEP.
- z. A detailed description of the archaeological values of the area is provided in Appendix H of the AEE – Southshore and South New Brighton Park Erosion and Inundation Protection Archaeological Assessment, prepared by Underground Overground Archaeology Ltd.
- aa. There are 17 New Zealand Archaeological Sites within the proposed work environment and these are listed in the Appendix H of the AEE.

Contaminated Land

- bb. Some sites within or adjacent to the proposed works areas are listed as contaminated on CRC's Listed Land Use Register (LLUR) under the below categories:
 - i. A17 – Storage tanks or drums for fuel, chemicals or liquid waste (South New Brighton Park).
 - ii. I – Any other land (156a Rocking Horse Road, Southshore).
 - iii. G3 – Landfill Sites (Ebbtide Street, South New Brighton).
- cc. A Detailed Site Investigation (DSI) has been undertaken on the proposed sites within Appendix J of the AEE. In summary, the DSI found:
 - i. Concentrations of asbestos were above adopted human health criteria;
 - ii. The soil within the investigation area does not meet the criteria for cleanfill;
 - iii. None of the samples tested for Heavy Metals and PAH exceeded the human health criteria for recreational land use.
 - iv. Contaminant concentrations exceed the adopted background concentrations.

Cultural Values

- dd. The site is within
 - i. the rohe of Te Ngai Tūāhuriri Runanga.
 - ii. A Coastal Statutory Acknowledgment Area – Banks Peninsula.
 - iii. A Runanga Sensitive Area – Nga Wai & Nga Tūrangā Tupuna.
 - iv. The Takutai Moana Act Application Areas: Ngai-Tu-ahu-riri-hapu.
- ee. In addition to the above, the entire site is subject to Customary Marine Title applications from Te Runanga o Ngai Tahu and Te Ngai Tūāhuriri Runanga.

Consents in the Area

- ff. The following consents are adjacent to or are within the project footprint for the proposed works, and there is no proposed effects on these consented activities due to the proposed activities in the area.
 - i. CRC145555: Coastal Permit (s12) to occupy the CMA for stormwater outfall structures along Southshore estuary edge. Held by CCC and expires 16 May 2049.
 - ii. CRC193248: Coastal Permit (s12) to occupy the CMA for repairs to stormwater outfall structures along Southshore estuary edge. Held by CCC and expires 15 May 2039.
 - iii. CRC156492: Coastal Permit (s12) to occupy the CMA for a slipway at the Pleasant Point Yacht Club. Held by Pleasant Point Yacht Club (Inc) and expires 18 May 2050.
 - iv. CRC191613: Coastal Permit (s12) to occupy the CMA for a stormwater outfall structure at the Pleasant Point Yacht Club. Held by Pleasant Point Yacht Club (Inc) and expires 24 October 2053.

History of the Te Ihutai / Avon Heathcote Estuary

63. The Te Ihutai / Avon Heathcote Estuary has two main channels into the estuary, from the Ōtākaro / Avon River and the Ōpāwaho / Heathcote River. Since the main channel where the two river channels meet evolved into its current position pre-1940's, it has been relatively stable.
64. The Christchurch Earthquake Sequence (post 2010) has impacted the area with a decrease in the area of the estuary covered at high and low tides, hence an increase in the area exposed by mid tide. This uplift also resulted in an impact on the wave energy distribution through the estuary, with less wave energy occurring due to shallower depths and shortened inundation at high tide.
65. This area of coast is dynamic, with continuous migration of the end of the spit, residential development and encroachment which has occurred over the years for the specific areas of the proposal.

CONSULTATION

66. Following lodgement, the Canterbury Regional Council (CRC) informed the following party of the application on 18 January 2024:
 - a. Te Ngai Tūāhuriri Rūnanga.
67. No return correspondence was received from the above party informed of the application as of the requested response date of 25 January 2024.
68. The applicant identified several potentially adversely affected parties for this proposal and obtained written approvals from the following parties:
 - a. Te Ihutai Ahuwhenua Trust;
 - b. Pleasant Point Yacht Club Inc;
 - c. 44a Rockinghorse Road;
 - d. South Brighton Holiday Park;
 - e. 1/184B Rocking Horse Road;
 - f. 172d Rocking Horse Road; and
 - g. 168a Rocking Horse Road.
69. The applicant was unable obtain written approval from 78 Rocking Horse Road.
70. The applicant advised groups who have applied for Customary Marine Title Status under the Marine and Coastal Area (Takutai Moana) Act of the application. The groups contacted were Te Runanga o Te Ngai Tahu and Ngai Tūāhuriri.

LEGAL AND PLANNING MATTERS

The Resource Management Act 1991 (RMA)

71. Section 9 of the RMA states that:

Restriction on use of land

“(1) No person may use land in a manner that contravenes a national environmental standard unless the use—

- (a) Is expressly allowed by a resource consent; or*
- (b) Is allowed by section 10; or*
- (c) Is an activity allowed by section 10A; or*
- (d) Is an activity allowed by section 20A.*

- (2) No person may use land in a manner that contravenes a regional rule unless the use—
 (a) is expressly allowed by a resource consent; or
 (b) is an activity allowed by section 20A.

72. Therefore, if the proposed earthworks and vegetation clearance does not meet the relevant permitted activity rules a resource consent is required.

73. Section 12 of the RMA states that:

- “(1) No person may, in the coastal marine area,—
 (a) reclaim ... any foreshore or seabed; or
 (b) erect, reconstruct, place, alter, extend, remove, or demolish any structure or any part of a structure that is fixed in, on, under, or over any foreshore or seabed; or
 or
 (c) disturb any foreshore or seabed (including by excavating, drilling, or tunnelling) in a manner that has or is likely to have an adverse effect on the foreshore or seabed (other than for the purpose of lawfully harvesting any plant or animal); or
 (d) deposit in, on, or under any foreshore or seabed any substance in a manner that has or is likely to have an adverse effect on the foreshore or seabed; or
 (e) destroy, damage, or disturb any foreshore or seabed (other than for the purpose of lawfully harvesting any plant or animal) in a manner that has or is likely to have an adverse effect on plants or animals or their habitat; or
 (f) introduce or plant any exotic or introduced plant in, on, or under the foreshore or seabed; or
 (g) destroy, damage, or disturb any foreshore or seabed (other than for the purpose of lawfully harvesting any plant or animal) in a manner that has or is likely to have an adverse effect on historic heritage—

unless expressly allowed by a national environmental standard, a rule in a regional coastal plan as well as a rule in a proposed regional coastal plan for the same region (if there is one), or a resource consent.

- (2) No person may, unless expressly allowed by a national environmental standard, a rule in a regional coastal plan or in any proposed regional coastal plan for the same region, or a resource consent,—

- (a) occupy any part of the common marine and coastal area; or
 (b) remove any sand, shingle, shell, or other natural material from that area.

74. The proposal includes the occupation of the CMA, the erection, use and maintenance of structures that are fixed to the seabed, disturbance of the seabed, and the deposition of material on the seabed. As these activities are not expressly allowed by a National Environmental Standard or a rule in a regional plan, a resource consent is required.

75. Section 89A of the RMA “applications affecting navigation to be referred to Maritime New Zealand” applies to this proposal. This application includes the disturbance and deposition of the foreshore and seabed in the CMA (Section 89A(1)(a)(ii)).

76. Section 89A(2) requires a local authority to send a copy of the application to Maritime New Zealand (MNZ), who under section 89A(3) must report on any navigational related matters.

77. Mr Ian Fox, Regional Harbourmaster at CRC, has advised that there are no navigation safety concerns for the proposal.

78. Under an agreement between the Harbourmaster and MNZ, it is not necessary to inform MNZ.

79. Section 15 of the RMA states that:

“Discharge of contaminants into the environment

- (1) “No person may discharge any —
 (a) Contaminant or water into water; or

- (b) Contaminant onto or into land in circumstances which may result in that contaminant (or any other contaminant emanating as a result of natural processes from that contaminant) entering water; or
 - (c) Contaminant from any industrial or trade premises into air; or
 - (d) Contaminant from any industrial or trade premises onto or into land — unless the discharge is expressly allowed by a national environmental standard or other regulations, a rule in a regional plan as well as a rule in a proposed regional plan for the same region (if there is one), or a resource consent.
- (2) No person may discharge a contaminant into the air, or into or onto land, from a place or any other source, whether moveable or not, in a manner that contravenes a national environmental standard unless the discharge —
- (a) Is expressly allowed by other regulations; or
 - (b) Is expressly allowed by a resource consent; or
 - (c) Is an activity allowed by section 20A
- (2A) No person may discharge a contaminant into the air, or into or onto land, from a place or any other source, whether moveable or not, in a manner that contravenes a regional rule unless the discharge —
- (a) Is expressly allowed by a national environmental standard or other regulations; or
 - (b) Is expressly allowed by a resource consent; or
 - (c) Is an activity allowed by section 20A
- (3) This section shall not apply to anything to which section 15A or section 15B applies.”

80. If the proposed discharge of water and contaminants to land through the re-use of contaminated soil are not expressly allowed by a national environmental standard or regional rule, consent is required to carry out the proposed activities.

National Environmental Standards

National Environmental Standard for Freshwater Management 2020

81. In accordance with Section 44A(7) and (8) of the RMA, every consent authority must observe and enforce a National Environmental Standard to the extent to which their powers enable them to do so.
82. The NES-F are regulations made under the RMA which came into effect on 3 September 2020.
83. The applicant provided an assessment against the NES-F 2020 and can be found in Section 6.1 of the Assessment of Environmental Effects.
84. The Avon-Heathcote Ihutai Estuary is listed as a Canterbury Wetland as identified above.
85. The definition of a natural inland wetland is defined as a wetland (as defined in the Act) that is not:
- a. In the Coastal Marine Area; or
 - b. A deliberately constructed wetland, other than a wetland constructed to offset impacts on, or to restore, an existing or former natural inland wetland; or
 - c. A wetland that has developed in or around a deliberately constructed water body, since the construction of the water body; or
 - d. A geothermal wetland; or
 - e. A wetland that:
 - i. Is within an area of pasture used for grazing; and
 - ii. Has vegetation cover comprising more than 50% exotic pasture species (as identified in the *National List of Exotic Pasture Species* using the *Pasture Exclusion Assessment Methodology* (see Clause 1.8)); unless

- iii. The wetland is a location of a habitat of a threatened species identified under clause 3.8 of this National Policy Statement, in which case the exclusion in (e) does not apply.
- 86. Mr Gabites has confirmed that the indicative CMA boundary within ECan Maps is incorrect, and the Applicant's CMA boundary plotted within the drawings in Appendix C of the application documents appears to be more accurate.
- 87. As it is uncertain which areas of the wetland are within the CMA, with both the wetland and the CMA boundaries within close proximity to each other, the Applicant and CRC have therefore taken a precautionary approach with the area of works to be undertaken landward of the CMA boundary where inland wetlands can be located.
- 88. Therefore, the NES-F applies to the proposal, and an assessment is provided below.
- 89. The NES-F does contain an activity specific regulation managing the proposed activity. I therefore consider that Regulation 45 '*Discretionary Activities*' applies to the proposal. Under Regulation 45 the following are Discretionary Activities:
 - (1) *Vegetation clearance within, or within a 10 m setback from, a natural inland wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure;*
 - (2) *Earthworks or land disturbance within, or within a 10 m setback from, a natural inland wetland is a discretionary activity if it is for the purpose of constructing specified infrastructure;*
 - (3) *Earthworks or land disturbance outside a 10 m, but within a 100m setback from a natural inland wetland is a discretionary activity if it—*
 - i. *Is for the purpose of constructing specified infrastructure; and*
 - ii. *Results, or is likely to result, in the complete or partial drainage of all or part of the natural inland wetland.*
 - (4) *The taking, use, damming, or diversion of water within, or within a 100 m setback from, a natural inland wetland is a discretionary activity if—*
 - i. *The activity is for the purpose of constructing or upgrading specified infrastructure; and*
 - ii. *There is a hydrological connection between the taking, use, damming, or diversion and the wetland; and*
 - iii. *The taking, use, damming, or diversion will change, or is likely to change, the water level range or hydrological function of the wetland.*
 - (5) *The discharge of water into water within, or within a 100 m setback from, a natural inland wetland is a discretionary activity if—*
 - i. *The discharge is for the purpose of constructing or upgrading specified infrastructure; and*
 - ii. *There is a hydrological connection between the discharge and the wetland; and*
 - iii. *The discharge will enter the wetland; and*
 - iv. *The discharge will change, or is likely to change, the water level range or hydrological function of the wetland.*
 - (6) *A resource consent for a discretionary activity under this regulation must not be granted unless the consent authority has first—*
 - i. *Satisfied itself that the specified infrastructure will provide significant national or regional benefits; and*
 - ii. *Satisfied itself that there is a functional need for the specified infrastructure in that location; and*
 - iii. *Applied the effects management hierarchy.*
- 90. Given the vegetation clearance, earthworks and discharge of water within 10 metres from a natural inland wetland are proposed, I consider the following consents are required as Discretionary Activities under the NES-F:
 - a. A section 9 (Land Use) permit to use land for earthworks and vegetation clearance within a 10 m setback from a natural inland wetland.

- b. A section 15 (Discharge) permit to discharge water within 10 m of a natural inland wetland and the discharge of contaminants to land.

Regional Plans

- 91. The application was lodged on 13 December 2023. The following regional plans apply to the proposed activity:
 - a. The Land and Water Regional Plan (LWRP);
 - b. Plan Change 7 to the Land and Water Regional Plan (PC7);
 - c. The Regional Coastal Environment Plan for the Canterbury Region (RCEP); and
 - d. The Canterbury Air Regional Plan (CARP).

Canterbury Land and Water Regional Plan (LWRP)

- 92. The Canterbury Land and Water Regional Plan (LWRP) contains objectives, policies and rules that manage land, water and biodiversity within the Canterbury Region. The Plan operates at two levels; a region-wide section which contains objectives, policies and rules that apply across the region, and a sub-regional section with policies and rules that only apply to a specific sub-regional area.

Permitted Activities

Construction-phase stormwater

- 93. Rule 5.93A controls the discharge of stormwater or construction-phase stormwater into a reticulated stormwater system is a permitted activity provided certain conditions are met.
- 94. An assessment of the proposal against the condition of 5.93A is provide below.
 - 1. *Written permission has been obtained from the owner of the reticulated stormwater system that allows entry of the stormwater into the reticulated stormwater system.*
- 95. The applicant has received written approval from Christchurch City Council (CCC) to discharge stormwater to the CCC Reticulated network under the CCC global stormwater consent CRC252424.
- 96. Therefore, I consider the proposed discharge of stormwater is a **permitted activity** under **Rule 5.93A** of the LWRP.

Take and Discharge of Dewatering Water

- 97. Rule 5.119 relates to 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, provided the following conditions can be met:
 - 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*
 - 2. *The take or discharge is not from, into, or onto contaminated or potentially contaminated land; and*
 - 3. *The take does not lower the groundwater level more than 8m below the ground level of the site or cause subsidence of any other site; and*

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 connected; and*
 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*
 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*
 7. *The concentration of total suspended solids in any discharge to a surface waterbody does not exceed:*
 - a. *50g/m³ where the discharge is to any Spring-fed River, Banks Peninsula River, or to a lake or wetland; or*
 - b. *100g/m³ where the discharge is to any other river or to an artificial watercourse; and*
 8. *The discharge after reasonable mixing with the receiving waterbody meets the visual clarity standards in Schedule 5; and*
 9. *The point of discharge is not within a Community Drinking-water Protection Zone as set out in Schedule 1.*
98. The works will involve the placement of geotextiles, gabion and rocks, and therefore you would not need to dewater to undertake these works.
99. The applicant is not proposing to undertake any dewatering as they do not anticipate encountering groundwater during any of the proposed works.
100. I note that should dewatering be required at any stage of this proposal, it is unlikely that this could occur as a permitted activity due to Condition 2 of Rule 5.119.
101. However, as the applicant is not proposing to dewater any sites, no consent is required.

Activities Requiring Consent

Earthworks over an Aquifer

102. Rule 5.175 controls the use of land to excavate material is a permitted activity, provided certain conditions are met.
103. An assessment of the proposal against the conditions of 5.175 is provided below.
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
 - b. If more than 100 m³ of material is excavated, the excavation does not occur within 50 m of any surface waterbody; or
 2. Over an unconfined or semi-confined aquifer:

- a. The volume of material excavated is less than 100 m³; or
 - b. The volume of material excavated is more than 100 m³ and:
 - i. There is more than 1 m of undisturbed material between the deepest part of the excavation and the highest groundwater level; and
 - ii. The excavation does not occur within 50 m of any surface waterbody.
104. The activity is unable to comply with Condition (1)(a) of Rule 5.175.
105. Therefore, the proposed activity is a **restricted discretionary activity** under **Rule 5.176** of the LWRP.
106. The matters of discretion are restricted to the following:
- a. *The actual and potential adverse environmental effects on the quality of water in aquifers, rivers, lakes, wetlands; and*
 - b. *Any need for remediation or long-term treatment of the excavation; and*
 - c. *The protection of the confining layer and maintaining levels and groundwater pressures in any confined aquifer, including any alternative methods or locations for the excavation; and*
 - d. *The management of any exposed groundwater; and*
 - e. *Any adverse effects on Ngai Tahu values or on sites of significance to Ngai Tahu, including wahi tapu and wahi taonga.*

Vegetation Clearance

107. The applicant has assessed the removal of vegetation under Rule 5.170 of the LWRP; however, I do not consider this to be the applicable rule as Rule 5.170 is for vegetation clearance undertaken in an area shown as High Soil Erosion Risk on the Planning Maps, and the application area is not within a High Soil Erosion Risk area as shown on the Planning Maps.
108. I consider Rule 5.167 to be the applicable rule for this application as it is adjacent to a wetland boundary.
109. Rule 5.167 controls the use of land for vegetation clearance outside the bed of a river or lake or adjacent to a wetland boundary but within:
- (a) *10 m of the bed of a lake or river or a wetland boundary in Hill and High Country land or land shown as High Soil Erosion Risk on the Planning Maps; or*
 - (b) *5 m of the bed of a lake or river or a wetland boundary in all other land not shown as High Soil Erosion Risk on the Planning Maps or defined as Hill and High Country on the Planning Maps:*
- And any associated discharge of sediment or sediment-laden water in circumstances where sediment may enter surface water is a permitted activity, provided certain conditions are met.*
110. An assessment of the proposal against the conditions of 5.167 is provided below.
- 1. *Except in relation to recovery activities, the area of bare ground resulting from vegetation clearance:*

- a. *Does not exceed 10% of the area within the relevant riparian margin at any time; or*
 - b. *Is undertaken in accordance with a Farm Environment Plan that has been prepared in accordance with Schedule 7 Part A; or*
 - c. *For plantation forestry activities is undertaken in accordance with the Environmental Code of Practice for Plantation Forestry (ECOP) 2007; and*
 2. *Except in relation to recovery activities, the vegetation clearance is not on land above 900 m above sea level; and*
 3. *Except in relation to recovery activities, or the establishment, maintenance or repair of network utilities and fencing, the concentration of total suspended solids in the discharge does not exceed:*
 - 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*
 - 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 the Schedule 5 visual clarity standards shall apply.*
 4. *The felling of trees, or a any part of a tree, is away from any lake, river or wetlands, except where it is not practicable to do so to ensure human safety, and no logs or tree trunks are dragged through or across the bed of lake or a permanently flowing river, or a wetland; and*
 5. *The vegetation clearance does not occur adjacent to a salmon spawning site listed in Schedule 17, or in any inanga spawning habitat during the period of 1 January to 1 June inclusive, or in any Critical Habitat; and*
 6. *The vegetation is not flood or erosion control vegetation; and*
 7. *From 5 September 2015, and in the riparian margins of the Clarence, Waiau, Hurunui, Waimakariri, Rakaia, Rangitata, and the Waitaki rivers vegetation clearance or cultivation does not result in a reduction in the area or diversity of existing riparian vegetation, unless the works have been authorised by a land use consent granted by the relevant territorial authority and conditions 1 to 6 above are also met, or the activity is for the purpose of the installation, operation, maintenance, upgrade or repair of infrastructure.*
111. The activity is unable to comply with Condition (1)(a) of Rule 5.167, as the proposed vegetation clearance may exceed 10% of the riparian margin area.
112. Therefore, the proposed activity is a **restricted discretionary activity** under Rule **5.169** of the LWRP.
113. The matters of discretion are restricted to the following:

- a. *For forest harvesting, the harvesting method, location of haulage and log handling areas, access tracks, and sediment control; and*
- b. *The actual and potential adverse environmental effects on soil quality or slope stability; and*
- c. *The actual and potential adverse environmental effects on the quality of water in rivers, lakes, or artificial watercourse, or wetlands; and*
- d. *The actual and potential adverse environmental effects on areas of natural character, outstanding natural features or landscapes, areas of significant indigenous vegetation, indigenous biodiversity and significant habitats of indigenous fauna, mahinga kai areas or sites of importance to Tangata Whenua; and*
- e. *The actual and potential adverse environmental effects on the banks or bed of a waterbody or on its flood carrying capacity; and*
- f. *The actual and potential adverse environmental effects on transport networks, neighbouring properties or structures.*

Discharge of Contaminants to Land

114. Rule 5.98 controls any discharge of water or contaminant may enter groundwater that is not classified by any of the above rules is a permitted activity, provided the following conditions can be met:

1. *The volume of the discharge does not exceed 10 m³ per day and the application rate does not exceed 10 mm per day; and*

Where background concentrations allow, materials will be reused within the bund. Given this element will fluctuate in terms of daily volumes, compliance with the daily volume limit is assessed as being unable to comply as in some instances will be exceeded. A precautionary approach has been adopted to accommodate any exceedance in daily volume.

2. *The discharge is not directly into groundwater; and*

The discharge of material will not intercept groundwater.

3. *The discharge does not result in any overflow or runoff into any surface water body or onto neighbouring site; and*

The discharge of material will not result in any overflow or runoff entering surface water.

4. *The discharge does not, in groundwater, render fresh water suitable or unpalatable for consumption by animals or humans; and*

The reused material will not intercept groundwater and will therefore not render fresh water unsuitable for consumption by animals or humans.

5. *The discharge does not contain any hazardous substance, hazardous waste or added radioactive isotope; and*

The material discharged will be below background levels and placed within the bund according to management protocols.

6. *The discharge does not occur when the soil moisture exceeds field capacity; and*

The discharge will not be into wet ground.

7. *The discharge is not from or into contaminated or potentially contaminated land; and*

The material proposed to be encapsulated is contaminated.

8. *The discharge is not within*

- a. *50 m of a bore used for water abstraction; or*
- b. *Within a Community Drinking-Water Protection Zone as set out in Schedule 1; and*

The discharge will not be within 50m of bore used for water abstraction or within a Community Drinking-Water Protection Zone.

9. *Where the discharge is from the use of live ammunition associated with military training under the Defence Act 1990, conditions 1 to 8 do not apply.*

Not applicable.

115. The discharge of contaminants associated with the re-use of contaminated soil is unable to comply with Conditions (1) and (7) of Rule 5.98.
116. Rule 5.99 controls the discharge of water or contaminants into surface water or onto or into land in circumstances where it may enter surface water that is not classified by any of the above rules, is a permitted activity, provided the conditions can be met.
117. The activity is not applicable to Rule 5.99 as the discharge is not to surface water, nor is there any surface water in the vicinity of the discharge. The Te Ihutai / Avon-Heathcote Estuary is classified as the Coastal Marine Area.
118. Therefore, the proposed activity is a **discretionary activity** under **Rule 5.100** of the LWRP.
119. An assessment of the proposal against the conditions of Rule 5.100 is provided below.

1. *Any discharge that is not permitted by either Rule 5.98 or 5.99 and is not classified by any other rule in this Plan is a discretionary activity.*

Proposed Plan Change 7 to the LWRP (PC7)

120. Plan Change 7 to the LWRP was publicly notified on 20 July 2019. This application was lodged on the 13th of December 2023. As PC7 was notified before the lodgement of this application, consideration must be made to the proposed rules at the time of lodgement.

Canterbury Air Regional Plan (CARP)

121. The Canterbury Air Regional Plan (CARP) became operative 31 October 2017. The CARP promotes the sustainable management of Canterbury's air resource, and it contains rules and provisions to address air quality issues with the Canterbury Region.

Dust Generating Activities

122. The applicant is proposing to discharge contaminants to air from the handling and outdoor storage of bulk solid materials.
123. Rule 7.35 of the CARP covers the handling of bulk solid material as a permitted activity provided the following conditions can be met:

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*
 2. *The handling occurs indoors, or where the handling occurs outdoors the rate of handling does not exceed 100t per hour; or*
 3. *Where handling occurs outdoors on less than 21 days per calendar year, the rate of handling does not exceed 250t per hour; or*
 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*
 5. *The dust management plan is supplied to the CRC on request; and*
 6. *The discharge does not occur within 200 m of a sensitive activity wahi tapu, wahi taonga or place of significance to Ngai Tahu that is identified in an Iwi Management Plan; and*
 7. *Notwithstanding condition 6, where the discharge is from a production blasting at a quarry site the discharge does not occur within 500m of a sensitive activity wahi tapu, wahi taonga or a place of significance to Ngai Tahu that is identified in an Iwi Management Plan.*
124. The activity is not able to comply with Condition (6) of Rule 7.35.
125. Rule 7.36 of the CARP covers the discharge of contaminants to air from the outdoor storage of bulk solid materials is a permitted activity provided the following conditions are met:
- a. *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*
 - b. *The amount of material stored does not exceed 1000t when it has an average particle size of less than 3.5mm; and*
 - c. *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*
 - d. *The dust management plan is supplied to the CRC on request; and*
 - e. *The discharger does not occur within 100 m of a sensitive activity, wahi tapu, wahi toanga or place of significance to Ngai Tahu that is identified in an Iwi Management Plan.*
126. The activity is not able to comply with Condition (5) of Rule 7.36.
127. The proposed discharge to air is not from an industrial or trade premise and is not managed by Rules 7.47 – 7.62.
128. The discharge to air from the proposal is a **discretionary activity** under **87B(1)(a)** of the RMA. This is due to there being no rule that the discharge fall to in the CARP, so as it is not a Permitted Activity, consent is required as the discharge is not permissive. Therefore, the RMA is the catch all rule.

Regional Coastal Environment Plan for the Canterbury Region (RCEP)

129. The CMA includes the foreshore, seabed, and the coastal water and airspace above the water between the outer limit of the terrestrial waters (12 nautical miles) and the

line of mean high-water spring tide (MHWS). Given that the works are in the CMA, the RCEP applies.

Permitted Activities

Discharge of Stormwater in the Coastal Marine Area

130. Rule 7.1(e) relates to the discharge into water, onto or into land in the Coastal Marine Area of sediment already present in, on, under, the foreshore or seabed is a permitted activity, provided the conditions are met.
131. The applicant is able to comply with the conditions as resource consent will be provided through consent breach of Rule 8.9. The applicant is also able to comply with 7.1(a) and Rule 7.1(b), (c), (d) and (f) are not relevant.
132. Therefore, the activity is a **permitted activity** under **Rule 7.1(e)** of the RCEP.

Removal or Demolition of Structures over the foreshore and seabed

133. Rule 8.1(f) relates to the removal or demolition of any structure or part of any structure, by or on behalf of the owner is a permitted activity, provided the conditions are met.
134. The applicant is able to comply with the conditions as all materials removed from the structure will be removed from the CMA, CRC will be advised prior to removal of the structures to be completely removed, and the structures are not listed in Schedule 5.12 as Protected Recreational, Cultural or Historic Structures.
135. Therefore, the proposed activity is a **permitted activity** under **Rule 8.1(f)** of the RCEP.

Short-term occupation of the Coastal Marine Area

136. Rule 8.22 relates to the occupation of the Coastal Marine Area for the purpose of carrying out the erection, reconstruction, placement, alteration, extension, removal or demolition of a structure that is authorised as a permitted activity in accordance with Rule 8.1, or by a resource consent, is a permitted activity.
137. The applicant is able to comply with Rule 8.22 as the activities will be undertaken under a resource consent.
138. Therefore, the proposed activity is a **permitted activity** under **Rule 8.22** of the RCEP.

Activities Requiring Consent

Erection and alteration of a structure in, on or over the seabed

139. Rule 8.4(c) of the RCEP applies to the erection and alteration of structures within the CMA applies to this proposal, as the proposed structures are within an Area of Significant Natural Value.
140. Rule 8.4 states "The following are Non-Complying Activities in, on, under, or over any foreshore or seabed: ... (c) the erection or placement of a structure within an Area of Significant Natural Value or within an area listed in Schedule 5.13..."
141. Therefore, the proposed activity is a **non-complying activity** under **Rule 8.4(c)** of the RCEP.

Disturbance of the foreshore and seabed

142. Rule 8.9 non-complying activities of the RCEP applies to the proposed activity for the disturbance of the foreshore and seabed during the construction of the erosion and inundation protection structures.
143. Rule 8.9 states “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 material, by any person; is a Non-Complying Activity where the disturbance or removal:
- a. *Is within an Area of Significant Natural Value; and*
 - b. *Is not maintenance Dredging or authorised as a permitted activity by Rule 8.6, or provided for by Rule 8.10; and*
 - c. *Involves, in any twelve-month period, more than 100 cubic metres of material.*
144. The proposed disturbance of material on the foreshore or seabed is within an Area of Significant Natural Value.
145. Therefore, the proposed activity is a **non-complying activity** under **Rule 8.9** of the RCEP.

Deposition of any substance in, on or under any foreshore and seabed

146. Rule 8.14 of the RCEP applies to the proposal through the deposition of the rock rip rap and new fill material for the erosion and inundation protection structures.
147. Rule 8.14 states “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”.
148. The proposed deposition of material on the foreshore or seabed is within an Area of Significant Natural Value, and the volume of material is greater than 100 cubic metres.
149. Therefore, the proposed activity is a **non-complying activity** under **Rule 8.14** of the RCEP.

Long-term occupation of the Coastal Marine Area

150. Rule 8.23 of the RCEP applies to the proposal for the long-term occupation of the erosion and inundation protection structures.
151. Rule 8.23 provides for the occupation of the CMA, except as provided for by Rules 8.22, 8.24, or 8.25.
152. Rules 8.22, 8.24 and 8.25 are not relevant to the long-term occupation of the CMA by the proposed structures.
153. Therefore, the proposed activity is a **discretionary activity** under **Rule 8.23** of the RCEP.

Reclamation of the Coastal Marine Area

154. Rule 8.28 of the RCEP applies to the proposal for the reclamation of Coastal Marine Area.
155. Rule 8.28 states “Except as provided for by Rule 8.29, any reclamation of the 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”.

156. The proposed reclamation will exceed 100 cubic metres of material within the CMA.
157. Therefore, the proposed activity is a **non-complying activity** under **Rule 8.28** of the RCEP.

Summary

158. The applicant requires four resource consents for the following activities:
- a. CRC242267 (s9): to use land for earthworks and vegetation clearance within 10m of a natural inland wetland;
 - b. CRC242268 (s12): to disturb the foreshore and seabed, deposit material on the foreshore and seabed, erect a structure, occupy the Coastal Marine Area, and reclaim the Coastal Marine Area.
 - c. CRC242269 (s15): to discharge water within 10m of a natural inland wetland; and
 - d. CRC251999 (s15): to discharge contaminants to air.
159. The *High Court in Affco New Zealand v Far North District Council* determined that all consents for a project should be carefully considered jointly and that they must consider if the consents are 'overlapping' or are of a stand-alone nature.
160. When activities are bundled into one application, the most restrictive activity status is applied. Each activity is not able to occur without the subsequent consents. given that the works for the construction of erosion and inundation protection structures project, I consider that it is appropriate to bundle these activities and assess them under one activity status.
161. Overall, I consider the proposal to be classified as a **non-complying activity**.
162. No other consents are considered to be required for this application from the CRC.

RECOMMENDATION ON NOTIFICATION OF THE APPLICATION

163. The application was **publicly notified** on Wednesday 28 April 2025 in The Press and the Star, as the effects of the proposal on the environment were deemed more than minor.
164. The relevant district council consents applied through Christchurch City Council (RMA/2023/3243) were publicly notified on Thursday 7 August 2025.
165. Notice was served on the following potentially parties:
- a. Te Rūnanga O Ngai Tahu;
 - b. Te Ngai Tūāhuriri Rūnanga;
 - c. Te Taumutu Rūnanga;
 - d. Avon-Heathcote Estuary Ihutai Trust;
 - e. Te Whata Ora National Public Health;
 - f. Department of Conservation;
 - g. Royal Forest and Bird Protection Society of New Zealand;
 - h. Christchurch Estuary Association;
 - i. Southshore Resident's Association;
 - j. Robert Barry Knowles of 78 Rocking Horse Road;

- k. Lindsay Harold Johnson, Craig Peter Johnson, Ian Lindsay Harold, Michael Harold Johnson of 1/184 Rocking Horse Road; and
- l. South New Brighton Holiday Park.

Submissions

- 166. In total 299 submissions were received comprising of:
 - a. 116 submitters that wish to be heard
 - b. 175 submitters that do not wish to be heard
 - c. Remaining submitters that did not indicate whether they wish to be heard or not.
- 167. A brief summary of these submissions is outlined below:

Opposed Submissions

- 168. Initially three submissions opposed the application:
 - a. Department of Conservation;
 - b. Avon-Heathcote Estuary Ihutai Trust; and
 - c. Kenneth and Maureen Green.
- 169. The Avon-Heathcote Estuary Ihutai Trust, raised concerns about the loss of estuary habitat through coastal squeeze, the use of cobble beaches and reduced ecosystem functionality, and increased access onto the intertidal soft sediments.
- 170. Department of Conservation (DOC) raised concerns about coastal squeeze reducing the areas of saltmarsh and soft sediment habitat due to the proposed erosion protection structures and recommend monitoring seagrass and soft sediment habitat for effects of coastal squeeze.
- 171. Kenneth and Maureen Green stated that the application reduces erosion and flood risks.

Amendment to the Department of Conservation Submission

- 172. Post the submission by DOC, they submitted on the district council application, and stated to Canterbury Regional Council via letter from the Director General of Conservation that due to the amendments made to the proposal by the applicant, it generally satisfies the Director-General's concerns raised in their submission and should there be suitable conditions recommended in the s42a report to address certain matters raised, the Director-General will be minded to withdraw her request to be heard.

Submissions In Support

- 173. 297 submissions support the application. With the following matters raised:
 - a. Earthquake damage have been deteriorating; hence the proposed protection works are vital for the area;
 - b. The stabilisation of the land within the proposed area is needed to control erosion any further;
 - c. The protection of the community from flooding is required and the proposed bund will provide the expected protection;
 - d. The proposed protection works will provide safe and accessible estuary edge and the creation of recreational spaces will allow connection with nature; and

- e. The works will include planting of vegetation to improve and naturalise the estuary edge and will provide a net ecological gain.
174. I note the matters raised by submitters have been considered in my assessment below.

RECOMMENDATION ON THE SUBSTANTIVE DECISION

175. Prior to making a recommendation on whether an application should be granted or refused, s104 specifies what must be considered when determining an application.

Consideration of applications (s104)

176. Section 104(1) outlines the matters which, subject to Part 2, the consent authority must have regard to in considering an application.
177. The Court of Appeal considered the application of Part 2 under section 104 in *R J Davidson Family Trust v Marlborough District Council* [2018] NZCA 316, [2018] 3 NZLR 283. That decision found it is necessary to consider Part 2 in making decisions on consent applications, where it is appropriate to do so. Whether it is "appropriate" depends on the planning documents in question.
178. The Court of Appeal stated that consent authorities should continue to undertake a meaningful assessment of the objectives and policies of the relevant plan. Where those documents have been prepared having regard to Part 2 of the RMA, and with policies designed to achieve clear environmental outcomes, consideration of Part 2 is not likely to be necessary as *"genuine consideration and application of relevant plan considerations may leave little room for Part 2 to influence the outcome."* The consideration of Part 2 is not prevented, but it cannot be used to justify an application that is otherwise not supported by objectives and policies.
179. In light of this judgment, Part 2 is required to be considered when determining an application for resource consent, but the objectives and policies still hold significant weight, and in most cases (unless the plan has not been prepared in accordance with Part 2), will largely be determinative unless the consent authority has doubt as to whether the planning documents have been prepared in a manner that appropriately reflects Part 2.
180. I have therefore outlined my consideration of those matters in s104 and s105 and finally considered whether it is necessary to resort to Part 2 of the RMA in order to determine this application.

Actual and Potential Effects (s104(1)(a)) and Offsets/Compensation (s104(1)(ab))

181. Section 104(1)(a) requires decision makers to have regard to the actual and potential effects of an activity.
182. The proposed activity is non-complying; therefore, discretion is not limited to specific matters.
183. I consider the following matters relevant to addressing the actual and potential effects that need to be considered for the proposed activity:
- a. Actual and Potential Adverse Effects on Ecological Values and Coastal Water Quality;
 - b. Actual and Potential Adverse Effects on Coastal Processes;
 - c. Actual and Potential Adverse Effects on Landscape, Visual and Amenity Values;

- d. Actual and Potential Adverse Effects on Recreational Values;
- e. Actual and Potential Adverse Effects on Navigation and Safety;
- f. Actual and Potential Adverse Effects on Discharge of Contaminants from Re-used Contaminated Material;
- g. Actual and Potential Adverse Effects of Earthworks within 10m of a wetland;
- h. Actual and Potential Adverse Effects of Vegetation Clearance within 10m of a wetland; and
- i. Actual and Potential Adverse Effects on Air Quality.

The Actual and Potential Adverse Effects on Ecological Values and Coastal Water Quality

184. This section addresses the actual and potential adverse effects arising from the proposed erosion protection structures and reclamation of the seabed within the Coastal Marine Area on ecological values and coastal water quality during the construction phase and long term.
185. Under Schedule 4 of the RCEP, the waters of the Te Ihutai / Avon-Heathcote Estuary are to be managed to meet the requirements of coastal water class SG, being managed for shellfish gathering, contact recreation, and maintenance of aquatic ecosystems.
186. The applicant provided an updated version of the Ecological Impact Assessment (EIA) on 29 May 2025 which was prepared by Boffa Miskell.
187. For my assessment on ecological values and coastal water quality, I have relied on the expertise of Ms Melanie Burns (CRC Senior Scientist – Water Ecology Science (Appendix 5). This includes the concerns raised by Ms Burns during the initial review of the EIA prior to notification, and the amendments made post notification by the applicant. Therefore, I am providing a summary of her concerns and suggested mitigation measures below.
188. Prior to notification, these were the unresolved concerns raised by Ms Burns:
- a. Increased access paths/steps to the estuary bed which could increase damage and trampling of seagrass beds;
 - b. The proposed reclamation along Southshore where there is land available to be utilised. She considered the effect of the proposed reclamation in Southshore area to be very high;
 - c. The removal or disturbance of seagrass beds due to the construction and placement of the proposed structures which should be moved landward to avoid seagrass patches dying;
 - d. The effects of coastal squeeze along Southshore to be considered moderate to high;
189. Post the notification of this application, the applicant amended their proposal with the following:
- a. By removing the proposed access points to the estuary bed and have proposed two new stepped access points at Tern Street and Godwit Street which are located more than 30 m away from any seagrass to avoid trampling and disturbance;
 - b. Landward shift in the position of the erosion protection structures which will minimise the loss of mudflat habitat at South New Brighton Park.

- c. The implementation of a 'soft edge' along a section of South New Brighton Park instead of cobble beach as a trial for a naturalised edge. This trial is appropriate for certain parts of the development including South New Brighton Park, but there is uncertainty if it is appropriate for other areas (e.g., where there is housing). The 'trial' aspect of soft edging is to look at materials put in and to monitor it, to assess whether it would be more appropriate in other areas that may be more sensitive to erosion.
 - d. A landward shift in the position of the erosion protection structures along Southshore excluding the section at 44a Rocking Horse Road which unable to be avoided. This reduces reclamation along Southshore from 780 m² to 476 m².
190. The applicant has proposed the following new mitigation measures to be included on the consent conditions:
- a. A Construction Methodology Plan;
 - b. Soft Edge Area Monitoring Plan which includes topographic and ecological surveys of the trial area and adjacent shoreline.
 - c. Seagrass and Saltmeadow Management Plan which includes mapping and the construction design to be revised to avoid affected areas where required.
 - d. Saltmeadow Remediation Plan, which includes mapping of Saltmeadow and remediation through replanting of saltmarsh.
 - e. Monitoring and mapping of cobble beach material on mudflat habitat at South New Brighton Park and Southshore with reporting back to Canterbury Regional Council every 12 months.
191. Ms Burns states within her evidence that she agrees with the assessment of the ecological value of the hard bottom habitats in South New Brighton Park and unvegetated soft sediment habitats along Southshore and SNBP. In addition, she confirms that the applicant is now in agreement that the seagrass beds habitats along Southshore have very high ecological value.
192. Ms Burns also notes that the applicant has made changes to the design plans to address earlier concerns that were raised by CRC. She notes however that there are some mitigation measures she requires to be included as consent conditions for her to consider the adverse effects to be low.
193. Ms Burns adds that there is still uncertainty around the potential adverse effects from coastal squeeze (and higher water levels) on seagrass beds and loss of intertidal soft sediment habitat on macroinvertebrate community composition over the duration of the consent, and that she recommends a 'softer engineered' solution along Southshore alongside a monitoring plan to collect data to inform future coastal adaptation strategies.
194. I note that I have included Ms Burns recommended mitigation measures stated within her advice within my proposed recommended conditions which were agreed to by the applicant at the time of the s92 request (Appendix 7).
195. I consider that the applicant has resolved the concerns raised by Ms Burns, which were also concerns raised by submitters and note that although Ms Burns would prefer a softer engineered approach, this is not an ecological effect, and I will be discussing this in the below section on effects on coastal processes.
196. For my assessment on ecological values and coastal water quality, I have also relied on the expertise of Mr Philip Grove (CRC Principal Scientist – Land Ecology Science (Appendix 3). This includes the concerns raised by Mr Grove during the initial review of the EIA prior to notification, and the amendments made post notification by the

applicant. Therefore, I am providing a summary of his concerns and suggested mitigation measures below.

197. Prior to notification, the unresolved concerns raised by Mr Grove were the adverse impacts of sea level rise and coastal squeeze on intertidal estuary habitats and the bird populations it supports, with no mitigation offered by the applicant.
198. Post notification, the applicant has removed the majority of reclamation from the proposal apart from areas where it cannot be avoided and have proposed avifauna conditions including include pre-work bird surveys, tree removals to minimise impacts on specified species breeding in saltmarsh for the district council consent RMA/2023/3243. These have been considered and discussed within Ms Carter's s42a report and have been reviewed by the CCC expert Mr Andrew Crossland. I defer to Ms Carters report and agree with her conclusions.
199. The applicant has also proposed conditions as discussed earlier in paragraph 197(c) and (d) regarding Saltmarsh. Mr Grove within his evidence states these conditions provide appropriate remediation or offsetting for direct effects / construction phase loss of saltmarsh vegetation and estuary margin habitats.
200. However, I note that Mr Grove has concerns regarding the long-term effects of coastal squeeze, and that he would prefer a softer engineering approach, as stated in paragraph 195, this will be discussed further below in this report.
201. I note that I do not consider that softer engineering approach is required to accept the effects on ecological values and coastal water quality.
202. I also note that concerns were raised regarding the effects on seagrass from coastal squeeze by Mr Grove, with the applicant amending the proposal to avoid any removal or disturbance of the existing seagrass beds. Through the removal of the existing structures along the estuary edge, and the removal of reclamation, new mudflat habitat will be created giving hope of new seagrass beds to establish in this new habitat post the completion of works.
203. The applicant has proposed a Seagrass and Saltmarsh Management Plan to survey the existing seagrass, and to manage and address any effects during the construction works and revise the project design to ensure no net loss of seagrass.

Summary

204. I consider the concerns raised by submitters have been largely resolved post the notification of the application, with the applicant proposing to remove the majority of reclamation, with no loss of seagrass, conditions, monitoring and management plans on saltmarsh, Saltmeadow and seagrass.
205. In summary, the effects of the construction period on ecological values and coastal water quality will be acceptable, and the long-term effects of the proposed structures occupation of the CMA on ecological values and coastal water quality is acceptable.

The Actual and Potential Adverse Effects on Coastal Processes

206. The proposed structures and the occupation of the CMA by the new erosion protection structures have the potential to adversely affect coastal processes.
207. The applicant advised that the works are required due to the erosion of the estuary edge and due to the compromised state of the current erosion protection structures. The applicant provided a Coastal Processes and Natural Hazards Assessment Report prepared by Jacobs within Appendix I of the AEE.
208. For my assessment on coastal processes, I have relied on the expertise of Mr Bruce Gabites (CRC Senior Scientist – Natural Hazards Science (Appendix 6). This

includes the concerns raised by Mr Gabites during the initial review prior to notification, and the amendments made post notification by the applicant. Therefore, I am providing a summary of his concerns and suggested mitigation measures below.

209. Prior to the notification of the application, Mr Gabites had considered that the inundation bund design and location could be amended and still provide a consistent level of inundation protection to the community. He also noted that a cobble beach would be sufficient protection for Southshore as opposed to the proposed rock revetment, with also space for coastal erosion to generally occur without impacting on any properties or pieces of significant infrastructure or requiring reclamation or further encroachment into the estuary bed.
210. As discussed earlier in this report in the background section, the applicant has amended the proposal after notification by proposing to remove the majority of reclamation and by also replacing a section of cobble beach at South New Brighton Park with a more naturalised yet engineered 'soft edge' shoreline which will comprise of rock 'headlands' and sand from available beach material or imported to create a series of SW facing beaches between the 'headlands'. Planting would also take place to naturalise the area.
211. Mr Gabites states within his evidence (Appendix 6) that he considers that the changes to the coastal processes within the estuary during construction phase or once the works have been completed to be acceptable.
212. Mr Gabites however states that he disagrees with the applicant as no allowance for increased water levels due to sea level rise or other climate change impacts or changes in ground elevations were included in the design process. Further, it is his opinion that the proposed height of the inundation bund of 11.5 m CDD will provide protection from the estuary water level events between 500 and 1000 years without taking into account the impacts of climate change or local land changes.
213. I would note that while the effects of the proposal on coastal processes are deemed acceptable by Mr Gabites, where he notes that he would prefer a softer engineered approach for Southshore such as cobble beach as it would provide sufficient protection against coastal erosion for this area however I note that this is not an additional mitigation measure on coastal processes and is a design preference by the technical expert.
214. I consider that although Mr Gabites would prefer amended design specifications including height, and the location of the inundation bund the effects of the proposed bund as currently designed is deemed acceptable and will not exacerbate coastal processes or hazards.
215. I consider the proposed mitigation by the applicant for the Soft Edge Monitoring Plan which includes topographic surveys of the area and adjacent shoreline, parameters to be measured included specific failure triggers for erosion and event based monitoring following any storm or tidal event will mitigate any effect of this trial and will help gain more data on the coastal processes occurring at South New Brighton Park.
216. The consent will also have the standard conditions for maintenance and inspection of all structures constructed under this resource consent and visual inspections must occur every 12 months or following a 1-in a 100-year Annual Recurrence Interval Event. The results of all inspections must be provided to Canterbury Regional Council. I have also recommended a condition of consent that if any structures are damaged beyond repair, they must be removed.

217. Based on the above assessment and the advice received from the CRC expert, and the proposed mitigation measures, I consider the adverse effects on coastal processes is acceptable.

The Actual and Potential Adverse Effects on Landscape, Natural Character, Visual and Amenity Values

218. This assessment considers the adverse effects arising from the construction phase effects and the long-term occupation of the erosion and protection structures on landscape, natural character and visual amenity.
219. The applicant undertook an Assessment of Landscape Effects which was prepared by Boffa Miskell, which can be found as Appendix K of the AEE. The introduction of structures to the Coastal Marine Area has the potential to impact on natural character, visual amenity and landscapes depending on the material, size and purpose of the structure.
220. The applicant states that in the Southshore section of the application where coastal protection works will be undertaken, the property owners whose properties back onto the estuary, those walking and cycling through the residential red zone land, as well as those vehicles in the streets that intersect the bund are likely to have a view of the works and structures.
221. The applicant states within their landscape assessment that it is likely that the protection bund and structures will be visually well integrated into the open parkland setting, within intervening property fences, trees and shrubs breaking the screen views from a number of residences.
222. Where the proposed works are close to or extent into the Estuary Edge, the edge is already highly modified. The existing natural character, landscape and visual amenity qualities associated with the area will not be compromised.
223. The applicant's assessment considers that the proposed works will result in some temporary adverse effects on natural character, landscape and visual amenity as part of the construction process. But concludes that the effects will be limited and with the exception of the dwelling at 44a Rocking Horse Road during the construction period.
224. Overall, the applicant considers that any adverse effects on natural character, landscape and visual effects will largely be benign given the negligible change to the overall level of modification apparent in the context of the highly developed spit and southern estuary edges. With the addition of restoration planting that is proposed as part of the wider project further integrating the proposed works and reinforcing the coastal character of the Southshore estuary edge. As such, the applicant considers the effects are to be less than minor.
225. For my assessment on this effect, I have relied on the expertise of Mr Jeremy Head, Landscape Architect at Boffa Miskell, who undertook a peer review on behalf of Christchurch City Council (Appendix 4).
226. Mr Head states that the applicant concludes that following the completion of the project and within five years, any adverse landscape effects will be 'very low'. Mr Head states this is a fair and reasonable conclusion in his opinion, and it is possible in the long-term the new vegetation will have sufficiently matured, and natural elements, patterns and processes will have come back into some semblance of balance (or better), where the 'very low' adverse effect may improve to neutral or possibly 'positive'.
227. Mr Head also states that the rock revetment appears to coincide with areas of more modified shoreline may simply reinforce the fact these areas of shoreline are prone

to higher levels of coastal erosion, hence individual property owners' attempts to protect their estuary facing gardens pre red zoning. While rock is not a naturally occurring material at the site in any format (the site is fully sand), a cobbled beach would be a preferable outcome as it would be more 'low key', less obtrusive and more compatible with the original dune landform.

228. Mr Head agrees with the applicant that the proposal will make access to estuary flats more limited than it currently is. Climbing a rock revetment is not as easy and accessible as cobble beaches and will be controlled by the proposed steeped access step points. Overall, he is satisfied that the proposed reduction in formal/controlled estuary access points with future conditions at detailed design stage to protect seagrass will have a positive effect on natural character and landscape quality compared to the existing situation.
229. Given the expert opinion of Mr Head, and the assessment of effects undertaken by the applicant, I consider the potential adverse effects of the proposed erosion protection structures on landscape, natural character, visual and amenity values are acceptable.

The Actual and Potential Adverse Effects on Recreational Values and Access to Coastal Marine Area

230. Te Ihutai / Avon Heathcote Estuary provides opportunities for recreation, as it provides opportunities for activities such as kayaking, fishing, bird watching, and walking. Therefore, the modification of the estuary edge has the potential to adversely affect the estuaries' recreational values in the long term. As the proposal will change the use of the area to construction during the works, there is potential for adverse effects on coastal access.
231. During the construction period, the applicant considers recreational values and access to the Coastal Marine Area will not be hindered as the applicant has proposed some mitigation measures as discussed below. The construction period will require some of the public access walking tracks to be temporarily closed. The applicant considers the following mitigation measures will minimise any effects on recreational values and access to the Coastal Marine Area:
- a. Restricting works outside of heavy use periods such as summer holidays and public holidays;
 - b. Providing wayfinding to direct open space users to facilities;
 - c. Providing alternative pedestrian and cyclist access where required;
 - d. Communication with residents, sports clubs and local education facilities to inform of temporary open space closures, access and drop-off zone disruptions.
232. The applicant advised that the recreational values at the Estuary in the long term will not be hindered by the enduring occupation of the estuary edge erosion protection and inundation protection works given 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.
233. The works will include a 3 m wide walkway, which the applicant considers enhances a safe environment for recreational activities such as walking, dog walking, running and cycling. The works will add two additional formalised access points to the estuary.
234. Overall, the consultant considers that the proposed works will enhance recreational values and public access to the CMA.

235. I agree with the applicant that the proposed mitigation measures will ensure recreation values and access will be acceptable during the construction works. The inclusion of two stepped access points to the estuary bed and the walkway on the inundation bund ensure that long term effects of the proposed structures is acceptable.
236. In summary, the effects of the construction period on recreational values and access to the Coastal Marine Area will be acceptable and considering the proposal will enhance existing opportunities for recreation, any adverse effects on the recreational values of the Te Ihutai / Avon Heathcote Estuary or access to the CMA will be acceptable.

The Actual and Potential Adverse Effects on Navigation and Safety

237. As the proposed works will be undertaken within the Coastal Marine Area, there is the potential for adverse effects regarding navigation safety and access to the CMA.
238. The applicant did not assess the proposal against effects on Navigation and Safety.
239. On behalf of the Environment Canterbury Harbourmasters office, Mr Ian Fox has stated that he has no navigation safety concerns in relation to this proposal.
240. I rely on Mr Fox's expertise in this matter and as such, I consider any adverse effects regarding navigation and safety are less than minor.

The Actual and Potential Adverse Effects of Discharge of Contaminants from Re-used Contaminated Material

The actual and potential effects on the quality of surface water and aquatic ecology

241. The potential discharge of contaminants from the re-use of material associated with the construction fill has the ability to adversely affect nearby surface water bodies and associated aquatic ecology through the mobilisation of contaminants through groundwater or stormwater to nearby surface water bodies.
242. Excavated material found on-site will be reused for on-site fill. Soil samples collected across the site as part of the DSI were generally at or below local background levels or laboratory detection limits for most analytes tested.
243. Ms Butler (CRC Scientist – Contaminated Land and Waste Science) has reviewed the proposal and the DSI within the AEE and did not raise any concerns with the re-used contaminated material contaminating nearby surface water bodies.
244. It is therefore considered that the disturbance and placement of contaminated material will be appropriately managed using a Contaminated Soils Management Plan (CSMP), CEMP and in the Construction Methodology Plan.
245. It is therefore considered that the disturbance and placement of contaminated material will be appropriately managed and will be acceptable

The actual and potential adverse effects on the quality of groundwater

246. The discharge of contaminants associated with the re-use of material has the potential to adversely affect groundwater through the mobilisation of contaminants through groundwater.
247. The applicant is proposing to encapsulate the contaminated soils where appropriate after testing within the inundation bunds and has proposed this to occur under a CEMP and a Construction Methodology Plan to ensure any contamination risk to groundwater is appropriately contained within the encapsulated bund.

248. The applicant is proposing to use ESCP and a CSMP to manage contaminated soils, throughout the construction period. These plans will be provided as part of the conditions and will be reviewed and approved by Canterbury Regional Council prior to works.
249. Ms Butler has reviewed the proposal and the s92 response and has not raised any specific concerns on groundwater quality from the re-used material and has recommended standard conditions which include the appropriate disposal of contaminated material or soil, and the use of a Contaminated Soils Management Plan
250. Mr Green states that the groundwater in the area is likely of brackish, non-potable water quality linked with the estuary, and the shallow geology is predominantly of mixed fine-medium sands with assumed low permeability and therefore a low possibility of any suspended sediments, nutrients or potential pollutants migrating through to deeper groundwater.
251. Given the advice from Ms Butler and Mr Green, and provided that the applicant adheres to the ESCP and CSMP, I consider the re-use of material for filling will be acceptable on groundwater quality.

The Actual and Potential Adverse Effects of Earthworks within 10m of a Wetland

The actual and potential effects on the quality of surface water and aquatic ecology

252. The proposed excavations over an aquifer have the potential to adversely affect surface water quality through the mobilisation of sediment and contaminants over land into nearby surface water bodies.
253. I note the proposed activity is occurring along the boundary of the Te Ihutai / Avon Heathcote Estuary.
254. The applicant proposes to undertake works in accordance with an ESCP to minimise sediment yield on site, to prevent sediment leaving the site, to protect land surface from erosion, and to manage contaminated soils in order to mitigate potential adverse effects to the environment.
255. Ms Butler did not state that she had any concerns with the excavations on any surface water bodies.
256. Given the proposed mitigation measures outlined above, and based on the advice from Ms Butler, I consider that the effects of earthworks on the quality of water on surface water bodies will be acceptable.

The actual and potential effects on the quality of groundwater

257. The undertaking of excavations over an aquifer has the potential to adversely affect groundwater through the mobilisation of contaminants to groundwater.
258. The consultant has advised the proposed works will be in accord with good environmental practices, with erosion and sediment controls in place to avoid impacts on groundwater.
259. Mr Green has advised that the shallow (less than 15m deep) groundwater in the area is likely of brackish, non-potable water quality, linked with the nearby estuary. He also notes that the shallow geology is predominately of mixed fine-medium sands with assumed low permeability and therefore low possibility of any suspended sediments, nutrients or potential pollutants migrating through to deeper groundwater.

260. Mr Green advised he agrees with the applicant that the proposed activity does not pose a significant risk to groundwater quality.
261. Taking into account the above, and the specialist advice from Mr Green, I consider the effects of the proposed excavations on groundwater will be acceptable.

Protection of the confining layer and maintaining levels of groundwater pressures in any confined aquifer

262. The undertaking of excavations over an aquifer has the potential to puncture the confining layer, allowing discharges of artesian water and resulting in reduced water pressure within the aquifer.
263. Mr Green notes that it is very unlikely that the proposed activity will intercept artesian water and recommends the standard conditions in the case of accidental interception of artesian water.
264. Taking into consideration the location of the site and depth of the earthworks proposed, it is not anticipated that the application will have any impact on the confined aquifer layer, and as such there will be no adverse effects on levels or groundwater pressure.
265. Given the above, I consider that the confining layer will be adequately protected, and groundwater pressure.

The management of any exposed groundwater

266. The undertaking of excavations over an aquifer has the potential to expose groundwater.
267. The consultant has advised the site is located over the Coastal Confined Gravel Aquifer System, with a relatively shallow groundwater depth between 0.0m and 0.2 m bgl.
268. Mr Green states that he agrees with the consultant that the groundwater is very shallow in the area, with high water levels most less than 1m bgl likely to rise due to local tidal effects and periods of high rainfall.
269. Due to the proposed excavation depth, the anticipated groundwater level on site, not undertaking excavations within the exposed water table and the brackish water quality of the groundwater, I consider that in the event that groundwater is exposed, it will be managed adequately.

The Actual and Potential Adverse Effects of Vegetation Clearance within 10m of a Wetland

The actual and potential effects on the quality of surface water

270. The proposed vegetation clearance over an aquifer has the potential to adversely affect surface water quality through the mobilisation of sediment and contaminants into nearby natural inland wetlands.
271. The applicant says that erosion and sediment control measures will be put in place to help prevent the mobilisation of sediment into Council's reticulated stormwater network, surrounding land and being discharged into the receiving waterbodies and have any adverse effect on water quality during any vegetation clearance.
272. Ms Melanie Burns states that the adverse effects from terrestrial sediment and contaminants have been assessed as being very low as there will be Erosion and Sediment Control measures in place. She states that she agrees that with the applicant if stringent adherence to the ESC measures, the effects will be very low.

273. Given the advice from Ms Burns and the proposed mitigation measures outlined above which includes the use of an ESCP, I consider the effects of vegetation clearance within 10m of a wetland will be acceptable.

The actual and potential adverse effects on flood carrying capacity

274. Vegetation clearance within 10m of a natural inland wetland will be undertaken in accordance with an ESCP.
275. The applicant states the works are not anticipated to impact the size, and subsequently the flood carrying capacity of the wetland.
276. The applicant therefore considers that any discharges occurring in this area generated from construction works will be limited in quantity and extent and will be controlled under the applicants proposed ESCP.
277. I consider if the applicant undertakes the vegetation clearance in accordance with their proposed management plans such as the CEMP, CMP and the ESCP, it will mitigate the works on the flood carrying capacity of the wetland.
278. I also note that Mr Gabites did not raise any concerns regarding the works adversely affecting the flood carrying of the wetland.
279. It is on this basis that the effects on flood carrying capacity are considered to be acceptable.

The actual and potential adverse effects on soils

280. The proposed vegetation clearance of the estuary edge has the potential to mobilise soil and create soil instability.
281. As discussed above, an ESCP will set out the erosion and sediment controls that will be implemented to avoid accelerating or causing the generation of sediment during construction. The ESCP will be in accordance with the Canterbury Regional Council Erosion and Sediment Control Toolbox for Canterbury (ECan Toolbox).
282. Provided that onsite erosion and sediment controls are constructed and implemented in general accordance with the measures outlined in the ESCP and any actual and/or potential effects associated with erosion, soil mobilisation, sedimentation and discharges to receiving environments will be temporary in nature and appropriately managed and mitigated to the extent that they are less than minor.
283. Based on this assessment above, I consider that the overall soil quality of the site and surrounding environment will be maintained, and adverse effects on human health can be managed so as to be no more than minor.

The actual and potential effects on hydrological regime of the natural inland wetland

284. The undertaking of vegetation clearance has the potential to effect hydrological flows into the natural inland wetland, for example by obstructing natural flow paths to wetlands or by causing drainage paths from wetlands.
285. Vegetation clearance is not anticipated to significantly impact the hydrological regime as only a small amount of clearance is being undertaken in a proximity to the wetland.
286. The vegetation affected is either exotic or not threatened species landward of the CMA. The applicant is not proposing to removal vegetation within the wetland. The applicant will also be utilising their CCC tree removing consent which contains strict mitigation measures while undertaking vegetation removal (RMA/2021/2059).

287. The applicant has proposed to replant the area as shown in the landscape plans provided with the application, post the completion of the proposed works which will improve the ecological value of the wetland vegetation at the site, and its habitat functionality and resilience.
288. Therefore, for the above reasons the hydrological effects are considered to be less than minor.

The actual and potential effects on the extent of the natural inland wetland

289. The extent of a natural inland wetland has the potential to be adversely affected through the undertaking of vegetation clearance.
290. The overall ecological value of the Te Ihutai / Avon Heathcote Estuary is identified as moderately rare estuarine wetland. The proposed removal of the vegetation will be of mainly exotic species.
291. Mr Grove did not raise any concerns regarding the removal of vegetation as part of the proposal.
292. I consider that the wetland will be managed appropriately by the applicant, and the effects of vegetation clearance on the extent of the natural inland wetland will be less than minor.

The Actual and Potential Adverse Effects on Air Quality

293. Earthworks and stockpiling activities have the potential to generate dust that can be objectionable and offensive if not properly controlled. The presence of dust can lead to a decrease in amenity values of an area through nuisance effects on people living and working in the vicinity of dust generating activities.
294. There are a number of factors to consider when assessing whether dust has an offensive or objectionable effect to such an extent that it has an adverse effect on the environment. These matters are identified within Schedule 2 of the CARP and are defined as the following:
- a. Frequency;
 - b. Intensity;
 - c. Duration;
 - d. Offensiveness; and
 - e. Location.
295. The applicant has stated that soil disturbance forms a key component of the construction of the bund and associated coastal structures. The construction processes will be carefully managed to prevent sediment entering the estuary as the closest sensitive receptor through wind erosion and runoff. The applicant states that this will be managed using a range of erosion and sediment controls such as dampening of materials, physical controls such as sediment fencing. Works are also unable to be undertaken in wet conditions and will occur in tidal conditions.
296. The applicant has proposed mitigation measures such as preparing and implementing a Dust Management Plan, which will be supplied for CRC on request.
297. A Dust Management Plan (DMP) requires the consent applicant to assess the discharge as determined by (a) to (e) above. The proposed activity must occur in accordance with the following:
- a. The Dust Management Plan must be submitted to CRC at least 10 working days prior to works starting;

- b. The DMP must detail the best practicable dust management measures that will be taken to ensure compliance with the consent including:
 - i. A description of the activity that will result in the discharge of contaminant to air;
 - ii. A description of how often the contaminants will be discharged;
 - iii. A description of the intensity and character of the discharge;
 - iv. A description of the maximum duration of the effect of the discharge;
 - v. A description of the offensiveness of the discharge;
 - vi. A description of the location of the discharge, including a description of the activities that occur on neighbouring properties and locations of any sensitive activities that may be affected;
 - vii. An explanation as to how any adverse effects on sites that are sensitive to Ngai Tahu, such as statutory acknowledgement areas, silent file areas, or wahi tapu or wahi taonga are to be managed; and
 - viii. A description of the management practices being implemented to minimise the discharge or the effects of the discharge of contaminants.
 - c. Measures to prevent the discharge of dust from earthworks;
 - d. Measures to prevent the discharge of dust from stockpiling; and
 - e. A record of complaints to be maintained.
298. Based on the above, and given the adherence to the condition, I consider that the potential adverse effects from the discharge of dust to air will be no more than minor.

Positive Effects

299. The definition of effect in the RMA also includes “*positive effects*”, and I note that the applicant has identified the following positive effects:
- a. 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;
 - b. The project forms part of a wider improvement programme to Open Spaces sites at South New Brighton Park and Southshore; and
 - c. The project reduces risks to remaining housing; Council reserves and other land uses from erosion and coastal inundation. This risk reduction is crucial while longer term adaptation planning, and strategies are formulated for the broader Project area.
300. Section 104(1)(ab) also requires the decision maker to have regard to any measure proposed by the applicant to ensure positive effects to offset or compensate for adverse effects. I note that the applicant has not proposed any offset / compensation measures.
301. The following positive effects were identified by submitters if the proposal is to be granted:
- a. To repair earthquake damage and will provide a safe natural environment for everyone;
 - b. To reduce flooding and erosion along the estuary edge;
 - c. The completed works will benefit the local community through their health, safety and mental wellbeing;

- d. Will safeguard people's homes; and
 - e. To improve the accessibility to the estuary.
302. Overall, I conclude that the adverse effects of the proposal are acceptable subject to the mitigation proposed by the applicant and will result in the positive effects identified above.

Relevant Provisions (s104(1)(b))

303. Section 104(1)(b) requires the decision maker to have regard to the relevant provisions of the following documents:
- a. A national environmental standard;
 - b. Other regulations;
 - c. A national policy statement;
 - d. A New Zealand coastal policy statement;
 - e. A regional policy statement or proposed regional policy statement;
 - f. A plan or proposed plan;
304. Of relevance to this application are the following documents and provisions:
- a. National Policy Statement for Indigenous Biodiversity;
 - b. National Policy Statement for Freshwater Management;
 - c. New Zealand Coastal Policy Statement;
 - d. National Environmental Standards for Assessing and Managing Contaminants in Soil to Protect Human Health;
 - e. National Environmental Standards for Freshwater Management;
 - f. National Environmental Standards for Sources of Human Drinking Water;
 - g. Canterbury Regional Policy Statement;
 - h. Regional Coastal Environment Plan for the Canterbury Region;
 - i. Canterbury Land and Water Regional Plan;
 - j. Canterbury Air Regional Plan.
305. The applicant provided an assessment against the relevant statutory documents in Section 10 of their AEE.

National Policy Statement for Indigenous Biodiversity 2023

306. The National Policy Statement for Indigenous Biodiversity (NPS-IB) was gazetted on 7 July 2023 and being operative on 4 August 2023. Under Section 104(1)(b) the decision maker must now have regard to this new National Policy Statement.
307. The objective of this National Policy Statement is:
- a. To maintain indigenous biodiversity across New Zealand so that there is at least no overall loss in indigenous biodiversity after the commencement date; and
 - b. To achieve this:
 - i. Through recognising the mana of tangata whenua as kaitiaki of indigenous biodiversity;

- ii. By recognising people and communities, including landowners, as stewards of indigenous biodiversity;
 - iii. By protecting and restoring indigenous biodiversity as necessary to achieve the overall maintenance of indigenous biodiversity; and
 - iv. While providing for the social, economic, and cultural wellbeing of people and communities now and in the future.
308. I consider the following policies to be relevant from the NPS-IB:
- a. **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.
 - b. **Policy 2:** Tangata whenua exercise kaitiakitanga for indigenous biodiversity in their rohe.
 - c. **Policy 3:** A precautionary approach is adopted when considering adverse effects on indigenous biodiversity.
 - d. **Policy 4:** Indigenous biodiversity is managed to promote resilience to the effects of climate change.
 - e. **Policy 10:** Activities that contribute to New Zealand's social, economic, cultural, and environmental wellbeing are recognised and provided for as set out in this National Policy Statement.
 - f. **Policy 13:** Restoration of indigenous biodiversity is promoted and provided for.
 - g. **Policy 14:** Increased indigenous vegetation cover is promoted in both urban and non-urban environments.
309. I note that the applicant consulted with relevant Rūnanga prior to submitting their application and received written approval from the Te Ihutai Ahu Whenua Trust. The Rūnanga were given the opportunity to submit on the proposal, with the rūnanga choosing not to submit on the proposal. Through this process I consider that opportunity has been allowed for tangata whenua to exercise kaitiakitanga for indigenous biodiversity in their rohe.
310. The applicant has undertaken the relevant ecological surveys to identify the indigenous biodiversity within the project footprint that may be adversely affected by the proposed activities. Works will involve the disturbance of existing vegetation along the estuary edge, and the applicant has proposed management plans including a Seagrass and Saltmarsh Management Plan to manage indigenous biodiversity is protected during works and will also be working under a CEMP and ESCP. For this reason, I consider the proposed works will not be contrary to the NPS-IB and at a minimum will maintain quality of the existing biodiversity within the project footprint.
311. Therefore, provided that the applicant adheres to the recommended conditions of consent, I consider that the proposed works can give effect to the decision-making principles and will not be contrary to the policies contained within the NPS-IB.

National Policy Statement for Freshwater Management (NPS-FM) 2020

312. The National Policy Statement for Freshwater Management (NPS-FM) was gazetted on 3 August 2020 and being operative 3 September 2020. Under Section 104(1)(b) the decision maker must not have regard to this new National Policy Statement.
313. The Resource Management (Freshwater and Other Matters) Amendment Bill received Royal Assent on 24 October 2024 and has now become law. Following the amendments, decisions must not have regard to the Hierarchy of Obligations in Te

Mana o Te Wai (TMOTW) (i.e., clause 1.3(5)) or in the sole Objective of the NPS-FM 2020.

314. The amendments did not however, remove the need to “have regard” to “giving effect” to the remaining parts of TMOTW (i.e., the Concept and Principles).
315. In making this recommendation, no regard has been given to the Hierarchy of Obligations in Te Mana o Te Wai (TMOTW) (i.e., 1.3(5)) or in the sole Objective of the NPS-FM 2020.
316. Key obligations addressed by the NPS-FM are:
- a. Maintain the health and well-being of water bodies and freshwater ecosystem;
 - b. Maintain the health needs of people, such as drinking water; and
 - c. Improve and maximise the social, economic, and cultural well-being in Te Mana o Te Wai.
317. The applicant provided an assessment against the NPS-FM 2020 under Section 10.3.3.1 of the AEE.
318. I consider the following policies are relevant for the proposal:
- a. ***Policy 1: Freshwater is managed in a way that gives effect to Te Mana o Te Wai.***
 - b. ***Policy 2: Tangata whenua are actively involved in freshwater management (including decision-making processes), and Māori Freshwater values are identified and provided for.***
 - c. ***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.***
 - d. ***Policy 4: Freshwater is managed as part of New Zealand’s integrated response to climate change.***
 - e. ***Policy 5: Freshwater is managed (including through a National Objectives Framework) to ensure that the health and well-being of all other waterbodies and freshwater ecosystems is maintained and (if communities choose) improved.***
 - f. ***Policy 6: There is no further loss of extent of natural inland wetlands, their values are protected, and their restoration is promoted.***
 - g. ***Policy 15: Communities are enabled to provide for their social, economic, and cultural well-being in a way that is consistent with this National Policy Statement.***
319. I consider that the proposal is not anticipated to lead to any deterioration in the health of rivers, streams, lakes and wetlands (with the LWRP and CARP further permitting almost all activities).
320. Similarly, with no change to water quality anticipated, and the proposal providing for the social, economic and cultural well-being of the community, it is my view that the proposal is consistent with the policies and objectives of the National Policy Statement for Freshwater Management.

New Zealand Coastal Policy Statement (NZCPS)

321. The purpose of the New Zealand Coastal Policy Statement (NZCPS) is to relate policies to achieve the purpose of the Resource Management Act in relation to the coastal environment of New Zealand.

322. I consider the following objectives and policies of the NZCPS to be relevant to this proposal:

- a. **Objective 1:** *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.*

I consider the proposal is mostly consistent with this objective as natural biological and physical processes will be maintained. Coastal water quality and seagrass beds will be maintained as part of this proposal as the applicant does not propose to remove any seagrass beds.

- b. **Objective 2:** *To preserve the natural character of the coastal environment and protect natural features and landscape values.*

The applicant considers the works are considered appropriate as the project footprint encompasses the estuary edge where modifications have previously occurred. The existing structures have been left in a state of disrepair and by removing the piece-meal structures which are a health and safety hazard, and by re-forming the edge will improve the natural character of the edge. I rely on Mr Head's expertise regarding the effects on natural character, and consider the proposal is not contrary to this objective.

- c. **Objective 3:** *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.*

The applicant consulted with the relevant Rūnanga prior to submitting their application and received written approval from the Te Ihutai Ahu Whenua Trust. The Rūnanga were given the opportunity to submit on the proposal, with the rūnanga choosing not to submit on the proposal.

- d. **Objective 4:** *To maintain and enhance the public open space qualities and recreation opportunities of the coastal environment.*

The proposal is expected to enhance recreation opportunities in the coastal environment by providing two stepped accesses to the estuary bed, and a walkway along the estuary edge.

- e. **Objective 5:** *To ensure that coastal hazard risks taking account of climate change, are managed.*

I consider the proposal is inconsistent with this objective as the proposal did not allow for increased water levels due to sea level rise or other climate change impacts or changes in ground elevations were included in the design process. I note that this is a short term (20 years) structures and that the coastal hazard advice is that the proposed structures would likely address climate change and sea level rise for the next 20 years,

- f. **Objective 6:** *To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development.*

I consider the proposal is consistent with this objective as it provides for the local communities social, economic, and cultural wellbeing and their health and safety by removing the existing earthquake structures and eroding estuary edge which will improve the flooding capacity of the area and the safety of people using the estuary edge which was raised by many submitters as a positive effect to arise from this proposal.

- g. **Policy 1:** *Extent and characteristics of the coastal environment.*

The proposal will alter the characteristics of the area and the natural character. It will not adversely affect coastal processes or on coastal ecology with no disturbance to seagrass proposed. However, I rely on Mr Heads, Ms Burns and Mr Gabites expertise's in this regard and consider the proposal is not contrary with this policy.

h. Policy 2: The Treaty of Waitangi, tangata whenua and Māori heritage.

As above, the applicant consulted with relevant Rūnanga prior to submitting their application and received written approval from the Te Ihutai Ahu Whenua Trust. The Rūnanga were given the opportunity to submit on the proposal, with the rūnanga choosing not to submit on the proposal.

i. Policy 3: Precautionary approach; (2) In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change.

The applicant considers that the application is not a new development and is to provide a level of protection to existing infrastructure that was in place prior to the Canterbury Earthquake Sequence (CES), with the design life of the proposed structures of 20 years and the Council's Coastal Hazards Adaptation Program (CHAP) process to occur with the community in the future. I consider the application is inconsistent with this policy as the structures have been designed for longer than 20 years and have not taken into account climate change per Mr Gabites evidence.

j. Policy 6: Activities in the coastal environment.

The applicant considers the location of works is appropriate as the proposed structures are to replace the existing erosion and inundation structures currently present in the project footprint, in an area which has been modified by human development and as such the effects on natural character are limited. The proposal is expected to provide for the wellbeing of the community by providing erosion and inundation protection to pre-earthquake levels, and to remove the demolition material left behind therefore making it safer for the community to enjoy and use the area. I disagree with the applicants' conclusions that the proposal is consistent with this policy as the applicant is proposing an overly engineered design and the existing LINZ bund currently provides sufficient inundation protection, and a softer engineered cobble beach along the Southshore estuary coastline would provide sufficient protection against the coastal erosion for this area. However, as there is no adverse effect on coastal processes from the proposed engineered structures, I consider the proposal is not contrary with this proposal.

k. Policy 10: Reclamation and de-reclamation.

With regard to the availability of land, the reclamation required along the boundary of 44a Rocking Horse Road is required due to no land available or space to move the structure inland from the estuary bed. For the reclamation proposed along South New Brighton Park, there is not land available to move the proposed structures landward due to middens. The applicant considers that as the proposal is an earthquake legacy project, the projects objectives are to restore the edge and prevent further erosion. I consider the proposal is consistent with this policy as there is no space to move landward along South New Brighton Park and Southshore.

l. Policy 11: Indigenous biological diversity (biodiversity).

The applicant considers that the design of the project has avoided areas of seagrass, and a Seagrass and Saltmarsh Management Plan to help avoid any

adverse effects during construction works, and a Saltmarsh Remediation Plan. Effects on avifauna will be mitigated through the CCC land use permit.

*m. **Policy 13: Preservation of natural character.***

Due to structures existing in the environment which have been left in a state of disrepair and by removing the piece-meal structures which are a health and safety hazard, and by re-forming the edge will improve the natural character of the edge. The applicant will also not be removing or disturbing any seagrass beds through removing the reclamation and relocating stepped facilities more than 30m from any sensitive habitat. I rely on Mr Head's and Ms Burns expertise in this regard and consider the application will not be contrary to this policy.

*n. **Policy 15: Natural features and natural landscapes.***

The applicant considers the project will enhance access to the estuary edge and the estuary itself for recreational use following the CES and remove the existing damaged structures. Through the new structures and planting, the applicant considers that the application is consistent with the policy and will protect natural features such as the eroding middens. I consider the proposal is inconsistent with this policy.

*o. **Policy 17: Historic heritage identification and protection.***

The proposed structures will provide a positive effect to historic heritage, as the current erosion of the estuary edge has exposed midden sites of cultural significance. The design of the project allows protection to these heritage sites, with the applicant considering that any temporary construction-phase effects on the site will be outweighed by the long-term protection. I consider the proposal is inconsistent with this policy.

*p. **Policy 18: Public open space.***

The applicant notes that while the construction works are occurring public access to the estuary will be reduced however, once works are complete it will increase the public open space and improve the health and safety of the area by removing earthquake demolition material and the existing broken structures from the environment. I consider the proposal is consistent with this policy.

*q. **Policy 19: Walking access.***

The applicant considers that the proposal increases the public access to the CMA by providing two stepped accesses to the estuary bed and by providing a walkway along the estuary edge for walkers and cyclists. I consider the proposal is consistent with this policy.

*r. **Policy 22: Sedimentation.***

The applicant is proposing to work at low tide, and in accordance with an Erosion and Sediment Control Plan to minimise any sediment discharge to the estuary. The construction works are not expected to result in suspended solids or reduce water quality. I consider the proposal is consistent with this policy.

*s. **Policy 23: Discharge of contaminants.***

The applicant is proposing to undertake works in accordance with a Construction Environmental Management Plan (CEMP) and a Contaminated Soils Management Plan to minimize the discharge of contaminants to the CMA. I consider the proposal is consistent with this policy.

*t. **Policy 24: Identification of coastal hazards.***

The proposed works are to repair the existing coastal hazard protection. The applicant has undertaken an assessment identifying the coastal hazards for the area as part of their application. I consider the proposal is inconsistent with this policy as per Mr Gabites evidence.

u. Policy 25: Subdivision, use, and development in areas of coastal hazard risk.

The applicant considers that the works protects the community from social, environmental and economic harm from coastal hazards. The applicant states that the work will protect the remaining infrastructure and provide enhanced open space on the landward edge. I consider the work is inconsistent with the policy as the applicant has proposed 'harder engineered' structures where 'softer engineered' structures could be utilised along Southshore.

v. Policy 26: Natural defences against coastal hazards.

The applicant considers they are replacing the existing structures like for like, due to earthquake damage and protecting the community from further coastal hazards. The applicant also considers the cobble beach is part of an integrated solution to respond and move towards a more naturalised solution. Post notification the applicant amended the proposal to add a 'soft edge' beach to South New Brighton Park instead of cobble beach as a trial of a natural edge. I note that this soft edge trial is appropriate for the area proposed, with the applicant monitoring this trial over the duration of the consent to see if it would be appropriate elsewhere to move towards natural solutions. I consider the proposal is not contrary to this policy.

w. Policy 27: Strategies for protecting significant existing development from coastal hazard risk.

The applicant considers that managing climate change and coastal hazard risks in this area will take time in as it is an area of significant existing development. The applicant states that the works allows for adequate transitional response to options by providing allowance for adaptability and solutions that are sympathetic and consistent with naturalisation such as the soft edge trial and cobble beach. The applicant notes that further strategies through the CHAP process will occur over the duration of the consent to inform what will occur post the expiry of this consent. I consider the proposal is inconsistent with this policy per Mr Gabites evidence.

323. Provided that the applicant adheres to the recommended conditions of consent, I consider the proposal is largely consistent with the relevant objectives and policies of the NZCPS.

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

324. The NES-CS came into effect on 1 January 2012. The NES-CS is a nationally consistent set of planning controls and soil contaminant values. It ensures 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.
325. The NES-CS is managed by Territorial Authorities, and the Applicant has advised that they hold a global NES-CS consent RMA/2021/2094. Therefore, I consider the applicant has had regard to the NES-CS.

National Environmental Standard for Freshwater Management 2020 (NES-F)

326. The provisions of the NES-F have been discussed earlier in this report in the legal and planning section, with the proposal assessed against Regulation 45 which controls the use of land within or within a 10 m setback from a natural inland wetland for constructing specified infrastructure.
327. It has been determined that consent is required under Regulation 45. There are no further particulars in the NES-F which apply to the consideration of this application.

National Environmental Standards for Sources of Human Drinking Water (NES-SHDW)

328. The NES-SHDW sets the requirements for protecting sources of human drinking water from becoming contaminated. The NES-SHDW requires regional councils to ensure that effects of activities on drinking water sources are considered in decision on resource consents and regional plans.
329. Under the NES-SHDW Regional councils are required to:
- a. Decline discharge or water permits that are likely to result in community drinking water becoming unsafe for human consumption following existing treatment; and
 - b. Place conditions on relevant resource consents that require notification of drinking water suppliers if significant unintended events occur that may adversely affect sources of human drinking water.
330. Mr Green advised that he does not anticipate any adverse effects on drinking water quality of any wells or any public supplies due to the proposed works in the area.
331. I rely on Mr Green's expertise in this regard and therefore consider that the proposal will not result in community drinking water supplies becoming unsafe for consumption.

Canterbury Regional Policy Statement 2013 (CRPS)

332. The Canterbury Regional Policy Statement (CRPS) gives an overview of the significant resource management issues facing the region, including issues of resource management significant to Ngai Tahu. The CRPS sets out objectives, policies and methods to resolve those resource management issues and to achieve the integrated management of the natural and physical resources of Canterbury.
333. I consider the following objectives and policies of the CRPS to be relevant to this proposal:
- a. ***Objective 5.2.1: Location, Design and Function of Development (Entire Region).***

The applicant considers the project will provide consolidation of the existing urban areas including by providing protection for South New Brighton and Southshore communities from inundation, and flood protection to a mixture of private residential, public open space and associated infrastructure. It will provide for the social, economic and cultural wellbeing and health and safety of the people and community.
 - b. ***Policy 5.3.2: Development Conditions (Wider Region).***

The applicant considers the completed works will not compromise any existing or consented infrastructure in the area and will not compromise the development of the existing Southshore urban areas. The applicant also adds that this application effectively mitigates the risks of erosion, increased

inundation in the immediate/short term whilst allowing longer term design adaptation.

c. **Objective 6.2.1: Recovery Framework**

This application is considered recovery works from the CES to protect people from unacceptable risk from natural hazards and the effects of sea level rise for the 20-year design life period. The applicant considers that the works achieve the need for protection and will enhance indigenous biodiversity, public space and natural features and landscapes.

d. **Policy 6.2.3: Sustainability**

The applicant considers the application will enhance amenity and protect heritage values and has been developed in partnership with mana whenua.

e. **Policy 7.3.3: Enhancing freshwater environments and biodiversity**

There are no freshwater bodies affected by the proposed works. Seagrass will be avoided by the proposed works, with a Saltmeadow remediation plan in place to reestablish Saltmeadow in low-lying surfaces landward of the erosion protection structures.

f. **Objective 8.2.1: Increasing knowledge of the coastal environment and its resources**

The assessments undertaken as part of this consent application contribute to the knowledge of the coastal environment in this particular location.

g. **Objective 8.2.4: Preservation, protection, and enhancement of the coastal environment.**

The applicant considers the works are appropriate given their function is to protect the coastal edge from further erosion and to provide protection to properties from inundation, with provisions for protection historic heritage.

h. **Objective 8.2.5: Provision of access**

The public and Ngai Tahu will not be adversely affected by the proposal and will still be able to access the estuary edge.

i. **Objective 8.2.6: Protection and improvement of coastal water**

The construction works will be managed under a ESCP and no works to occur within the water column, will protect coastal water from any discharges of contaminants or accidental spills.

j. **Policy 8.3.1: Improving understanding of the coastal environment**

The assessments undertaken as part of this consent application contribute to the knowledge of the coastal environment in this particular location.

k. **Policy 8.3.2: Providing for the integration of management of natural and physical resources and activities in the coastal environment.**

The applicant considers the proposed conditions of consent will manage the effects of the overall project and will appropriately provide for the coordinated management of any effects associated with the activities. The applicant sought consent from both Canterbury Regional Council and Christchurch City Council which provides for this policy.

l. **Policy 8.3.3: Management of activities in the coastal environment.**

The applicant considers the application has been prepared in accordance with the appropriate framework in the RCEP.

- m. **Policy 8.3.5: Maintenance and enhancement of public and Ngai Tahu Access.**
Public and Ngai Tahu access to and along the coast will not be adversely affected by the proposal.
- n. **Policy 8.3.8: Discharge of contaminants of coastal water that is in a natural state.**
Coastal water will be protected from discharges of contaminants through the construction process by the appropriate use of a ESCP and measures to prevent spills.
- o. **Objective 9.2.1: Halting the decline in Canterbury's ecosystems and indigenous biodiversity.**
The applicant is not proposing to disturb seagrass beds and will be working under a Seagrass and Saltmarsh Management Plan to avoid adverse effects and a Saltmeadow Remediation Plan.
- p. **Objective 9.2.2: Restoration or enhancement of ecosystems and indigenous biodiversity.**
The applicant proposes planting to enhance the ecosystem along the estuary edge and proposes a Saltmeadow Remediation Plan.
- q. **Objective 8.2.3: Protection of significant indigenous vegetation and habitats.**
The applicant proposes to protect significant indigenous vegetation and habitats through their proposed management plans, including the Seagrass and Saltmarsh Management Plan and Saltmeadow Remediation Plan.
- r. **Policy 9.3.1: Protecting significant natural areas.**
The applicant considers there will be no loss of indigenous biodiversity or indigenous biodiversity values as a result of the project.
- s. **Policy 9.3.2: Priorities for Protection.**
The applicant considers the Seagrass and Saltmarsh Management Plan and Saltmeadow Remediation Plans, will set the priorities for protection during the works.
- t. **Policy 9.3.5: Wetland protection and enhancement.**
The applicant considers the Saltmeadow remediation plan will address wetland protection and enhancement during the construction works.
- u. **Objective 11.2.1: Avoid new subdivision, use and development of land that increases risks associated with natural hazards.**
The applicant considers the project will reduce the risk if natural hazards on properties in Southshore and South New Brighton Park by reinstating the previous protection damaged by the CES.
- v. **Objective 12.2.1: Identification and protection of outstanding natural features and landscapes**
The applicant considers there will be no adverse effects on the landscape values of Southshore and South New Brighton. The applicant also proposed planting to enhance the visual amenity and landscape values.
- w. **Policy 13.3.1: Recognise and provide for the protection of significant historic and cultural heritage items, places and areas.**
The proposed works will protect the middens that are located in areas at risk of erosion.

x. **Objective 17.2.1: Protection from adverse effects of contaminated land.**

The applicant considers there will be no adverse effects of contaminated land. The applicant states the re-use of contaminated soil will only be when the appropriate concentrations allow.

334. Provided that the applicant adheres to the recommended conditions of consent, I consider the proposal is not contrary to the relevant objectives and policies of the CRPS.

Regional Coastal Environment Plan for the Canterbury Region (RCEP)

335. The purpose of the RCEP is to promote the sustainable management of the natural and physical resources of the Canterbury coastal environment and to promote the integrated management of that environment.

336. I consider the following objectives and policies of the RCEP to be relevant to this proposal:

a. **Objective 6.1: To protect, and where appropriate enhance, the following areas, sites and habitats of high natural, physical, heritage or cultural values.**

The area of works possesses various natural, physical, heritage and cultural values, within both the immediate context of the area of works and the wider context of the Te Ihutai / Avon-Heathcote Estuary. The applicant sought various advice from specialists and have adopted their recommendations into the proposal and further amended the proposal post-notification to ensure that the values of the area are protected. The majority of reclamation has been removed from the proposal except where to avoid middens and 44a Rocking Horse Road where there is no other land available. As such, I consider the proposal is not contrary to this objective.

b. **Objective 6.3: Enable people to undertake commercial and recreational activities in the coastal environment while: (b) avoiding, remedying or mitigating the adverse effects of those activities on the natural character of the coastal environment.**

The proposal will allow for recreational activities to be carried out in a manner which mitigates the adverse effects of the activity on the natural character of the coastal environment.

c. **Objective 8.1: 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: (a) of conflicts between these uses and people's well-being, health, safety and amenity; and (b) on natural character, and other (natural, ecological, amenity, Tangata Whenua, historic and cultural) values of the coastal environment.**

I consider the proposal enables the use of the CMA while avoiding and mitigating the adverse effects on conflicts between the use and people's wellbeing, health, safety and amenity, and natural character, and other natural ecological, amenity, Tangata Whenua and historic values of the coastal environment.

d. **Policy 6.1: Within the coastal marine area Environment Canterbury will control activities and development to remedy or mitigate adverse effects on coastal ecosystems and processes, the identified values of areas of Significant Natural Value, the identified values of high natural, physical, heritage or cultural value, and natural character in areas of the coastal environment where natural character predominates.**

The applicant has amended the proposal post notification to mitigate adverse effects on coastal ecosystems and processes, and to protect areas of significant natural values such as the middens, seagrass beds, and the saltmarsh and Saltmeadow.

- e. **Policy 6.3:** *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.*

The applicant considers that the project will enhance the cultural value of the area through the protection of the middens. The project will remove the damaged existing structures and replace uniformly to preserve the natural character. The applicant also has proposed to remove the majority of the reclamation and to protect the seagrass beds, saltmarsh and Saltmeadow, including a Saltmeadow remediation plan to ensure effects are avoided and mitigated.

- f. **Objective 7.1:** *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.*

The proposal is expected to have a minimal effect on water quality as the construction will only occur outside of the water column, within the same tidal window and under a Construction Methodology Plan, a Construction Environment Management Plan and an Erosion and Sediment Control plan to ensure there is measures in place during construction.

- g. **Policy 8.2:** *Environment Canterbury will regulate activities in the Coastal Marine Area that may have adverse effects on the environment. These activities include: (d) reclamations; (g) activities involving structures, foreshore and seabed 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.*

The applicant has proposed to remove reclamation from the application except where it is not possible to at 44a Rocking Horse Road or to protect the middens. The structures proposed are to protect the community to any future erosion. I consider the proposal is not contrary to this policy.

- h. **Policy 8.3:** *In considering applications for resource consents to undertake activities in the Coastal Marine Area, Environment Canterbury will have regard to: (a) the existing level of use and development in the area and the national priority in the New Zealand Coastal Policy Statement to preserve the natural character of the coastal environment; (h) the possibility of natural features migrating inland as the result of dynamic coastal processes, including sea level rise, and the ability of natural features to protect subdivision, use and development from erosion and inundation.*

The proposal has adequately mitigated the potential adverse effects on the characteristics of the special value to tangata whenua, public use and enjoyment of the coast. I consider that a softer engineered approach would be preferred for the proposed structures along Southshore, therefore the application is inconsistent with this policy.

- i. **Policy 8.4:** *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: (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; (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 (c) the effects of the reclamation or removal of materials on natural coastal processes.

The applicant has proposed to remove the majority of reclamation from the application post notification to ensure that adverse effects are mitigated. The remaining reclamation is required to protect middens from further erosion and 44a Rocking Horse Road. The applicant proposes to use clean quarry rock to form the materials for the structures that will reclaim the estuary bed to ensure that no contaminants are introduced.

- j. **Policy 8.5:** 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: (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; (g) have regard to available alternative sites and the reasons for the applicant's choice of site; and (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.*

The applicant has had regard to any adverse effects on natural character of the area and take into account the existing development of the Southshore spit. The applicant has proposed landscape planting to enhance the area post the construction of the structures to help integrate these into the landscape. The applicant considers the works are necessary to protect public and private infrastructure with no alternative locations to provide erosion protection for the community.

- k. **Policy 8.7:** 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: (a) there are special or extraordinary and unique reasons why the activity should be sited in the area; and (b) any adverse effects on areas of significant indigenous vegetation or significant habitats of indigenous fauna, are avoided, remedied or mitigated.*

The works are located with an area of Significant Natural Values, and the applicant considers the works are necessary in this location and considers the amended proposal and mitigation measures will ensure that effects on the environment will be no more than minor.

- l. **Policy 8.10:** 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. 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. These restrictions should not apply where the vehicles or vessels are operated in*

these areas: (c) where it is necessary for authorised construction activities; (d) where it is necessary for the authorised removal of natural or other materials.

The applicant will not be using machinery within the estuary bed for the construction works and will be undertaken landward. The works will provide two new stepped accesses to the estuary bed opposed to ramps to deter motorised vehicles from accessing the estuary bed.

- m. **Policy 8.12:** *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. In granting applications for resource consents to erect or place structures in the Coastal Marine 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.*

The works will remove all the existing structures consented and unconsented which are damaged and unsafe to the public from the CES. It is considered that by removing these structures it will improve the safety and enhance the amenity of the area. This was one of the main concerns raised by submitters to have these removed for health and safety reasons.

- n. **Policy 8.14:** *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: (a) only grant the consent where the works are the best practicable option for the future; and (c) ensure that any such works are located and designed so as to avoid significant adverse effects on the environment to the extent practicable.*

The works are considered necessary to protect the community from continued erosion and flooding issues, and the proposal has been amended to improve the outcomes for the environment through removing the majority of the structures landward to avoid reclamation. The applicant has designed the structures to have a 20-year design life, with the CHAP process to occur meanwhile and inform what occurs for the community post the expiry of this consent.

- o. **Objective 9.1:** *(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; and (b) to avoid, remedy or mitigate significant adverse effects on the environment as a result of measures used to manage coastal hazards.*

The proposed works will provide protection to a level prior to the CES with the CHAP process occurring with the community. The applicant considers this is the best practicable option for natural hazard mitigation for the area. I consider that the proposal is inconsistent with this policy as the existing LINZ bund could provide sufficient protection until the CHAP process has been undertaken, however I consider the works are required to protect the community from the erosion occurring along the estuary edge.

- p. **Policy 9.1:** *(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; (f) any significant adverse effects from the location, type and design of coastal hazard damage minimisation measures should be avoided, remedied or mitigated; (h) new coastal protection works should be assessed, and measures taken or advocated as appropriate, to remedy or mitigate; (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.

The applicant considers the replacement structures are the best practicable option for natural hazard mitigation at this location. The structures have been moved landward to avoid reclamation and have been considered that they will not exacerbate coastal erosion at this location.

337. Provided that the applicant adheres to the recommended conditions of consent, I consider the proposal is not contrary to the relevant objectives and policies of the RCEP.

Canterbury Land and Water Regional Plan (LWRP)

338. The purpose of the LWRP is to identify the resource management outcomes or goals (objectives) for managing land and water resources in Canterbury to achieve the purpose of the Resource Management Act 1991. It identifies the policies and rules needed to achieve the objectives and provides direction in terms of the processing of resource consent applications.
339. This activity is located within Section 9 of the LWRP. Therefore, the regional objectives and policies within the Christchurch West Melton Subregion must be considered.
340. I consider the following objectives and policies of the LWRP to be relevant to this proposal:
- a. **Policy 2A.1:** *When considering any application for a discharge the consent authority must have regard to matters.*
 - b. **Objective 3.1:** *Land and water are managed as integrated natural resources to recognise and enable Ngai Tahu culture, traditions, customary uses and relationships with land and water.*
 - c. **Objective 3.5:** *Land uses continue to develop and change in response to socio-economic and community demand.*
 - d. **Objective 3.6:** *Water is recognised as essential to all life and is respected for its intrinsic values.*
 - e. **Objective 3.13:** *Groundwater resources remain a sustainable source of high-quality water which is available for abstraction while supporting base flows or levels in surface water bodies, springs and wetlands and avoiding salt-water intrusion.*
 - f. **Objective 3.19:** *Natural character values of freshwater bodies, including braided rivers and their margins, wetlands, hāpua and coastal lagoons, are protected.*
 - g. **Objective 3.22:** *The effectiveness of both man-made natural hazard protection infrastructure, and wetlands and hāpua as natural water retention areas, is maintained to reduce the risk of and effects from natural hazards, including those arising from seismic activity and climate change.*

- h. **Objective 3.23:** Soils are healthy and productive, and human-induced erosion and contamination are minimised.
- i. **Objective 3.24:** All activities operate at good environmental practice or better to optimise efficient resource use and protect the region's freshwater resource use and protect the region's freshwater resources from quality and quantity degradation.
- j. **Policy 4.2:** The management of lakes, rivers, wetlands and aquifers will take account of the freshwater outcomes, water quantity limits and the individual and cumulative effects of land uses, discharges and abstractions will meet the water quality limits in Sections 6 to 15.
- k. **Policy 4.4:** Groundwater is managed so that; (e) overall water quality in aquifers does not decline; and (f) the exercise of customary uses and values is supported.
- l. **Policy 4.13:** For other discharges of contaminants into or onto land where it may enter water or to surface water bodies or groundwater, the effects of any discharge are minimised by the use of measures.
- m. **Policy 4.14B:** Have regard to Ngai Tahu values, and in particular those expressed within an iwi management plan, when considering applications for discharges which may adversely affect statutory acknowledgement areas, nohonga sites, surface waterbodies, silent file areas, culturally significant sites, Heritage New Zealand sites, any listed archaeological sites, and cultural landscapes, identified in this Plan, any relevant district plan, or in any iwi management plan.
- n. **Policy 4.15:** In urban areas, the adverse effects on water quality, aquatic ecosystems, existing uses and values of water and public health from the cumulative effects of sewage, wastewater, industrial or trade waste or stormwater discharges are avoided by: (ab) all stormwater being discharges to land or into reticulated system, where a reticulated system is available.
- o. **Policy 4.17:** Stormwater run-off volumes and peak flows are managed so that they do not cause or exacerbate the risk of inundation, erosion or damage to property or infrastructure downstream or risks to human safety.
- p. **Policy 4.18:** The loss or discharge of sediment or sediment laden water and other contaminants to surface water from earthworks, including roading, works in the bed of a river or lake, land development or construction, is avoided, and if this is not achievable, the best practicable option is used to minimise the loss or discharge to water.
- q. **Policy 4.19:** The discharge of contaminants to groundwater from earthworks, excavation, waste collection or disposal sites and contaminated land is avoided or minimised.
- r. **Policy 4.22:** Sedimentation of water bodies as a result of land clearance, earthworks and cultivation is avoided or minimised by the adoption of control methods and technologies such as maintaining continuous vegetation cover adjacent to water bodies or capturing surface run-off to remove sediment and other contaminants or by methods such as direct drilling crops and cultivation that follows the contours of a paddock.
- s. **Policy 4.23:** Any water source used for drinking-water supply is protected from any discharge of contaminants that may have any actual or potential adverse effect on the quality of the drinking-water supply.

- t. **Policy 4.26:** Any discharges of hazardous substances from contaminated land, including existing and closed landfills, are managed to ensure that adverse effects beyond the site boundary on people's health or safety, on human or stock water supplies, or on surface water are avoided.
 - u. **Policy 4.81:** Any take, use, damming or diversion of water, any discharge of contaminants onto land or into water, or any earthworks, planting, vegetation removal or other land uses within a wetland boundary, do not adversely affect the significant values of wetlands, hāpua, coastal lakes and lagoons.
 - v. **Policy 4.82:** Modification of wetlands, hāpua, coastal lakes and lagoons may occur if the modification is necessary and necessarily has to be in that location to provide for the installation, upgrading or maintenance of infrastructure and any significant effects are offset by other improvements to or expansion of the same or another wetland, hāpua, coastal lake or lagoon.
 - w. **Policy 4.85:** Water quality, indigenous biodiversity and ecosystem health in lakes, rivers, wetlands, hāpua, coastal lakes and lagoons are enhanced through establishing or restoring riparian planting.
 - x. **Policy 4.96:** The consequential effects of seismic activity are recognised and timely and appropriate responses to such activity are facilitated.
 - y. **Policy 4.98:** In urban areas, where groundwater hydrology has changed as a result of seismic activity, including new springs and altered groundwater levels, allow site-specific remediation to occur.
 - z. **Policy 4.97:** Remediation works which are necessary to enable people and communities to recover from natural hazard events: (d) adverse effects on the environment resulting from the works are avoided, remediated or mitigated
341. I consider that as the applicant is proposing to undertake earthworks under a Construction Environmental Management Plan, Construction Methodology Plan, and an ESCP, the proposal has recognised the value of water, and its intrinsic value is being respected to the best practicable ability. The ESCP will ensure that any adverse effects will be appropriately avoided or mitigated and overall water quality in aquifers will not decline as a result of the proposed activities.
342. The discharge of contaminants to land through the re-use of contaminated soils or materials will be managed under the applicant's global consent and is unlikely to contaminate the aquifer that is utilised for drinking water. Stormwater is proposed to be discharged to the CCC network where appropriate.
343. The proposal will help enable further safety and enjoyment of the space for the community and will not negatively impact water quality within the estuary.
344. Provided that the applicant adheres to the recommended conditions of consent, I consider the proposal is consistent with the relevant objectives and policies of the LWRP.

Canterbury Air Regional Plan (CARP)

345. The Canterbury Air Regional Plan (CARP) was made operative 31 October 2017. The CARP's purpose is to promote the sustainable management of Canterbury's air resource, and it contains rules and provisions to address air quality issues with the Canterbury Region.
346. The applicant considers the proposal is consistent with the objectives and policies of the CARP, with mitigation in place such as the CEMP and CMP to minimise and manage dust discharge effects on sensitive activities with no-ongoing discharge to air associated with the proposal.

347. The following objectives and policies of the CARP to be relevant to this proposal:
- a. **Objective 5.1:** Air quality protects the mauri and life supporting capacity of the environment.
 - b. **Objective 5.5:** Air quality is managed in a way that provides for the cultural values and traditions of Ngai Tahu.
 - c. **Objective 5.6:** Amenity values of the receiving environment and will be maintained.
 - d. **Objective 5.7:** Discharges from new activities are appropriately located to take account of adjacent land uses and sensitive activities.
 - e. **Policy 6.1:** Discharges of contaminants into air, either individually or in combination with other discharges, do not cause: (b) adverse effects on the mauri and life supporting capacity of ecosystems, plants or animals.
 - f. **Policy 6.2:** Recognise the value of air quality as a taonga to Tangata Whenua and manage adverse effects of discharges into air on wahi tapu, wahi taonga, and places of significance to Ngai Tahu.
 - g. **Policy 6.8:** Offensive and objectionable effects are unacceptable and actively managed by plan provisions and the implementation of management plans.
 - h. **Policy 6.9:** Discharges into air from new activities are appropriately located and adequately separated from sensitive activities, taking into account land use anticipated by a proposed or operative district plan and the sensitivity of the receiving environment.
 - i. **Policy 6.11:** When evaluating resource consent applications recognise locational constraints on activities, when imposing terms and conditions.
348. I consider that the proposed mitigation measures which includes a Dust Management Plan will ensure that the proposal is consistent with the relevant objectives and policies.

Other Relevant Matters (s104(1)(c))

349. I consider that the decision maker should have regard to the following matters:
- a. Iwi Management Plan; and
 - b. The Canterbury Water Management Strategy.

Iwi Management Plan

Mahaanui Iwi Management Plan 2013

350. The site is located within the rohe of Te Ngai Tūāhuriri Rūnanga.
351. The relevant Iwi Management Plan is the Mahaanui Iwi Management Plan 2013.
352. The applicant considers the proposal to be consistent with the provisions of the Mahaanui Iwi Management Plan as they have engaged within mana whenua throughout the development of the concept design of the project, with input into the landscape design and design solutions to enhance the cultural values of the area.
353. Relevant policies and direction from this IMP includes the following:
- a. **K1.3:** Papatipu Runanga are the regional collective bodies representing the tangata whenua who hold manawhenua and are responsible for protecting hapu and tribal interests in their respective takiwā.

- b. **K2.3:** In giving effect to Te Tiriti, government agencies and local authorities must recognise and provide for kaitiakitanga and rangatiratanga. As the tangata whenua who hold manawhenua, Ngai Tahu interests in resource management extend beyond stakeholder or community interests.
- c. **R1.1:** To protect the mauri of air from adverse effects associated with discharge to air activities.
- d. **R2.2:** To require that the regional council recognise and provide for the relationship of Ngai Tahu with air, and the specific cultural considerations regarding air quality, including the protection of cultural amenity values.
- e. **R3.3:** To require that local authorities recognise and provide for the potential effects of climate change on resources and values of importance to Ngai Tahu, for example:
 - i. Effects of sea level rise on coastal marae and coastal wahi tapu, including urupā;
 - ii. Increased salination of rivers and hāpua, affecting mahinga kai resources and customary use;
 - iii. Warming of oceans and effects on marine ecosystems, including those on the sea floor;
 - iv. Changes to the amount of rainfall, and effects on aquifer recharge;
 - v. Lake management regimes, including the opening of Te Waihora and Te Roto o Wairewa to the sea; and
 - vi. Changes to the habitats of indigenous flora and fauna, including taonga species.
- f. **WM2.2:** To require that water is recognised to all life and is respected for its taonga value ahead of all other values.
- g. **WM6.8:** To continue to oppose the discharge of contaminants to water, and to land where contaminants may enter water.
- h. **WM6.16:** To require, in the first instance, that all potential contaminants that may enter water (e.g., nutrients, sediments and chemicals) are managed on site and at source rather than discharged off site. This applies to both rural and urban activities.
- i. **WM6.17:** To require the development of stringent and enforceable controls on the following activities given the risk to water quality:
 - i. Subdivision and development adjacent to waterways.
- j. **WM12.4:** All waterways in the urban and built environment must have indigenous vegetated healthy, functioning riparian margins.
- k. **WM13.1:** To recognise and protect all wetlands, waipuna and riparian areas as wahi taonga that provide important cultural and environmental benefits, including but not limited to:
 - i. Mahinga kai habitat;
 - ii. The provision of resources for cultural use;
 - iii. Cultural well-being;
 - iv. The maintenance and improvement of water quality; and
 - v. Natural flood protection.

- l. **WM13.7:** To recognise the protection, establishment and enhancement of riparian areas along waterways and lakes as a matter of regional importance, and a priority of Ngai Tahu.
- m. **P9.2:** To require the appropriate valuation of soil resources as taonga and as natural capital, providing essential ecosystem services.
- n. **P9.3:** To protect the land from induced soil erosion as a result of unsustainable land use and development.
- o. **P9.4:** To support the following methods and measures to maintain or improve soil organic matter and soil nutrient balance, and prevent soil erosion and soil contamination:
 - i. Matching land use with land capability (i.e., soil type, slope, elevation).
 - ii. Restoration and enhancement of riparian areas, to reduce erosion and therefore sedimentation of waterways;
 - iii. Restoration of indigenous vegetation, including the use of indigenous tree plantations as erosion control and indigenous species in shelter belts; and
 - iv. Avoiding leaving large areas of land/soil bare during earthworks and construction activities.
- p. **P10.1:** The management of contaminated land must recognise and provide for specific cultural issues, including:
 - i. The location of contaminated sites;
 - ii. The nature of the contamination;
 - iii. The potential for leaching and run-off;
 - iv. Proposed land use changes; and
 - v. Proposed remediation or mitigation work.
- q. **P11.1:** To assess proposals for earthworks with particular regard to:
 - i. Potential effects on wahi tapu and wahi taonga, known and unknown;
 - ii. Potential effects on waterways, wetlands and waipuna;
 - iii. Potential effects on indigenous biodiversity;
 - iv. Potential effects on natural landforms and features, including ridge lines;
 - v. Proposed erosion and sediment control measures; and
 - vi. Rehabilitation and remediation plans following earthworks.
- r. **P11.8:** To require the planting of indigenous vegetation as an appropriate mitigation measure for adverse impacts that may be associated earthworks activity.
- s. **P11.9:** To require stringent and enforceable controls on land use and earthworks activities as part of the resource consent process, to protect waterways and waterbodies from sedimentation, including but not limited to:
 - i. The use of buffer zones;
 - ii. Minimising the extent of land cleared and left bare at any given time; and
 - iii. Capture of run-off, and sediment control.
- t. **P12.1:** To promote land use and land use management that avoids undue soil disturbance and vegetation clearance.

- u. **TM2.8:** To require the integration of robust biodiversity objectives in urban, rural land use and planning, including but not limited to:
 - i. Use of indigenous species as street trees in residential developments, and in parks and reserves and other open space; and
 - ii. Establishment of planted indigenous riparian margins along waterways.
- v. **TAN2.1:** To require that coastal water quality is consistent with protecting and enhancing customary fisheries, and with enabling tangata whenua to exercise customary rights to safely harvest kaimoana.
- w. **TAN3.1:** To require that coastal wetlands, estuaries and hāpua are recognised and protected as an integral part of the coastal environment, and for their wahi taonga value as mahinga kai, or food baskets, of Ngai Tahu.
- x. **TAN5.2:** To continue to contribute to Ngai Tahu whānui efforts to have customary rights and interests to the foreshore and seabed recognised and provided for in a fair and just way.
- y. **TAN6.1:** To require that local government and the Crown recognise and provide for the ability of tangata whenua to identify particular coastal marine areas as significant cultural landscapes or seascapes.
- z. **TAN6.2:** To require that coastal marine areas identified by tangata whenua as significant cultural landscapes or seascapes are protected from inappropriate coastal land use, subdivision and development.
- aa. **TAN7.1:** To require that local authorities recognise and provide for the particular interest of Ngai Tahu in coastal land development activities, including but not limited to:
 - i. The protection of coastal headlands and skylines;
 - ii. The protection of coastal indigenous biodiversity, including remnant forest and endemic species;
 - iii. The protection of mahinga kai values;
 - iv. The protection of wahi tapu and wahi taonga;
 - v. The protection of views significant natural features and landmarks;
 - vi. Access to coastal areas for customary use;
 - vii. Ngai Tahu aspirations for coastal areas, including the establishment of mātaihai and taiāpure;
 - viii. The potential for sedimentation and contamination of coastal waters; and
 - ix. The increased pressure on existing water resources and community infrastructure.
- bb. **TAN7.3:** To require a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown or poorly understood.
- cc. **TAN7.5:** To require that local authorities recognise and provide the cumulative impacts of land use change on the natural and cultural landscape values of coastal areas, including:
 - i. Effects of incremental development; and
 - ii. Ensuring that existing modification of the landscape is not used to justify change where it is inappropriate to allow further coastal development.

dd. **CL3.8:** To require, where a proposal is assessed by tangata whenua as having the potential to affect wahi tapu or wahi taonga, one or more of the following:

i. Low risk to sites:

1. Accidental discovery protocol (ADP).

ii. High risk to sites:

1. Cultural impact assessment (CIA);

2. Site visit;

3. Archaeological assessment, by a person nominated by the Papatipu Rūnanga;

4. Cultural monitoring to oversee excavation activity, record sites or information that may be revealed, and direct tikanga for handling cultural materials;

5. Inductions for contractors undertaking earthworks;

6. Accidental discovery protocol agreements (ADP); and

7. Archaeological Authority from the New Zealand Historic Places Trust.

ee. **CL5.1:** Ngai Tahu whānui must have unrestricted access to wahi tapu, wahi taonga and other places of cultural importance on Crown land.

ff. **IH3.2:** To require that waterways and waterbodies (including Te Ihutai) are managed to achieve and maintain a water quality standard consistent with food gathering.

gg. **IH6.4:** To recognise and progressively restore the natural ability of waterways in the catchment to provide flood protection, filtration and other ecosystem services, by:

i. Establishments of native riparian vegetation along waterways;

ii. Restoration of native riparian vegetation along waterways;

iii. Restoration of wetlands and springs;

iv. Restoration of natural form and function of the floodplain system, including providing for its dynamic characteristics; and

v. Naturalisation of the existing drainage network.

hh. **IH7.1:** To require that indigenous biodiversity is recognised and provided for as an integral part of the natural and cultural heritage of the Ihutai catchment and the city landscape.

354. I consider that the construction-phase works is generally consistent with the above direction of the Mahaanui Iwi Management Plan through the applicant's proposed mitigation measures to protect land and water which includes an Erosion and Sediment Control Plan, a Construction Methodology Plan and a Construction Environmental Management Plan. The Rūnanga did not exercise their right to submit on this application. However, the applicant stated within the application that they engaged with Rūnanga during the development and concept design process and also received written approval from the Te Ihutai Ahu Whenua Trust.

355. Therefore, taking into account with the technical responses received, and provided that the applicant adheres to the recommended conditions of consent, I consider that the proposal is not contrary with the IMP.

Canterbury Water Management Strategy (CWMS)

356. The proposal is located within the area managed by the Christchurch-West Melton Zone Committee. The committee have generated a Zone Implementation Programme (ZIP) for this zone. ZIPs are non-statutory documents completed by each of the Zone Committees within the Canterbury Region. ZIPs contain zone-specific recommendations for water management to achieve the CWMS targets.
357. The Christchurch-West Melton ZIP contains several priority outcomes which are applicable to this application. These are to protect and improve water quality of both surface and groundwater.
358. Given the advice from the technical experts, and given the proposed mitigation measures, including the use of an ESCP and measures to manage accidental aquifer interception, I consider that the proposal is not contrary to the priority outcomes identified in the ZIP.

Other s104 matters

359. I have also considered those other matters in s104 to determine whether they affect my recommendation. In this case, I consider that there are no other relevant matters.

Matters relevant to certain applications (s105(1))

360. In addition to the matters in s104(1), s105(1) also requires decision makers to have regard to the following matters for applications for that would contravene s15 or section 15B of the RMA:
- a. The nature of the discharge and the sensitivity of the receiving environment to adverse effects;
 - b. The applicant's reasons for the proposed choice; and
 - c. Any possible alternative methods of discharge, including discharge into any other receiving environment.
361. I have had regard to the above matters and note that the adverse effects of the discharge are minor, and that there are not possible alternatives.
362. The applicant's reasons for the proposed choice are no alternative stormwater discharge methods as the works will be occurring on the Estuary Edge, it is considered no alternative method of discharge during the construction-phase activities and there is no alternative receiving environment available.

Part 2 – Purpose and Principles

363. Having had regard to those matters specified in s104(1)(b) and following the guidance of *Davidson* (discussed above), I must consider whether it is necessary to resort to Part 2 in order to determine this application.
364. Section 5 of the RMA states that the purpose of this Act is to "*promote the sustainable management of natural and physical resources*".
365. Section 5(2) then goes on to state that:

*In this Act, **sustainable management** means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while-*

- (a) *Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and*
- (b) *Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*
- (c) *Avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

366. The purpose is then achieved by the guidance provided by the Principles of the RMA (i.e. s.6, s.7, and s.8).

367. I have considered the objectives and policies of the relevant documents in s104(1)(b) and consider they were appropriately prepared to give effect to Part 2 of the RMA. As the application is inconsistent with those provisions, I therefore that the application will achieve the purpose of the RMA as defined in section 5.

Determination of the Application

368. Having had regard to those matters specified in s104(1) and s105(1) is then necessary to consider those matters relevant to determining the application, as determined by its status.

369. The application is considered to be a non-complying activity, and therefore I must consider the following matters when considering whether to recommend granting or refusing the application:

Particular restrictions for non-complying activities (s104D)

370. As a **non-complying** activity, I must determine whether it meets the 'gateway' tests of s104D RMA, specifically the application may only be granted if the decision maker is satisfied that:

- a. The adverse effects of the activity (except where s104(3)(a)(ii) applies) will be minor; or
- b. The application is not contrary to the objective and policies of the relevant plan and/or proposed plan.

371. I consider that the adverse effects arising from the proposal will be minor.

372. I have also considered this application against the provisions of the operative proposed plan and consider that it is not contrary to those provisions.

373. The application may therefore be granted.

Determination of applications for discretionary or non-complying activities (Section 104B)

374. After considering an application for a resource consent for a **non-complying activity**, a consent authority:

- (a) *May grant or refuse the application; and*
- (b) *If it grants the application, may impose conditions under section 108 of the RMA.*

Restriction on grant of certain discharge permits (s107)

375. Under Section 107(1) of the RMA a consent authority shall not grant a consent for the discharge of a contaminant into water, or onto or into land, if after reasonable mixing the discharge is likely to give rise in the receiving waters, to:

- (a) *The production of conspicuous oil or grease films, scums, foams, floatable or suspended material:*
- (b) *Any conspicuous change in the colour or visual clarity:*
- (c) *Any emission of objectionable odour:*
- (d) *The rendering of fresh water unsuitable for consumption by farm animals:*
- (e) *Any significant adverse effects on aquatic life."*

376. I consider that the discharge will not give effect to those matters specified in s107(1) and therefore may be granted.

Recommendation

377. Having had regard to those matters in s104 and s105, and that consent is able to be granted in accordance with s104, B, D and s107, I recommend granting consent subject to the conditions and duration recommended below.

Conditions (section 108)

378. Section 108 enables the consent authority to impose conditions subject to those restrictions specified in s108 and s108AA.
379. If the decision maker agrees with my recommendation to grant consent, I have attached a set of conditions within Appendices 7 – 10 which are a starting point that as I consider that effects can be effectively managed, further work needs to be done with the applicant to ensure that the condition set is fit for purpose and will result in the intended outcomes.

Duration (section 123)

380. Section 123 details the possible durations of resource consent.
381. A duration of 10 years is sought for all construction-phase related activities, and a duration of 20 years is sought for all enduring occupation of all proposed structures to be constructed within the CMA.
382. In considering an adequate consent duration, I have had regard to the following factors developed through case law that are relevant to the determination of the duration of a resource consent:
- a. The duration of a resource consent should be decided in a manner which meets the RMA's purpose of sustainable management;
 - b. Whether adverse effects would be likely to increase or vary during the term of the consent;
 - c. Whether there is an expectation that new information regarding mitigation would become available during the term of the consent;
 - d. Whether the impact of the duration could hinder implementation of an integrated management plan (including a new plan);
 - e. That conditions may be imposed requiring adoption of the best practicable option, requiring supply of information relating to the exercise of the consent, and requiring observance of minimum standards of quality in the receiving environment;

- f. Whether review conditions are able to control adverse effects (the extent of the review conditions proposed is also relevant bearing in mind that the power to impose them is not unlimited);
 - g. Whether the relevant plan addresses the question of the duration of a consent;
 - h. The life expectancy of the asset for which consents are sought;
 - i. Whether there was/is significant capital investment in the activity/asset; and
 - j. Whether a particular period of duration would better achieve administrative efficiency.
383. Taking the above reasonings and policy guidance into consideration, I consider a duration of 10 years is appropriate for construction related consents (CRC242267, CRC242269 and CRC251999) and a duration of 20 years is appropriate CRC242268.

Prepared by:  Date: 11/11/2025

Name: Olivia Murray
Consents Planner

Reviewed by:  Date: 13/11/2025

Name: Nardia Feehan
Principal Consents Advisor

APPENDIX 1 – MEMORADUM BY MS ALICE BUTLER

Before the Independent Hearing Panel appointed by
the Canterbury Regional Council

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Application CRC242267 to
CRC242269

Addendum to Section 42A Officer's Report

Report of Alice Butler

Introduction

Background

1. This report forms part of the Canterbury Regional Council's (CRC) audit of the assessment of environmental effects (AEE) provided by Christchurch City Council (the applicant) in support of resource consent applications for Southshore and South New Brighton Park erosion protection and inundation protection works.
2. This report will provide the decision-maker with information and advice related to:
 - a. Contaminants of concern on the site
 - b. Recommendations for reducing contaminant mobilisation to soils
 - c. The actual and potential effects of the proposal from a contaminated land perspective
3. While not required for a Council hearing for a resource consent application, I have read the Code of Conduct for Expert Witnesses in giving evidence to the Environment Court. I agree to comply with that code when giving evidence to the Hearing Panel in this matter. All my evidence is within my expertise and I have considered and stated all material facts known to me which might alter or qualify the opinions I express.

Qualifications

4. I, Alice Butler, am a scientist in the Contaminated Land and Waste Team at CRC. I have over five and a half years of experience in the Contaminated Land and Waste Team. Throughout my time at CRC I have provided technical advice on matters relating to the identification, investigation and remediation of contaminated sites in Canterbury. I have provided technical advice on matters relating to contaminated land and waste to Consent Planners on numerous consent applications. I also provide advice to territorial authorities on the implementation of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (MfE, 2011b).
5. I hold a Bachelor of Science Degree majoring in Geology and Geography from the University of Canterbury.
6. This report has been peer reviewed by Hannah Mirabueno, Senior Scientist on the Contaminated Land and Waste Team at Environment Canterbury.

Scope of Report

7. This report is prepared under the provisions of section 42A of the Resource Management Act 1991 (RMA). This section allows a council officer or consultant to

14.

provide a report to the decision-maker(s) on a resource consent application made to the council and allows the decision-maker(s) to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker(s) to request and receive from any person who makes a report under Section 42A "any information or advice that is relevant and reasonably necessary to determine the application".

8. This report is supplementary to the Section 42A Report prepared by the CRC for the above resource consent applications. Full details of the consent applications are provided in that report. To carry out this audit of the consent applications I have considered the relevant sections of the assessment of effects on the environment (AEE) submitted by the applicant, including its technical appendices. I also reviewed the s92 response dated 23rd October 2024. I attended a site visit on the 16th July 2025. Finally, I have also taken into account relevant issues raised by submitters in relation to the effects I have considered in this report.

Consideration of Submissions

9. CRC received 301 submissions for CRC242267-9, three of which opposed the application. Concerns raised included the loss of intertidal habitats, coastal squeeze and effects to inanga and lizards. I defer to water and land ecology experts regarding the mitigation of these impacts.

Assessment of Receiving Environment

10. The proposal included two areas of flood protection and erosion works. The areas included the South New Brighton Park (SNBP) and the Southshore bund area. A Preliminary Site Investigation (PSI) (Jacobs, 2022) and Detailed Site Investigation (DSI) (Jacobs, 2023) were completed across both areas to assess if land use activities on the Ministry for the Environment (MfE) Hazardous Activities and Industries List (HAIL) had occurred at the site. The following HAIL activities were discussed in the SNBP area:
 - a. A10 - Persistent pesticide bulk storage or use. This applied to the cricket pitch and tennis courts.
 - b. A17 - Storage tanks or drums for fuel, chemicals or liquid waste. Two underground storage tanks were noted on the property in 1993. In 2005, one of the tanks were removed.
 - c. E1 - Asbestos products manufacture or disposal. Asbestos was noted in the southern portion of the SNBP in September 2024 by Canterbury Regional Council officers. The location did not intersect the area of proposed works.The location of the HAIL these activities in the SNBP were not considered to be located within the portion of land where the proposal will occur.
11. The PSI identified suspected asbestos containing material (ACM) in nine structures along the shoreline and HAIL activity 'I' (Any other land that has been subject to the intentional or accidental release of a hazardous substance in sufficient quantity that it could be a risk to human health or the environment) may apply, owing to the demolished residential buildings.
12. During the DSI, 54 soil samples were collected along Southshore adjacent to the estuary at varying depths and analysed for trace elements (arsenic, cadmium, chromium, copper, lead, nickel, and zinc) and asbestos in soil (semi-quantitative) analysis. Anthropogenic material (including plastic, nails, glass, wood, ceramic, brick, and clay fragments) were observed in 17 of the 21 test pits. Asbestos was reported as present in eight locations. Trace elements were detected at concentrations above background levels. Relative to the ANZG (2018) default guideline values (DGVs), lead exceeded the
- 14.

an appropriate landfill. I agree that from a human health perspective, material (including soil) containing, or potentially containing asbestos should not be re-used on site.

18. Asbestos was found to be present in eight seawall structures with another two suspected locations. These structures were in the vicinity of the estuary edge or the proposed bund alignment. Asbestos is predominantly a human health concern as opposed to an environmental risk. It is likely that the human health risks with the disturbance of asbestos contaminated soil and structures will be addressed in the consents under the NES-CS, 2011 regulated by the Christchurch City Council. I recommend the method of encapsulating asbestos contaminated material (if it is to occur) is included in detail in the CSMP and is in accordance with BRANZ 2017 guidelines. An ongoing site management plan would also be required at the completion of works including but not limited to:
 - a. where the encapsulated asbestos material is located
 - b. methods for regular inspection of encapsulated material
 - c. encapsulation methods and design (clean soil capping and geotextile marker)
 - d. surface stabilisation methods
 - e. maintenance and repair procedures

Conclusions and Recommendations

19. The information provided to date had some contradictions relating to soil re-use. The proposed consent conditions stated that only soil meeting the definition of cleanfill will be re-used and the DSI discussed that soil meeting the NES-CS recreational land use criteria may be re-used. My following recommendations seek to clarify how decisions will be made for soil re-use to protect ecological receptors.
20. I recommend an updated CSMP is provided which will address all contaminants present on the site (including trace elements and asbestos) with reference to the guideline values which will inform re-use decisions to protect both human health and ecological receptors. The CSMP should outline the methodology for determining whether soil meets the adopted re-use criteria of cleanfill. If soil which doesn't meet the WasteMINZ (2023) cleanfill definition are proposed for re-use, I recommend an assessment of environmental effects is completed considering the effects the elevated contaminants will pose on the receiving environment. I recommend the ANZG DGV is adopted for the protection of ecological receptors in surface water. The ANZG DGV is less conservative than the cleanfill definition but would be more sustainable in terms of off site disposal whilst being protective of the estuarine environment.
21. I recommend the applicant confirms whether they intend to encapsulate asbestos contaminated material or soils on site. If they do intend to encapsulate, the CSMP shall be updated to include the methods and design for encapsulation and a long term site management plan should be required outlining procedures and maintenance in accordance with BRANZ 2017 guidelines.
22. I recommend as a condition of consent that the updated CSMP and the ESCP are reviewed and approved by Environment Canterbury prior to earthworks commencing.
23. I recommend a condition of consent that only cleanfill materials as defined in the Technical Guidelines for Disposal to Land (WasteMINZ 2023) can be used as imported fill.

14.

References

- Australian and New Zealand Environment and Conservation Council (ANZC). 2018. *Australian and New Zealand Guidelines for fresh and Marine Water Quality Guidelines*
- BRANZ Ltd. 2017. *New Zealand Guidelines for Assessing and Managing Asbestos in Soil*
- Christchurch City Council (CCC). 2024. *s92 Request for information response*
- Jacobs. 2022. *Southshore and South New Brighton Erosion Protection Preliminary Site Investigation*
24. Jacobs. 2023. *Southshore and South New Brighton Erosion Protection Detailed Site Investigation*
- Ministry for the Environment (MfE). (2011). *National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS)*.
- Waste Management Institute New Zealand (WasteMINZ). 2023. *Technical Guidelines for Disposal to Land Revision 3.1*

APPENDIX 2 – MEMORADUM BY MR MITCHELL GREEN

Before the Independent Hearing Panel appointed by
the Canterbury Regional Council

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Application CRC242267
CRC242268 CRC242269 – Christchurch City Council -
Coastal erosion and protection works - construction
phase stormwater - works within 100m of wetland

Addendum to Section 42A Officer's Report
Report of

MITCHELL GREEN
GROUNDWATER RESOURCES SCIENCE
CANTERBURY REGIONAL COUNCIL

Introduction

Background

1. This report forms part of the Canterbury Regional Council's (CRC) audit of the assessment of environmental effects (AEE) provided by The Christchurch City Council (the Applicant or CCC) in support of resource consent applications for Coastal erosion and protection works - construction phase stormwater - works within 100m of wetland
2. This report will provide the decision-maker with information and advice related to:
 - a. The actual and potential effects of the proposed activities on groundwater quality and quantity.
 - b. The interactions between the groundwater in the area with the surrounding environment.
3. While not required for a Council hearing for a resource consent application, I have read the Code of Conduct for Expert Witnesses in giving evidence to the Environment Court. I agree to comply with that code when giving evidence to the Hearing Panel in this matter. All my evidence is within my expertise and I have considered and stated all material facts known to me which might alter or qualify the opinions I express.

Qualifications

4. My name is Mitchell James Green, and I have been employed by CRC as a Groundwater Scientist since 22 August 2022. I hold a degree of Master of Science from the University of Canterbury, and I have over 8 years' experience in groundwater science at Regional Councils in both Canterbury and the Bay of Plenty, New Zealand.
5. My work at CRC includes investigating, monitoring, data analysis and reporting on both groundwater quality and quantity. I also provide technical advice for a range consents such as those relating to groundwater occurrence, flow direction and where discharges can lead to contaminants entering groundwater.

Scope of Report

6. This report is prepared under the provisions of section 42A of the Resource Management Act 1991 (RMA). This section allows a council officer or consultant to provide a report to the decision-maker(s) on a resource consent application made to the council and allows the decision-maker(s) to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker(s) to request and receive from any person who makes a report under Section 42A *"any information or advice that is relevant and reasonably necessary to determine the application"*.
7. This report is supplementary to the Section 42A Report prepared by the CRC officer, Olivia Murray, for the above resource consent applications. Full details of the consent applications are provided in that report.
8. To carry out this audit of the consent applications, I have:
 - a. Considered the relevant sections of the assessment of effects on the environment (AEE) submitted by the applicant, including its technical appendices. I have also reviewed further information that was provided by the applicant:
 - i. A memorandum titled S92 ECan RFI Response. Dated 23/10/2024 from CCC.
 - ii. A report titled Application s92 Response to Questions 2 and 4a November 2024 Assessment of future levels attachment B N.

- iii. A memorandum titled - *Application s92 partial Response to questions 1 3 and 5* email dated October 2024 (C25C/87134).
- iv. The revised proposed conditions (C25C/255443).
- b. Attended a site visit to the area of proposed the works on 16 July 2025.
- c. Taken into account relevant issues raised by submitters in relation to the effects I have considered in this report.

Assessment of Receiving Environment

- 9. CCC is applying for consents to carry out Coastal Erosion and Protection related earthworks along the western edge of the SouthShore Spit (the Spit) and South New Brighton Park (SNBP) area (the Site), along the shore of the Estuary of the Heathcote and Avon Rivers / Ihutai (the Estuary).
- 10. Groundwater occurrence
 - a. The site overlies the Christchurch Confined Aquifer System. The AEE (page 103 states "Aquifer 1 sits at a depth of 141 m at the nearest measuring bore log for aquifer testing on Estuary Road (BX24/1210)." I disagree with this assessment of depth to Aquifer 1. The shallowest of the named aquifers in the area are the Riccarton Gravels, and this is found approximately 32.9 m below ground level in the area (according to the bore log of M35/1971).
 - b. Shallow groundwater is also observed in the sand dune deposits and the underlying Christchurch formation silts and sands as evidenced by groundwater readings in the shallow beach-derived sand sediments underlying the area (i.e. bore logs from wells and geotechnical investigations less than 20 metres depth) (Figure 1Error! Reference source not found.).
 - c. This shallow groundwater is known to and has been referenced by the CCC in a recent factsheet for the area named the *SOUTH NEW BRIGHTON AND SOUTHSORE FACT SHEET GROUNDWATER ISSUES* (CCC, 2025)
 - d. The source of this shallow groundwater is likely to be a mixture of infiltrating rainfall, estuarine and coastal origin in the area around the site along the area of works.
- 11. Depth to groundwater
 - a. The applicant has assessed the depth of groundwater to be 0-2 m below ground level across the site (section 3.4.7 of the AEE), and I agree with this assessment. Groundwater is observed in shallow wells and is often less than 1 metre below groundwater across the area of proposed works (Figure 2 Figure 3). The shallow CCC monitoring wells in the area show groundwater is consistently shallow and shows a tidal effect. This indicates the groundwater levels are hydraulically connected the nearby water levels in the estuary and the coast.
 - b. The AEE also states in section 3.4. 7 that water table is the coastal confined gravel aquifer. I disagree with this statement as the coastal confined gravel aquifer (Aquifer 1) is confined in the area, and water levels recorded in a confined aquifer are under pressure, with levels recorded classified as a piezometric/ potentiometric level. Water tables occur in unconfined aquifers and are at atmospheric pressure, and the two aquifer levels do not typically coincide in the same location (Fetter, 2001; Freeze & Cherry, 1979).

12. The groundwater system has not been further detailed by the applicant in the AEE or supplementary documents, with little interpretation of the groundwater flow direction, quality, or the shallow groundwater system in general. This is important to understand as the groundwater in the area is dynamic, with flow direction and water level often changing with the tidal effects associated with the Avon-Heathcote Estuary and/or the coast.
13. The following is my further analysis of the groundwater in the area for these above-mentioned aspects and potential effects of the proposed activity on the underlying groundwater and its interaction with the nearby Avon Heathcote estuary.
14. Groundwater flow
 - a. There are three nearby shallow wells with consecutive water levels that can be correlated for triangulation (interpolation) of water levels (with difficulty due to the relatively linear alignment of the wells), BX24/1885 (7.49m deep), BX24/2427 (6.16m deep) and BX24/2632 (6.06 m deep). These are CCC shallow groundwater monitoring wells, all with continuous water level readings from September 2016 until August 2024 in the CRC database. The water levels in these wells show good correlation over time, with some localised variation. The water levels can be converted to the water level relative to metres above average sea level (masl) or RL (relative level).
15. Tidal Effect and groundwater level variations
 - a. The tidal effects seen in the shallow monitoring wells is varied compared to the estuary, the coast and nearby wells screened in the underlying confined Riccarton Gravels (such as M35/7753), which show a clear tidal effect of 0.8 to 1 metre in the lunar tide cycles and higher and lower levels during spring and neap tides. The shallow groundwater recorded in the triangulation wells shows mostly a spring and neap tide effect and only a minor (1-2 centimetre) potential lunar tidal effect. This is likely due to the lower hydraulic conductivity of the shallow groundwaters aquifer and higher elevation as compared to the Riccarton Gravels (Figure 4).
 - b. When plotting the water level records for the selected interpolation wells, there are consecutive low and high groundwater levels recorded in the area. Interpolating these levels is used to assess groundwater level changes across the area over time, and to show the potential shallow groundwater flow direction in the area.
 - c. Plotting the groundwater levels from the interpolation wells, the water levels of the Avon River as it enters the estuary and the nearest NIWA Virtual Climate Data Station rainfall, there appears to be several influences on groundwater level. This includes local rainfall, rainfall in the upper catchments of the Avon River and the tidal effects. Overall, the shallow groundwater levels in Southshore appear to relate to the Estuary water level, while short term spikes in water level are observed following rainfall events of sufficient magnitude for recharge (Figure 5).
 - d. Prominent low groundwater levels are seen recently in the summer of 2024, and December 2017 (Figure 6: Groundwater levels for the selected triangulation wells from 2020-2025. Note the relative correlation of the water levels, the short-term tidal effects and the potential localised level effects at certain times. The water level data used to infer the typical high and low water levels in the area and to compare with the tidal data is shaded in grey. In periods where BX24/1885 (red) are higher than BX24/2632 (blue), groundwater will likely be flowing towards the estuary. Figure 6). As for an example of the high groundwater levels in the area, sustained high groundwater levels were seen in the winter of 2019, and they're that I will use these to assess the potential variability of the groundwater depth and

flow direction across the site. The dates and times used for representative low and high groundwater levels will be:

- i. Summer 2017 = 2017-12-01 12:00:00
- ii. Winter 2019 = 2019-08-01 11:55:00

- e. Using the lowest groundwater levels in this period (Summer 2017), triangulating the water levels from these three wells shows the groundwater is likely flowing from the estuary to the coastal side off the spit (Figure 7).
- f. Alternatively, plotting the high groundwater levels from the winter 2019 groundwater levels, we see a reversal of flow, with higher readings at well BX24/1885 than BX24/2632, the groundwater is flowing in a north westerly direction, from near the middle of the spit to towards the estuary (Figure 8).

16. Groundwater quality

- a. The shallow groundwater quality in the proposed area of works is likely to be influenced by the coastal environment, leading it be brackish and non-potable in relation to the drinking water standards. This is supported by nearby shallow wells near the coast such as M36/5385 (6m deep, Ferrymead), and M35/5890 (5m deep, Burwood) which show elevated chloride and conductivity values in water samples over their sampling history (Figure 9Figure 10).
- b. During times of high rainfall, the groundwater is recharged by the infiltrating rainwater, which will be significantly lower salinity compared to the brackish waters of the estuary.

17. Groundwater users

- a. There are six active drinking water wells in the area, with known depths ranging from 49 to 147 metres deep, with three of the wells having no depth values associated with them. Additionally, the wider area is supplied by reticulated drinking water, so the purpose of these wells with unknown depth and other details is not known and are likely not being used. But if the wells are potable and productive, then they are most likely deeper than 30m and screened within the deeper aquifer units in the area. Therefore, due to the depth of these wells and the confining layers above them, I have no concern for the potential effects of this application to affect the drinking water quality in the area.

Assessment of Effects on the Environment

- 18. The shallow groundwater may be a pathway of contamination to the estuary and could transport sediments and/or other contaminants if they infiltrate to it. Therefore, appropriate erosion and sediment control methods and procedures for working with contaminated land should be followed in a way to mitigate against groundwater contamination.
- 19. This effect may be more prevalent at the estuary edge, with estuary water flowing under the area of proposed works towards the centre of the spit during high tides and/or low groundwater level or flowing from the centre of the spit towards the estuary in times of higher groundwater levels and/or lower tide heights.
- 20. The effects of the proposed earthworks such as excavation and deposition that lead to disturbance of the land surface could mobilise contaminants to the shallow underlying

groundwater such as the observed heavy metals and likely hydrocarbons such as coal tar (as discussed in C25C/87134). I have concern regarding the proposal to drain construction related stormwater to land, as any potential contaminants either pre-existing in the soil to be disturbed or spilled onto the land during the earthworks could flow to the groundwater via this drainage. As seen in the shallow groundwater level readings, rainfall induced recharge to the groundwater occurs in the area, and when this occurs, the groundwater tends to flow towards the estuary. This means that the groundwater will be shallower during and following significant rainfall and likely act as a pathway from the area of earthworks to the estuary. However, if these are identified and suitably removed as per the revised conditions (condition 23), then I have low concern here.

21. Groundwater levels are also likely elevated following rainfall events in the area, and this may lead to issues for drainage capabilities as the groundwater can be within 1 metre of the land surface, in relatively low permeability soils and sediments (fine to medium sands). It is unclear with the provided evidence that this will not lead to mounding or ponding in the area. This may lead to increased potential localised flooding during high rainfall events.

Conclusions and Recommendations

22. As construction phase stormwater is proposed to be drained to land, this poses a risk of mounding and flooding, as well as adding concentrated drainage water to a particular area, which would exacerbate the potential for contaminants to be carried to the groundwater, which could then be a pathway for these contaminants to enter the estuary.
23. Therefore, proper adhesion to effective and robust erosion and stormwater management plans should be followed. Including containment of any spills and the effective removal of any potential contaminants in the soils in the area of the proposed works, as per the revised proposed condition 23.

References

24. CCC. (2025). *SOUTH NEW BRIGHTON AND SOUTHSORE FACT SHEET GROUNDWATER ISSUES*.
<https://ccc.govt.nz/assets/Documents/Environment/Coast/Factsheets/FACT-SHEET-Groundwater.pdf>
25. Fetter, C. W. (2001). *Applied hydrogeology* (4th ed.). Pearson Education.
26. Freeze, R. A., & Cherry, J. A. (1979). *Groundwater*. Prentice-Hall.

Attachments

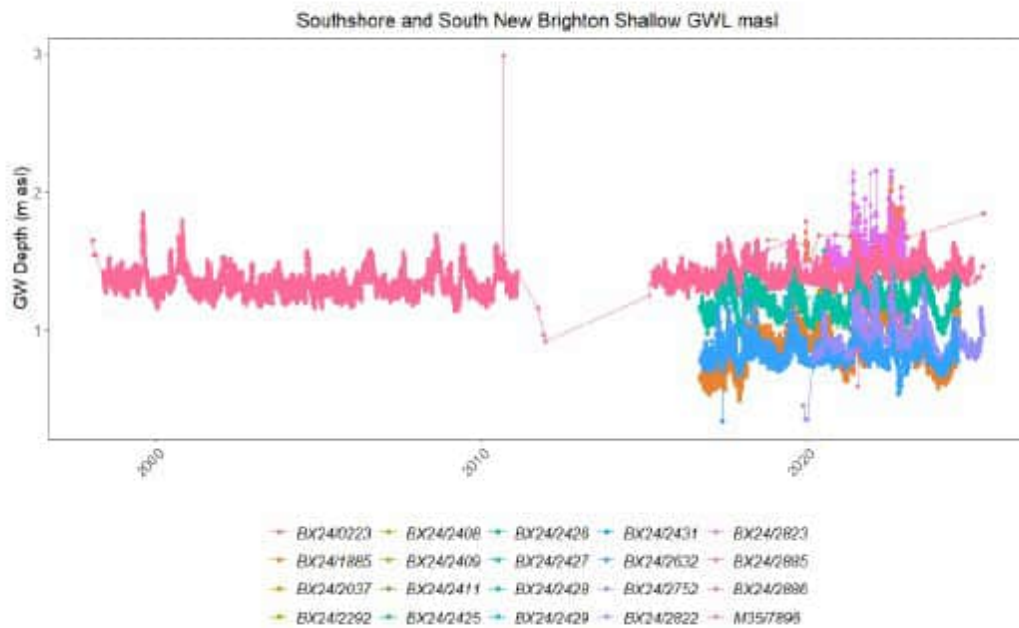


Figure 1 Plot of all shallow (less than 20m) groundwater level readings in the SNBP and Southbridge area in metres above sea level.



Figure 2: Map of the South New Brighton Park and Southshore area showing shallow (less than 10m) deep wells highest groundwater levels (from ground level) and the approximated area of proposed works. Note the very shallow groundwater levels across the area especially in the low-lying areas near the shoreline of the Avon-Heathcote Estuary, and the lack of shallow groundwater readings near the SNBP.



Figure 3. Map of the South Brighton Park area showing groundwater wells and wells classed by reading count. Note the lack of shallow continuous groundwater level wells around the park site, with most readings limited to periodic or the initial (Static) water level in the well when drilled (SWL). Many of the shallow SWL readings show the groundwater as less than 1m below ground level, with the shallowest showing 0.13m below ground level at well BX24/2292 towards the south of the map.

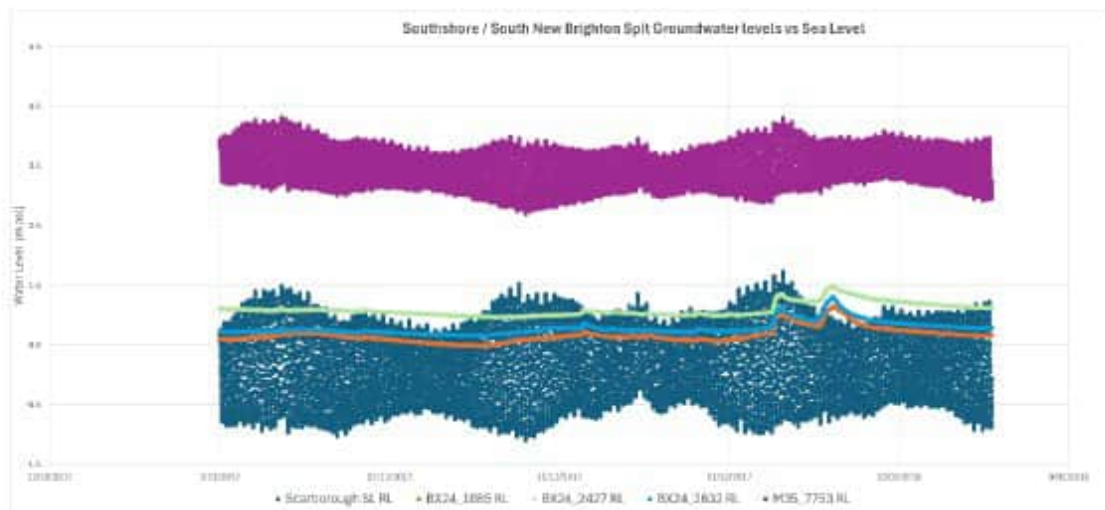


Figure 4: Plot of the three triangulation wells, a nearby monitoring well in the Riccarton Gravels Aquifer (M35/7753), and the nearest sea level monitoring site (Scarborough) displaying short and long term tidal effects on the groundwater, as shown in metres above mean sea level.

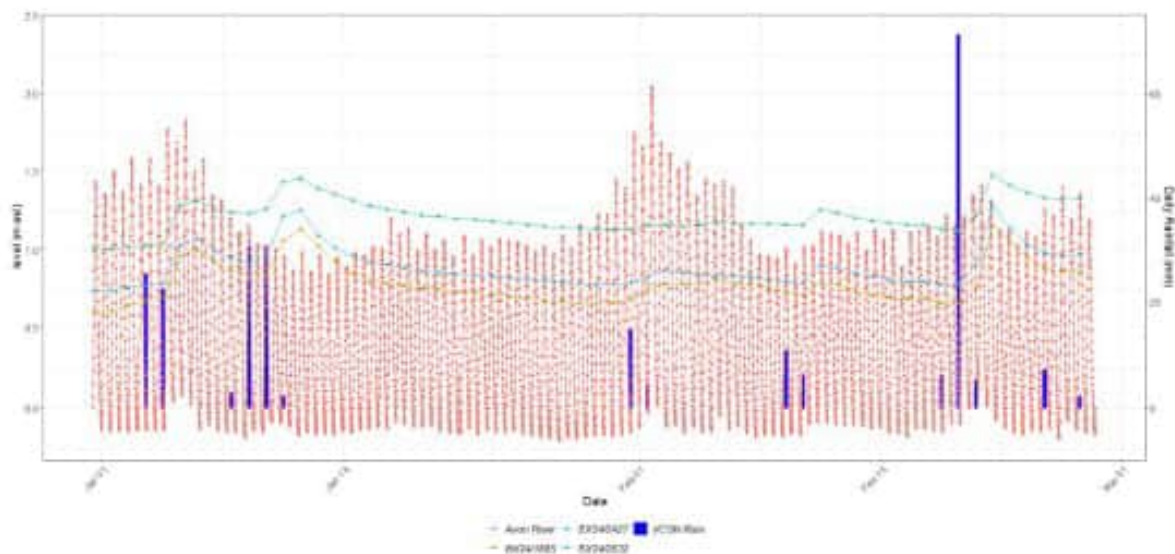


Figure 5: The Summer 2018 Southshore groundwater levels compared with the estuary water levels (at Avon River @ Bridge St site) and rainfall levels. The groundwater levels appear to be influenced by both the estuary levels and the larger rainfall events.

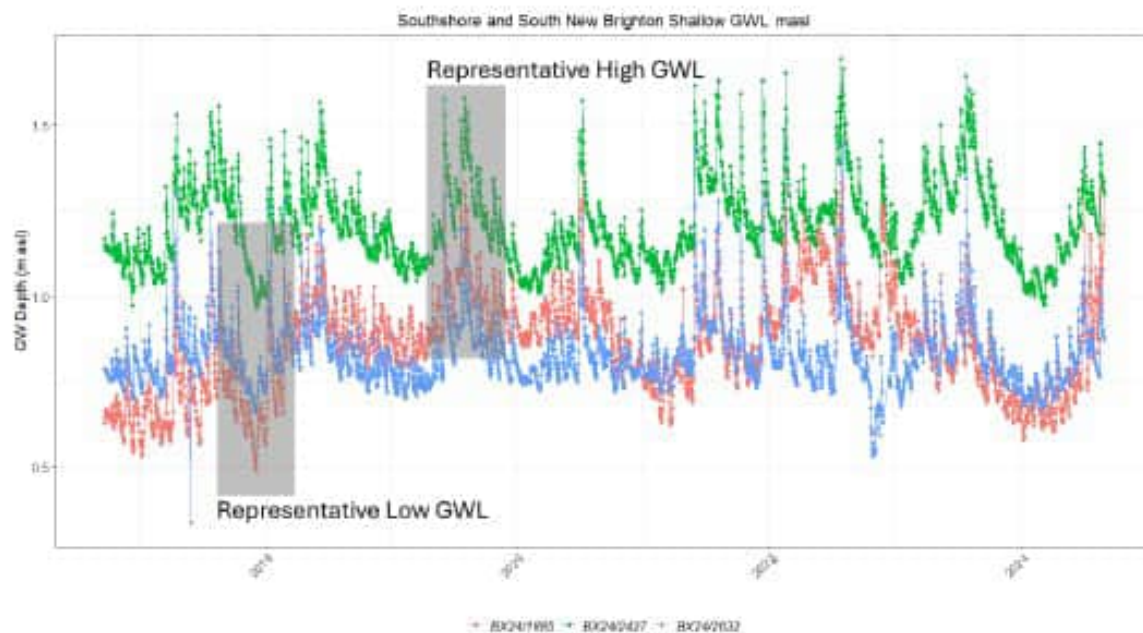


Figure 6: Groundwater levels for the selected triangulation wells from 2020-2025. Note the relative correlation of the water levels, the short-term tidal effects and the potential localized level effects at certain times. The water level data used to infer the typical high and low water levels in the area and to compare with the tidal data is shaded in grey. In periods where BX24/1885 (red) are higher than BX24/2632 (blue), groundwater will likely be flowing towards the estuary.



Figure 7: Map of the interpolated lowest groundwater levels (masl) during the representative low groundwater period in summer 2017-18. Note the groundwater flow direction being to the east, moving away from the estuary, which is likely contributing to the groundwater. The steeper gradient of the water levels shows a higher flow rate for the shallow groundwater.

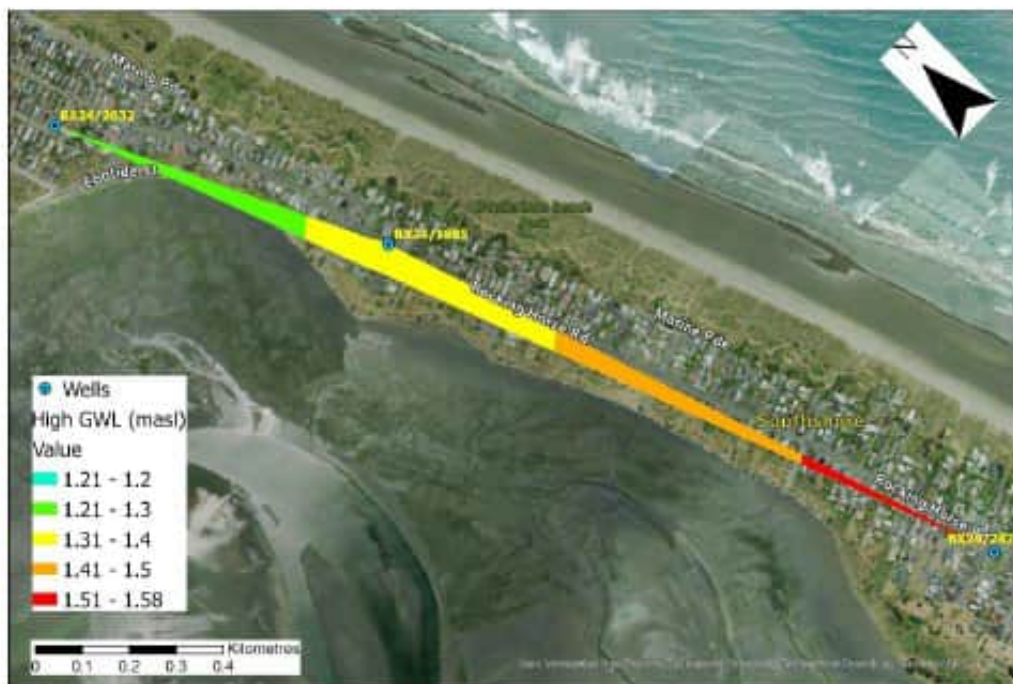


Figure 8: Map of the interpolated highest groundwater level (masl) from the selected shallow triangulating wells, during the representative high groundwater period in the winter of 2019. Note that the flow direction differs from the low groundwater period, with the groundwater flowing to Northwest and likely flowing to the estuary.

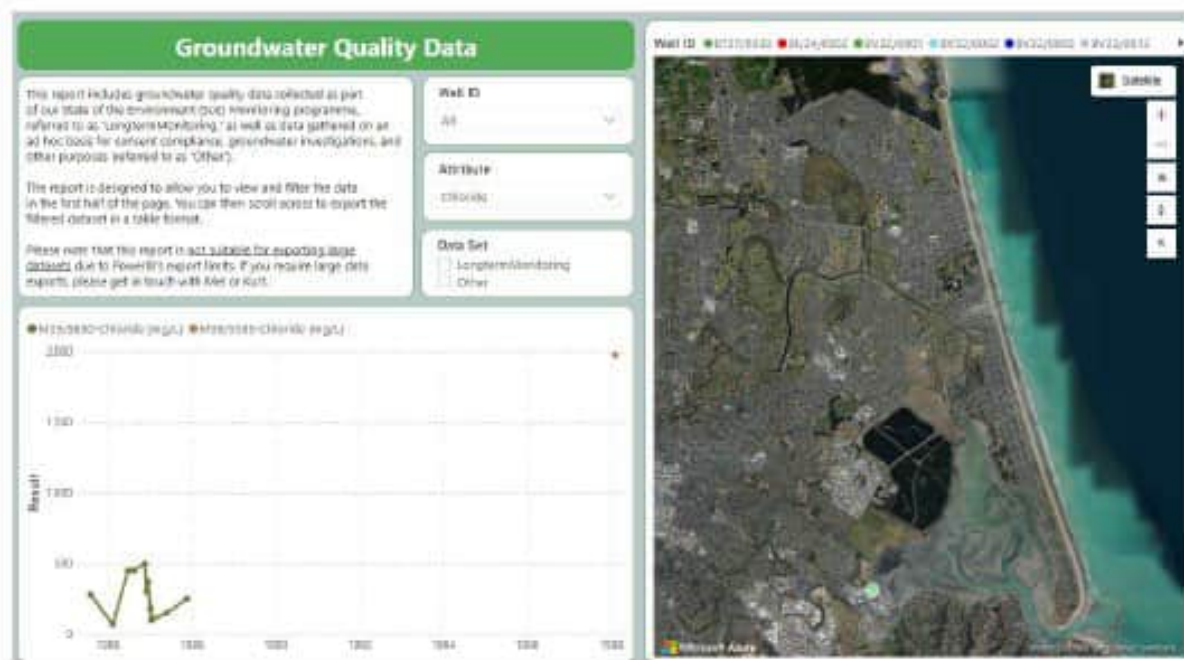


Figure 9: Shallow groundwater Chloride (mg/L) values at wells M35/5890 and M36/5385.



Figure 10: Shallow groundwater Conductivity (MS/m) values at wells M35/5890 and M36/5385.

APPENDIX 3 – MEMORADUM BY MR PHILIP GROVE

Before the Independent Hearing Panel appointed by
the Canterbury Regional Council

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Application CRC242267 to
undertake erosion and inundation protection works at
Southshore and South New Brighton Park

Addendum to Section 42A Officer's Report
Report of Philip Grove

Introduction

Background

1. This report forms part of the Canterbury Regional Council's (CRC) audit of the assessment of environmental effects (AEE) provided by Christchurch City Council (the applicant) in support of resource consent applications for a series of coastal erosion and inundation protection works along the Ihutai/Avon-Heathcote Estuary margin between South New Brighton Park and Southshore Spit.
2. This report will provide the decision-maker with information and advice related to:
 - a. The actual and potential effects of the proposed activity on terrestrial and wetland ecology, specifically the wetland habitats of the estuary margin and avifauna that utilise these margin habitats and/or those of the adjoining estuary.
3. This report should be considered alongside that of CRC coastal ecology scientist Ms Melanie Burns which provides advice on effects of the proposed activity on intertidal estuary habitats, and that of CRC coastal hazards scientist Mr Bruce Gabites which provides advice of effects of proposed activities on nearshore coastal processes.
4. Effects on ecology of the terrestrial environment landward of the Coastal Marine Area (CMA) are considered under resource consent applications to Christchurch City Council (CCC). I note that Ihutai / Avon -Heathcote Estuary is a scheduled Site of Ecological Significance (SES) in the Christchurch City Plan and that for this reason, the evidence of CCC ecology experts, prepared as part of the CCC audit of the assessment of environmental effects, overlaps with that of CRC ecology experts.
5. While not required for a Council hearing for a resource consent application, I have read the Code of Conduct for Expert Witnesses in giving evidence to the Environment Court. I agree to comply with that code when giving evidence to the Hearing Panel in this matter. All my evidence is within my expertise and I have considered and stated all material facts known to me which might alter or qualify the opinions I express

Qualifications

6. I hold the degrees of MSc and PhD in botany from the University of Otago.

7. I have been employed by Canterbury Regional Council as a terrestrial and wetland ecology scientist since 2001 and have carried out inventory and monitoring of wetlands and terrestrial ecology over that time. Monitoring of coastal wetland ecosystems, including Ihutai, has been a focus this work. I regularly provide advice to CRC Consent Planners on effects of proposed activities on terrestrial and wetland ecology.

Scope of Report

8. This report is prepared under the provisions of section 42A of the Resource Management Act 1991 (RMA). This section allows a council officer or consultant to provide a report to the decision-maker(s) on a resource consent application made to the council and allows the decision-maker(s) to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker(s) to request and receive from any person who makes a report under Section 42A *"any information or advice that is relevant and reasonably necessary to determine the application"*.
9. This report is supplementary to the Section 42A Report prepared by the CRC for the above resource consent applications. Full details of the consent applications are provided in that report. To carry out this audit of the consent applications I have considered:
 - a. Assessment of Effects on the Environment (Jacobs, 2023);
 - b. Appendix C - Drawings (Jacobs, 2023);
 - c. Appendix D - Design Report (Jacobs, 2023);
 - d. Appendix M - Ecological Impact Assessment (Boffa Miskell, 2023);
 - e. Further information that was provided by the applicant on 9 April 2024, 23 October 2024, 20 November 2024, and 19 December 2024;
 - f. Amended Ecological Impact Assessment (Boffa Miskell, May 2025);
 - g. Memo of site visit and proposed amendments/further investigation (CCC, 16 July 2025).I attended a site visit on 16 July 2025 with the applicant and their consultants.
10. In addition, I have read and considered ecological evidence that formed part of the Christchurch City Council's audit of the assessment of environmental effects (AEE) provided by the applicant. As noted above, matters covered in the evidence of Dr Shane Orchard and Mr Andrew Crossland overlap that of CRC ecologists.
11. Finally, I have also taken into account relevant issues raised by submitters in relation to the effects I have considered in this report.

Assessment of Receiving Environment

12. The Christchurch City Council is proposing to construct and install a series of coastal protection structures along the Avon-Heathcote Estuary edge and adjoining land between South New Brighton and Southshore. Intent of these works is to protect residential and open space areas adjoining the estuary from inundation and erosion and provide public recreational/amenity assets (i.e. walking track, access to the estuary for kayaks etc).
13. The current estuary edge in this area (South Brighton Park to Southshore Spit) contains a series of ad-hoc and informal protection structures that were presumably installed by the previous adjacent landowners at various times and to varying construction and engineering standards and with a wide variety of materials. A large portion of these

existing or remnant protection structures along this stretch of coastline are in a poor condition and many individual structures have failed during, and as a result of the Christchurch Earthquake Sequence (CES).

14. CRC understands that existing unconsented protection structures cannot be considered to form the 'existing environment' for the purposes of these consent applications. The AEE therefore needs to consider the existing 'baseline' estuary environment as it was prior to installation of unconsented coastal structures. The heading of Section 3 – Existing Environment in the Boffa Miskell s92 response would be better worded as 'Current Environment' to clarify that what is being described here is *not* the 'existing environment' baseline against which effects of the proposal can be assessed.
15. As noted above, the proposed works area lies within and/or alongside the scheduled City Plan Ihutai Site of Ecological Significance. The ecological importance of the estuary is well-recognised. For example, as a whole the estuary is an Internationally Significant wildlife habitat (O'Donnell 2000), while saltmarsh wetland vegetation/habitats of the estuary margin are considered to be of regional ecological significance.

Assessment of Effects on the Environment

16. The key effects or issues of concern I consider in this report are: i. construction phase loss of saltmarsh vegetation and other littoral (estuary margin) habitats; ii. construction phase disturbance of estuary birdlife; iii. post-construction disturbance to estuary birdlife. iv. post-construction loss of estuary margin saltmarsh and littoral habitats due to coastal squeeze.
17. These effects are of concern because the estuary habitats and species, including its birdlife and saltmarsh vegetation, are ecologically significant under multiple Canterbury Regional Policy Statement (CRPS) assessment criteria. CRPS Policy 9.3.1 directs that 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.
18. I deal with these effects in turn discussing whether I agree with the Applicant's assessment of effects, and whether I consider the Applicant's proposed mitigation measures are adequate to address adverse effects.

Construction phase direct loss of estuary margin saltmarsh vegetation and habitats

19. I agree with the description of 'saltmarsh herbfield' (Section 3.1.2.5) and 'saltmarsh rushland' (3.1.2.6) vegetation types in the Ecological Impact Assessment Report (Boffa Miskell 2025). However, I give no consideration or weight to the accompanying assessments of 'ecological value' of these vegetation types (or other ecological features described in the report). What is relevant, from an effects management perspective, is 'ecological significance'. These vegetation types are ecologically significant under CRPS assessment criteria, both of themselves but more importantly as part of the wider, highly significant estuary ecosystem.
20. I leave review of the applicant's description of 'Estuarine Species and Habitats' (Section 3.2 of the Ecological Impact Assessment report) to my CRC colleague Ms Burns, other than to note that these areas are also important avifauna habitat.
21. The applicant has not provided an estimate of direct loss of existing saltmarsh rushland vegetation as a result of proposed works, saying that level of effect is not possible to determine at this stage. While I appreciate the uncertainty as to precise area / number of sea rush plants affected, having visited the proposed works area recently I consider that some loss is likely to occur. I agree that would constitute a loss of significant biodiversity values in this context. I also agree that, if consent is granted as sought, any

loss of this significant vegetation area should ideally be avoided or otherwise (sub-optimally) remedied (Section 7.2.1.5 Ecological Impact Assessment Report)

22. The applicant has estimated that approximately 0.17 ha of existing saltmeadow vegetation will be lost due to direct construction impacts of loss of hydraulic connection to the estuary. I agree with this estimate and that this is a moderate level of adverse effect on an ecologically significant vegetation/habitat. I agree that, as these effects cannot be avoided if consent is granted as sought, adverse effects must be remediated to achieve no net loss (Section 7.2.1.6 Ecological Impact Assessment report).

Construction phase disturbance to estuary birdlife

23. I disagree with the applicant's description of avifauna populations and habitat use in the vicinity of the proposed works area (Section 3.4 of the Ecological Impact Assessment Report). I rely instead on the extremely comprehensive review evidence of Mr Andrew Crossland for the CCC Consents audit, which is based on decades of bird counts carried out around the estuary over all seasons and (importantly) stages of tidal inundation. Mr Crossland has clearly identified deficiencies in the applicant's description of the avifauna 'environment'; deficiencies which then translate across to erroneous assessments of 'ecological value' and assessments of effects.
24. As noted above, I disagree with the applicant's assessment of these effects, preferring the evidence of Mr Crossland on this matter.
25. The applicant has offered no mitigation for construction-phase disturbance effects on wading birds, gulls, terns and waterfowl. The 'offer' of mitigation for disturbance effects on 'cryptic swamp birds' is just a distraction given these species are unlikely to even be present in the area, compared to the obvious large numbers of waders, gulls, terns and waterfowl that will be impacted.

Post-construction disturbance to birdlife

26. Again, I disagree with the applicant's description of the affected avifauna environment and their assessment of effects of post-construction disturbance on estuary birdlife. I agree with Mr Crossland's evidence and conclusions on this matter.
27. While the proposed new adjustment to only two formalised (concrete stair) access points to the estuary *may* reduce direct human disturbance (e.g. trampling) of estuary habitats relative to that from a larger number of access points, with the promotion of the area for recreational activity a significant increase in general use and therefore avifauna disturbance is foreseeable. This will likely also involve increased use of small watercraft (e.g. kayaks, kite surfers) with additional disturbance to avifauna (as is evident at the Ferrymead-Humphreys Drive side of estuary). The applicant's ecologists have dismissed this effect.
28. I also agree with Mr Crossland that the applicant's claim of a net gain of intertidal mudflat habitat extent fails to account for habitat quality. The 'new' mudflat areas are fragmented, individually limited in size and situated along shoreline margins prone to weed accumulation, algal growth and tidal debris. This will limit their value as feeding and roosting habitat for estuary birdlife.

Loss of estuary margin habitats - saltmarsh vegetation and habitats (including tidal mudflats and littoral supra-tidal habitats) due to coastal squeeze

29. The applicant's assessment of effects of habitat loss due to coastal squeeze was limited in scope both temporally (20 years) and spatially, with the focus of their assessment

being impacts on seagrass bed habitats. Coastal squeeze effects on estuary seagrass beds are reviewed in the evidence of CRC colleague Ms Burns. She concluded that there is still uncertainty around the potential adverse effects from coastal squeeze on seagrass beds, intertidal soft sediment habitats and macroinvertebrate communities.

30. Effects of coastal squeeze on higher-elevation estuary and estuary margin habitats above the (current) seagrass bed elevation limits have not been considered by the applicant. For example, they have not assessed effects of coastal squeeze on the ability of estuary margin saltmarsh and littoral vegetation/habitats to adjust and persist in the face of rising sea levels, or effects on high tide roosting habitats of shorebirds.
31. I consider that loss of these higher elevation estuary margin habitats (due to coastal squeeze against existing informal/unconsented structures) is already underway, and that further loss (against proposed new structures) over the next twenty years is inevitable. And there is of course no guarantee that the new structures will be removed in 20 years.
32. In any case, the applicant's assessment of effects of coastal squeeze is based on a false premise, that is their consideration of the current unconsented structures as the 'existing environment' baseline.

Proposed Conditions

33. I have read the 'Revised Proposed Conditions' provided by the applicant on 21 October 2025. Regional Consents Ecological Management conditions 4 - 8 do, in my opinion, provide appropriate remediation or offsetting for direct effects / construction phase loss of saltmarsh vegetation and other littoral (estuary margin) habitats.
34. However, other adverse effects identified - that is construction phase disturbance of estuary birdlife, post-construction disturbance to estuary birdlife and post-construction loss of estuary margin saltmarsh and littoral habitats due to coastal squeeze - are not addressed in the Revised Proposed Conditions.

Response to issues raised by submitters

35. Ihutai Estuary Trust raised concerns about loss of estuary habitat through coastal squeeze, the use of cobble beaches and reduced ecosystem functionality, and increased access onto the intertidal mudflats. I agree with their concerns, as covered in my evidence.
36. Department of Conservation (DOC) raises concerns about coastal squeeze reducing the areas of saltmarsh and mudflat habitat due to the proposed erosion protection structures and recommend monitoring seagrass and mudflat for effects of coastal squeeze. I agree with their concerns and have covered these in my evidence.

Conclusions and Recommendations

37. I do not consider that construction phase disturbance impacts of proposed works on estuary avifauna have been correctly assessed. These effects are therefore not appropriately mitigated.
38. Given the advice from Bruce Gabites that proposed works are excessive or unnecessary relative to the level of coastal inundation and erosion risk over the next 20 years, the

uncertainty of the potential adverse effects on seagrass beds and mudflat communities identified by Ms Burns, and the adverse effects on higher elevation estuary margin and littoral habitats from coastal squeeze discussed in my evidence, I share their opinion that 'harder' engineered erosion protection structures as proposed should be avoided.

39. As also noted by CCC consent reviewers, there may instead be opportunities for achieving nature based coastal protection solutions that are embedded within a more naturalised landscape.
40. Mitigation for human disturbance of wildlife and wildlife habitats should also have been included. The proposal as it stands represents a substantial lost opportunity for estuary wildlife habitat remediation - for example safe roost provision, disturbance screening, improvements to shoreline feeding habitats – that could have been considered as part of the project.

References

- Boffa Miskell 2025. Southshore and South New Brighton Park Flood Protection Works: Ecological Impact Assessment Report prepared by Boffa Miskell for Christchurch City Council. May 2025.
- O'Donnell C.F.J. 2000. The significance of river and open water habitats for indigenous birds in Canterbury, New Zealand. Environment Canterbury Unpublished Report U00/37.

APPENDIX 4 – MEMORADUM BY MR JEREMY HEAD

CHRISTCHURCH CITY COUNCIL

Southshore Works (RMA/2023/3243)

Southshore and South New Brighton Inundation Protection Project

LANDSCAPE PEER REVIEW

To: Janice Carter, Consultant Planner to Christchurch District Council

Copy:

From: Jeremy Head, Registered NZILA Landscape Architect
Jeremy Head Landscape Architect 2022 Ltd.

Date: 19 March 2025

1. Introduction

Jeremy Head, Landscape Architect ('author') was requested by the Christchurch City Council (CCC) to carry out a peer review of a landscape effects assessment (LEA - dated 27 November 2023) prepared by Sue McManaway (Landscape Planner, Boffa Miskell) on behalf of CCC. The subject of the LEA is to determine the landscape and natural character effects of erosion and inundation protection works, proposed to be constructed in two separate areas. One within part of South New Brighton Park (SNBP) and the second; within a strip of red-zoned land along the estuary edge of the spit extending between Caspian Street and Mermaid Place (the 'Southshore Section'). Both 'sites' are referred to in this report as the 'site' unless specifically referred to otherwise.

This peer review began in late 2023 and has now been finalised after a hiatus following changes to the scheme and the Applicant's recent responses to several RFIs, both from within CCC's Environment and Planning section and Environment Canterbury Regional Council (ECan). A revised LEA has not been provided by the Applicant although a memorandum has been provided which concerns several responses to recent RFIs. The nature of these responses which essentially clarifies aspects of the description of the site and Project, any proposed recent changes to the design, and the Project's landscape effects have been incorporated into this peer review. The author has also prepared a separate memorandum which addresses the Applicant's response to the RFI points in further detail.

This peer review does not form a 'parallel landscape assessment'. The intent is to impartially review and evaluate the work completed by a colleague with similar competencies and in so doing, maintain quality, improve performance, and provide credibility. The sole purpose of this peer review report is to assist the decision maker.

The authors scope for the peer review is threefold: (1) to confirm that the methodology used by the Applicant's landscape architect is appropriate and follows best industry practice; (2), to consider the recent changes to the design for the Project and Applicants recent responses to RFIs; and (3), that the overall conclusions reached are sound. This peer review will also confirm whether the information included in the assessment is sufficient to enable a robust understanding of the receiving environment and the landscape effects of the Project. This may highlight omissions in the assessment. This peer

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review will also include comment on whether the effects findings in the assessment are credible and can be justified.

The peer review methodology is based on Te Tangi a te Manu Aotearoa New Zealand Landscape Assessment Guidelines (TTatM) and utilises information obtained from both desk top study and site context investigation through field study.

While this report is not before the court, the author can confirm that this peer review has been prepared in accordance with the Environment Court's Code of Conduct for Expert Witnesses¹. This peer review is within the author's area of expertise except where it states that other experts' reporting is being relied upon.

As requested, a summary of the peer review author's expert qualifications and relevant experience is included in **Appendix 1** to this report.

The following documents have been relied on in the preparation of this peer review:

- a) Landscape Assessment Report, prepared by Boffa Miskell and dated 27 November 2023.
- b) Landscape and Natural Character Graphic Supplement, prepared by Boffa Miskell and dated 27 November 2023.
- c) Landscape Plans and Plant Palettes, prepared by Christchurch City Council and dated November 2023 and the version including changes received 25 February 2025.
- d) AEE prepared by Jacobs for Christchurch City Council and dated 4 December 2023.
- e) Technical drawings prepared by Jacobs for Christchurch City Council and dated 30 November 2023 (Issue 'D') and the version including changes received 25 February 2025.
- f) Memorandum prepared by Boffa Miskell and dated 13 February 2025.
- g) Christchurch City Council response to s92 and dated 19 February 2025.
- h) Christchurch City Council response to ECan RFIs received 27 February 2025.

In late January 2024, a specific site visit was carried out in relation to this peer review which involved walking the areas at SNBP and the estuary side of the spit between SNBP and Petrel Lane. During fieldwork, the site condition, degree of visibility of the site and Project was ground-truthed following earlier desktop study. Site photographs and field notes were taken at the time.

The site was not observed from further afield. A few years prior to this site visit, the peer review author prepared a landscape assessment for erosion protection and remediation works for the Bromley Landfill where it extended to the estuary. This work included observing the area from various locations across the estuary, which also encapsulated the site subject to this peer review. Further the LEA makes comment that: *"Whilst views from these [distant] areas may be possible, any change associated with the Site is likely difficult to be perceived in the context of the distance, the changing Estuary foreground and the broader views available."* The peer review author agrees with this point.

In addition, the site was not observed from the estuary waters itself, nor from the estuary mudflats. It was determined during fieldwork that this was not necessary for two reasons. The first being that the most potentially affected parties are located landward of the shoreline, and the second, that due to its curvaceous form, the shoreline was able to be observed from several places from the land which provided a sufficient understanding of its current condition and how the land/estuary edge will appear following the Project.

¹ Environment Court of NZ Practice Note 2023 (Section 9).

The peer review author understands from the AEE that the Project attracts non-complying activity status overall.

2. Landscape Assessment Methodology

It can be confirmed that the landscape assessment methodology used in the LEA follows the guidance set out in TTatM which is considered to be best industry practice. Reports by other experts are referenced throughout the LEA (some of which are listed at Section 1.3) which demonstrates a good understanding of the broader issues at play, the key technical imperatives and cultural and community requirements and their aspirations. The widely recognised seven-point scale of effects from TTatM has been used which enables a clear understanding of the various landscape effects and their comparison with the RMA effects scale. It is noted that several site visits were carried out by the LEA author which suggests a fulsome understanding of the site and its context was made possible. Appendix 1 to the LEA includes general background information underpinning the assessment methodology which is relevant and draws on the landscape assessment guidelines set out in TTatM.

3. Description of the Existing Environment

A broad 'top down' approach is taken where the site context is described; first, under the 'physical', 'associative' and 'perceptual' realms, and fourthly, under natural character (natural character effects are correctly considered under RMA Section 6(a)). This is a logical and well set out approach. After which the LEA 'drills down' to an in-depth description of the site, broken into a separate description of both parts of the site. The description of the wider landscape context, the site, and its condition accord with the peer review author's understanding of the wider site context, his observations and conclusions as to the current condition of the site.

The written site / context description is also supported by a set of site photographs and photographic viewpoint location maps which is very helpful. Of note, best practice use of a 50 mm focal length is not stated in the photographic labelling / titles. However, the images appear 'true' and are more than likely to have been taken and prepared following best industry practice as per TTatM.

Section 3.4 describes the visual catchment, the various viewing audiences, and their degree of visibility of the parts of the Project and in a general sense how their views will change. The various parties and the findings here accord with the peer review author's own observations during fieldwork. Actual visual effects are not discussed. That comes later in the LEA in Section 5.0.

4. Project

The description of the Project is included in 1.1 (report scope), and more fully at 2.0 (Project Description). The description of the Project is at an appropriate level of detail to clearly understand the implications of the changes to the landscape and the effects of these changes. The general arrangement drawings prepared by Jacobs for CCC are relied upon in the subsequent natural character and landscape effects assessment. The drawings are referenced throughout which is helpful. This section of the LEA also demonstrates a good understanding of the background to, and design rationale of the Project.

Planting on the bunds is mentioned throughout the LEA and was relied upon in the original effects assessment. Recent requirements post the LEA stipulate that only mown grass be planted on the landward side of the bund and trees shall be located no closer than 5 m from the core of the bund. This is to facilitate maintenance and improve structural integrity / performance of the bund landform. Of note, the current CCC landscape concept plan (still) shows no planting other than grass on the bund within SNBP. In the Southshore Section the bund is (still) shown planted with estuarine species on the estuary side of the shared path / bund crest. The landward side (still) includes a mix of both mown grass and other plants. A play area is also shown partly on the bund south of Heron Street. Trees are not shown on the bund, although some (still) appear to be within 5 m of the bund core. The landscape plan has not been updated to remove planting and the play area from the landward side of the bund. However, the Applicant has addressed the removal of planting from the bund in their recent RFI response where they conclude that this will not alter their earlier landscape effects assessment. The author agrees with this conclusion which is discussed in more detail in the peer review author's separate memorandum.

5. Statutory Context

The relevant statutory documents / provisions are cited at Section 4.0 in the LEA. The LEA states that an examination of sections of the various listed statutory documents will be 'required as part of the landscape assessment'. However, while the various relevant provisions are exhaustively set out over the following six pages, there is no explicit landscape response provided to each relevant to the landscape aspects of the Project. TTatM states that the "...purpose of reviewing the provisions is to frame the landscape assessment in a way that best assists the decision maker..." and "...not to undertake a planning assessment of the proposal against the provisions."² As such the approach used in the LEA is sound and the following assessment and conclusions respond indirectly to the statutory context. By dint of including the various provisions in the LEA provides a level of comfort that the assessment has been appropriately framed. This is evident in places where occasional reference is made to some of the aforementioned statutory matters. As such, it is taken here that while an exhaustive 'blow by blow' response to each statutory provision is not included, or required, the guidance and expectations of the relevant provisions has been accounted for while undertaking the natural character and landscape effects assessment.

6. Assessment of Effects

Section 5.0 structures an assessment of the effects on natural character, landscape, and the visual realm separately. The LEA correctly states that these procedures are inextricably linked which is consistent with TTatM.

Natural Character and Landscape Effects

There is a certain overlap between natural character and landscape effects and so both are discussed together next.

An environmental 'baseline' is mentioned - which is what all effects must be measured against. This includes the consented baseline, but by the same token, must exclude any existing unconsented

² TTatM pg. 237.

elements in the landscape relevant to the Project. Further, such unconsented items cannot be considered 'expected' and while valid to include in the landscape description, these elements must be disregarded when considering the effects of the Project.

In this case such elements include various ad hoc 'erosion protection works', garden furniture, informal estuary access structures and the like, remaining in situ following recently removed residential development due to the red-zone process³. In this vein the changes proposed, particularly along the shoreline must be assessed in most cases as wholly 'new' built elements, as opposed to replacing or upgrading existing (unconsented) built works - with positive net effects. This is not explicit in the LEA (see third and fourth to last paragraphs, page 27), although it is in the second to last paragraph on page 28. Here, a 'Very low' adverse effect on natural character is assessed at the broad scale balanced against current modification. However, no finding is provided at the site-based scale as it is earlier in the LEA regarding the new bund (a 'Low' adverse effect on natural character is assessed). In the third paragraph, page 31 the existing site condition (including unconsented elements presumably) is considered to reduce the sensitivity to the proposed changes.

The peer review author concludes that the effects of the replacement of unconsented structures with the new improved works have not however been substantively relied upon in the LEA. Instead, localised modification of the local area and site through consented urban development, roading, public paths, consented slipway structures, erosion protection structures and so forth appears to form the weight of the existing baseline environment being relied upon.

This topic has been traversed in further detail through the RFI process and has been addressed in detail by the Applicant. The peer review author covers this in his separate memorandum.

Putting the above to one side, in the opinion of the peer review author, the natural character and landscape effects conclusions are fair and reasonable, when the 'Low-moderate' (minor) temporary construction effects are considered combined with the erosion control structures being introduced into the CMA, both of which will reduce natural character. The loss of coastal vegetation cover albeit being replaced with a greater area of vegetation cover will also decrease natural character temporarily. The effects findings are of course balanced with the long-term improvements to natural character given the various aspects of the Project that are discussed such as ongoing erosion attenuation and increased coastal vegetation cover. It is also of note that the Applicant concludes that any permanent landscape effects following the Project will be 'Very low' adverse, which is fair and reasonable, and in the peer review author's opinion on the conservative side.

In response to the RFIs, a small table has been included in the Applicant's recent memorandum with effects columns including 'during construction', 'post all project construction' and lastly, an overall effects finding 'following project completion (within 5 years)'. Residual effects are between 'Low' and 'Very low' adverse (all 'Less than minor') for both natural character, landscape and visual effects - a finding which is fair and reasonable.

Change over time is mentioned as part of the assessment process. However tidal change which can vary by up to 2.1 m⁴ coupled with storm events are not discussed. Such events would presumably have some bearing on the changes arising from the Project, such as the development of biota on the new works and how tidal / erosional processes are altered / better attenuated for example. This would

³ Jacobs AEE pg. 24 (1.2.1).

⁴ Jacobs AEE pg. 58 (3.4.6.4).

doubtless have significant natural character and landscape benefits. It is assumed that the erosion protection works follow coastal engineering best practice and so an overwhelmingly positive outcome for humans' use of the site and in many instances for flora and fauna too will result compared with the current situation.

It is acknowledged by the peer review author that the permanent erosion protection works will provide a stable and more permanent environment than what currently exists, at least for 20 years. It is also understood that such structures will potentially contribute to 'coastal squeeze' inhibiting the natural landward progression of biota, as sea levels rise for instance, were the site left in a less built state. As such, some natural processes (the movement of biota across the landscape) will be restricted to a point. It is acknowledged that the effects of the proposal, balanced against alternative solutions or a 'do nothing' approach will have likely been covered in detail in others' technical reporting, such as the ecological reporting.

Visual Effects

The LEA correctly states in Appendix 1 that a landscape change or change to a view does not necessarily constitute an adverse landscape effect.

In this Section of the LEA, a 'Low' adverse visual effect finding is concluded in places. It is noted that on the TtM 7-point scale 'Low' can mean 'less than minor' or 'minor'. The 'Low' adverse effect has been clarified through the Applicant's RFI response as a 'Less than minor' adverse effect.

The visual effects section fleshes out the various potentially affected parties and their locations introduced in Table 1 of the LEA. The level of detail included in Section 5.3 provides a high level of comfort that the LEA author has a thorough understanding of the specifics of the Project, the site, potentially affected parties and their locations, their likely viewpoints and amenity expectations. As such, the effects findings (all adverse to varying degrees) included in this section and summarised in the table on page 39 and in the later response to the RFIs are considered to be fair and reasonable, given the magnitude of the construction effects, the marginal reduction in visibility of the estuary waters for some due to the slightly raised bund, built changes within the CMA, all coupled with a likely increase in public activity within the Project area.

As discussed earlier, existing unconsented (and unsightly) landscape elements occur within the existing baseline but do not appear to have been given special weight in the effects assessment – the correct approach. However, there are several legitimate built elements within the site that do not contribute to visual amenity values especially which have been considered as part of the existing baseline environment in the LEA. The response to the RFI has gone to some trouble to set out what these include at the bottom of page 3 such as reno mattresses, stormwater outlets, tidal protection works, rock armouring and so forth which is helpful.

In the third to last paragraph on page 35, a point is made where a cobbled structure is preferred in areas of the shoreline that are less modified, compared with other more modified areas, which are therefore proposed to be treated with a less-natural engineered solution. On the face of it, this raises a question that a key design 'driver' for treatment of the shoreline was how modified the area is currently. Substantive comment has been provided around this point in the Applicant's response to the RFIs where the choice of shoreline treatment is discussed and is clearly based on many factors other than existing levels of modification / condition. This matter is also responded to in the peer review authors separate memorandum. Suffice to say that the question of how the shoreline is treated

and why has been further clarified and the proposed locations for 'cobbled beach' and rock revetment - in absence of others' technical evidence recommending an alternative appears reasonable.

Private residents' views are discussed in the LEA from page 37. This party is numerous and includes the occupants from over seventy dwellings located between Caspian Street and the southern end of the Project. For these parties, views of the Project will be long term and fixed. The LEA concludes that construction effects will be 'Low-moderate' (minor) for these parties other than the occupants of 44a Rocking Horse Road ('44a') where construction effects will be 'Moderate' (more than minor).

These construction effects conclusions are considered to be fair and reasonable given the scale of the works and works methodology described in the AEE.

It is noted that the recent iteration of the design for the Project (see Jacobs Sheet 2005) includes a 200 mm increase in the height of the bund opposite 44a. This height increase is to reduce public views into this property from the shared path. In turn, this will also cause slightly more screening to estuary views for any occupants of 44a, however a 200 mm height increase balanced with improved privacy for this party and the other landscape improvements is not considered substantial enough to alter the effects finding in the author's opinion.

All private residents will doubtless benefit from westward views to and across the estuary now, which the LEA asserts. The Project may alter these views for some – a possibility covered in the LEA. Residual adverse visual effects from within all private dwellings are assessed as 'Very low' which is fair and reasonable. For some there will be a reduction in visual openness due to new planting, reduced visibility of the water due to the slightly higher bund and reduced privacy as more of the public will be seen going past on the upgraded tracks.

It is also of the peer review author's opinion, that for many people living adjacent to the site or visiting, the visual effects following completion of the Project will potentially be positive or at worst 'neutral'. This will be due to the earthworks changes (bund), remediating the shoreline, and an overall increase in vegetation cover, including native coastal plants. In some instances, westwards views to the estuary will be opened up. In other areas there will be improvements to access for land and water-based recreational activity. All these changes are directly associated with the Project's primary goal which is to provide an increased resilience to flood risk. This will directly benefit those living nearby. Most of the changes mentioned above are of course physical ones, however, how these changes appear will be an enduring and, in most instances, (some estuary views will be affected), a welcome reminder of the overall physical improvements to the site.

At Section 5.3.1 'Distant Views' are discussed. The visual effects of the Project regarding distant views are further clarified in the visual effects table in the Applicant's response to the RFI as being 'Low' (construction phase), 'Low' to 'Very low' (post all project completion) and 'Very low' adverse (following completion within 5 years). It of the peer review author's opinion that any changes visible at distance arising from the Project post construction will likely be indiscernible other than possibly the visibility of changes to vegetation. As such, effects are likely to be 'negligible' or perhaps 'positive'. The LEA concludes with a 'Very low' residual adverse effect which allows for the possibility that a less congruous change may be visible, which is a conservative approach and is not disputed.

7. Recommendations

Several recommendations are included in the LEA to ensure that the landscape effects conclusions found in the LEA are not exceeded (worsened). The four recommendations included are brief and indicate aspects forming part of the Project in any case. The point being made is that if the Project specifics are altered then there may be effects implications. Or in other words, the LEA relies on the plans and specifications as they are currently presented. In this vein, the Applicant states in their response to the RFIs that the landscape effects conclusions have not altered following recent changes to the design of the Project.

A recommendation is made where new planting is recommended to be implemented sequentially and in an ongoing manner as construction works complete stage by stage. This is also included in the AEE. Typically planting should occur only during the planting season (1 April – 30 September) which may necessitate some delay following construction works in some instances and was raised in an RFI. The Applicant has provided a satisfactory response to this matter which was helpful and is traversed in the peer review authors separate memorandum. Suffice to say that any risk of plant failure can be adequately addressed through conditions of consent.

The peer review author supports the recommendation in the LEA conclusion whereby occupants of the dwellings facing the Southshore Section are consulted regarding changes to vegetation cover (removal of existing trees and/or the addition of new trees) which may alter their views. It may be possible that the planting design be fine-tuned at detail design stage to accommodate any specific and valued westward views from these parties.



Jeremy Head
Registered NZILA Landscape Architect

19 March 2025

Appendix 1

Jeremy Head: Qualifications and Experience

Jeremy holds the qualifications of Bachelor of Landscape Architecture from Lincoln University (hons) 1993 and is a registered member of the New Zealand Institute of Landscape Architects (since 2000). Prior to 2000, Jeremy was an Associate member of the NZILA.

Jeremy has practised as a Landscape Architect for thirty years in both New Zealand and briefly in the UK. Jeremy has been self-employed since 2006 other than four years spent at WSP (Christchurch) where he held the position of Team Leader (South Island Landscape and Urban Design section).

During the course of his career, Jeremy has been involved in a wide range of work in expert landscape evaluation, assessment, and advice throughout New Zealand, including district wide landscape assessment, landscape assessments for several NoRs and public works for District and Regional Councils and Central Government and for preparing landscape assessments for private developers.

As an independent expert, Jeremy is regularly asked to peer review others' work and prepare and present evidence in hearings.

Jeremy has mentored several landscape architects to achieve registration status in the NZILA.

In November 2017, Jeremy contributed to a full day workshop with four other senior landscape architects as part of a national 'roadshow' with regards to developing an agreed landscape assessment methodology. This was facilitated by the late Environment Court Judge Gordon Whiting and is now borne out in the book: Te Tangi a te Manu Aotearoa - New Zealand Landscape Guidelines which Jeremy regularly relies on.

LANDSCAPE MEMORANDUM

To: Janice Carter, Consultant Planner to Christchurch District Council

Copy:

From: Jeremy Head, Registered NZILA Landscape Architect
Jeremy Head Landscape Architect 2022 Ltd.

Date: 19 March 2025 (20/08/2025 Updated to remove 'draft' mark and resolved comment box)

Preamble

I prepared a draft peer review of Boffa Miskell's 27 November 2023 landscape assessment for this project on behalf of Christchurch City Council (CCC) (dated 26 January 2024). Since then, CCC have received a series of RFIs from the CCC Resource Consents Team and Environment Canterbury (ECan).

A response to the s92 RFIs has been partly provided by CCC and partly by Boffa Miskell on behalf of CCC.

I have been asked by CCC to review several of the responses to the RFI (namely landscape-related questions 10 – 14 and part of question 9) and to look at the updated scheme design plus some other points that are within my field of expertise. I have also been asked to finalise my earlier peer review taking the additional information received into account. As part of my original peer review methodology, I visited the site and walked the full length in both directions of where the proposed works were located.

Comment on general points

I have been asked to comment 'in principle' on what the landscape at the site would look like in 20 years following the Proposal if at that point in time the proposed structural works were removed. The following comment assumes the vegetation cover has been well-maintained and regular plant replacement would have occurred.

Shrub and ground cover vegetation would be well-established, and depending on species type, may be due for replacement, particularly some ground cover species (e.g. grasses). Tree species would be at advanced heights and widths – some trees would be at mature heights providing a good level of buffering to the structural works to views from residential areas to the east, and from within the site. Likewise, views of the estuary will be less available than they are now from some viewpoint locations due to vegetative screening. Natural elements, processes and patterns including estuarine vegetative cover would be getting established on the inter-tidal parts of the rock revetment, cobbled beaches and rock steps. Groups of trees, shrubs and groundcovers may be self-seeding within their own 'enclaves' away from mowers and spraying and other interference.

A proposed condition is made on page 2, point (e) of the RFI response where "...footings below 10 mm of the estuary bed may be left in situ." I understand the intent of leaving some areas of footings in-situ, however, in my opinion, it would be very difficult to measure 10 mm (or 1 cm). The condition may need to be reworded or be more effects-focussed, and more in line with the later statement at the bottom of page 2: "Given the need to avoid impacts on the seagrass, there is no possible way to remove the buried footings in these sections however these will be flush or below the surface of the estuary, so will not present a barrier to expansion of the seagrass landward." (my emphasis added in bold)

Comment on Applicant's response to RFI points

RFI Question 9 (part)

"In the third to last paragraph of the landscape visual effects assessment on page 35, a point is made where a cobbled structure is preferred in areas of the shoreline that are less modified, compared with other more modified areas, which are therefore proposed to be treated with a more engineered approach. This raises the point that some areas, while modified, may be as a result of unconsented activity. While the basis for the gabion baskets is clear, in terms of protection of the middens with less modification the estuary bed, less clear is why the rock revetments have been chosen as an option in the low energy environment of the estuary. This appears to be because they replace existing vertical structures.

Please advise if an alternative approach such as cobbled beach was considered for the areas shown as rock revetment, and why the rock revetment was the preferred option, given the associated landscape and ecological effects.

Please also advise whether any assessment of landscape or ecological impact was made of the originally proposed 1:3 slope for the rock revetment before the decision to adopt the steeper 1:1.5 slope was made (as per 3.1.3 of the preliminary design report) or provide an effects basis for this was not required."

Applicant's response:

Rock Revetment and Cobble Beach

"Across the project, a combination of rock revetment and cobble beach has been selected. Cobble beach was selected for areas where local conditions result in lower erosion risk. Rock revetment was selected for areas where there is greater evidence of erosion occurring. Additionally, rock revetment is proposed for sections where there are space constraints which could otherwise result in impacts on existing ecological habitats or the need for increased reclamation / encroachment into the coastal marine area.

It is worth noting more broadly that the project was not conceived purely from a coastal process and hazard perspective, and there are often varied reasons for elements of any proposal. In this instance, other factors include:

1. The revetment allows the inundation bund to be located closer to the coast, reducing the impacts of overlook on neighbouring properties and preserving usable open space for the community on the landward side.
2. The revetment encapsulates the ad hoc and crumbling coastal structures built by previous residents, protecting that material from entering the estuary /CMA.

3. *Revetment has been accepted as an erosion protection mechanism recently in several other locations, including at Main and Beachville Roads (Sumner, multiple sections) and to the west, south of Rat Island Reserve.*

The community lobbied Council for many years, with the project as designed being the outcome sought. A cobble beach would be significantly more expensive to construct, and at odds with the community's desires who do not accept that it provides the same level of protection. It is therefore extremely unlikely to get funded nor supported by the community. If the bund were set back and new erosion control structures avoided, then two outcomes could result:

1. *Ongoing degradation of existing structures along the estuary edge and stranding of these structures in the estuary bed*
2. *Release of contaminants from the structures and land into the Estuary.*

While the need for these structures may not be clear from one perspective, it was not the only driving factor behind the proposal. In this event, the actual impacts need to be assessed, and a response to the questions around impacts are provided elsewhere in this response.

It is worth further noting that many of the retaining structures have been created by reclamation over decades by individual residents and subject to several resource consent processes where they have been assessed as part of the existing modified environment.

*Additional information on the process and an updated Multi Criteria Assessment (MCA) can be found in **Attachment A** "Response to final ECan matters 19 December 2024". Included below is further information on the MCA and revision of this document that occurred in late 2024.*

Following our post-lodgement discussions, the project team met to update the original MCA and this update is also attached. We have excluded the gabion option from the original MCA as it scored significantly lower and was never seen as suitable to explore. In carrying out this reassessment, we have considered only matters that have changed since the original assessment – ie we have not altered original scoring unless there has been a material change in either the design, or our understanding of the planning environment. For clarity, the following changes have been applied:

- *The existing (unconsented) coastal structures have been removed from consideration, this primarily affected the landscape and visual ratings*
- *Access to the estuary has been swapped from a positive to a negative (refer question 2g above)*
- *Mana whenua approval for the project has been gained, setting this aspect to neutral*
- *The 'cobble beach' option, which was initially designed and assessed as encapsulating the existing coastal structures and extending out into the estuary (reclamation) has been assumed to be constructed landward instead, with the structures removed.*

The updated MCA includes notes explaining the rationale where ratings have changed, and the result is that revetment is more significantly preferred to cobble beach than it was in the original MCA – mostly due to changes in the 'social factors' section. Further to this, and outside of the MCA specifically:

- *Providing cobble beach along the entire length would conflict with the previous technical specialist comments relating to the level of access to the estuary and potential impact on ecological values.*
- *The cobble beach would require full removal of all coastal structures and some 5500m³ of soil behind these. Our estimate of costs to remove this material is around \$2m, along with around 11000T of carbon emissions in trucking it to Kate Valley.*
- *This would significantly increase construction impacts for the community, truck movements and broader impacts on flora and fauna.*

Given the lower MCA rating, the increased costs and emissions and the broader impacts, the cobble beach remains a less preferred option and we have sought to close out all other impacts via the other questions."

Comment – J Head

Rock revetment vs cobbled beach

The primary consideration in the RFI was whether there are areas of rock revetment that could potentially be replaced with a more natural looking, gentler and less intrusive edge treatment – in this instance the cobbled beach option. In this regard I rely on the Applicant's response that the edge treatment was chiefly in response to different intensities of wave action. The Applicant has provided a detailed response to RFI Question 9 which in my opinion is well-reasoned and carefully explains that the design outcome is the balanced result of a complex set of requirements, which is often the case.

The fact that the proposed rock revetment appears to coincide with areas of more modified shoreline may simply reinforce the fact that these areas of shoreline are prone to higher levels of coastal erosion, hence individual property owners' attempts to protect their estuary facing gardens and outdoor areas pre red-zoning. If further discussion on coastal erosion processes was provided where sections of the proposed revetment could be safely replaced with a cobbled beach methodology, I would support this change. While rock is not a naturally-occurring material found at the site in any format (the site is fully sand) a cobbled beach would be a preferable outcome, as it would be more 'low key', less obtrusive and more compatible with the original dune landform.

Public access (ECan Question 2(g))

The Proposal includes comprehensive changes to the estuary edge. Increased public access opportunities to the estuary flats may be possible though these changes which may have an adverse effect on natural character, particularly in terms of RMA Section 6a. Presently, the estuary edge / mudflats are quite accessible from multiple locations. I understand that some of this access is via consented and unconsented structures. And from my own site observations, in some places it is possible to just 'hop down' onto the estuary flats. I agree with the Applicant in this regard that the Proposal will make access onto the estuary flats more limited than it currently is. Climbing a 1 in 1.5 sloping rock revetment is not particularly easy on foot and would be very difficult for all but the most committed motorcycle or quad-bike rider. Estuary access will be better controlled by the Proposal, focussed on several formed access points, now reduced further to four in number. Access will be via steps, rather than ramps, the latter of which would afford easy access to motorised vehicles, such as motorcycles.

I am satisfied that the proposed reduction in formal / controlled estuary access points from nine to four with future conditions at detailed design stage to protect seagrass will have a positive effect on natural character and landscape quality, compared with the existing situation. In this regard I agree with the Applicants response to ECan Question 2(g).

I also note that the Applicant has raised the point that increased areas of cobbled beach, - an option canvassed by ECan would make estuary access easier compared with a steeper rock revetment structure as proposed.

RFI Question 10

"Landscape assessment – for the natural character and landscape effects please clearly separate out the temporary construction effects, post construction effects, and then an overall effects finding. A table (similar to that already provided for the visual effects assessment) would be a useful way of doing this. Note also question 22. below in terms of the duration of the construction effects."

Applicant's response:

"Following the completion of works and then planting within various common areas across the Project Site, it is considered that adverse landscape and natural character effects will diminish. This will be a progressive outcome, evolving over the construction period following the completion of planting in increments throughout the Construction Footprint. It is understood that construction duration is likely to be between 12 and 15 months for Southshore and around 5 months for SNBP.

While construction activity continues around completed, planted areas, adverse landscape and natural character effects will likely vary between low-moderate and low, but once all activity is ceased and machinery removed, this will reduce to low across the Site.

Within approximately 5 years of all construction activity being completed, it is anticipated that the Project Site will become integrated into the wider landscape. By this time, all vegetation will be semi-mature to mature and well established. At this time, it is considered that the permanent landscape effects will be reduced to very low."

Comment – J Head

A table has been provided by the Applicant separating out the various effects attributed to 'natural character', 'landscape effects' (which includes visual effects), and construction effects ('Low-moderate' adverse during, and 'Low' adverse post construction). This is clear and helpful. A 'Low' adverse effect is clarified as being 'less than minor' which is also helpful, as a 'Low' level of adverse effect straddles both 'less than minor' and a 'minor' equivalent RMA effect in Te Tangi a te Manu (TTatM). Of note, the Applicant concludes that following completion of the project and inside five years, any adverse landscape effects will be 'Very low'. This is a fair and reasonable conclusion in my opinion and does not attempt to 'gild the lily'. It is quite possible that in the long term (in this case after five years) the new vegetation will have sufficiently matured, and natural elements, patterns and processes have come back into some semblance of balance (or better), where the 'Very low' adverse effect may improve to neutral, or possibly 'positive'.

RFI Question 11

"Please confirm whether a 'do nothing' scenario has been considered for the landscape (and other technical) assessment/s and if not, provide justification for not providing this. Alternatively, please provide this assessment.

I note that a key question in relation to the engineering response that has not been addressed in the application is where should the shoreline be located? The local community appears to support the return to the 2010 pre-earthquake shoreline position, which appears to have been won by reclamation due to potentially unconsented coastal protection structures. As the area is now predominantly in public ownership and mainly free from residential units, there is potential for the shoreline to be further landward and more akin to where it was in the 1950's for example. This could be a significantly cheaper and more environmentally advantageous outcome.

The applicant's comment on this would assist, as would a summary of the rationale for the approach chosen by the Council and reflected in this application. I note I have read the background Council reports (May 2019, August 2020) but note that these were prepared for a different purpose, and don't constitute a full consideration of alternatives (noting that whether the effect on the environment is significant in terms of the Fourth Schedule duty to consider alternatives is not clear in the absence of the other information requested, in particular the status of the existing private structures and the legal ability to consider them part of the existing environment)."

Applicant's response:

"This project has a focus on remedying the effects arising as a result of the CES, those being the lowering of land and inundation / flooding effects. A 'do-nothing' approach is not an acceptable outcome to the community nor to the environment, which would continue to degrade.

Rationale is included in the answer to Question 9, above. For completeness, we have repeated this as the response is also applicable to this question.

The community lobbied Council for many years, with the project as designed being the outcome sought. A cobble beach would be significantly more expensive to construct, and at odds with the community's desires who do not accept that it provides the same level of protection. It is therefore extremely unlikely to get funded. If the bund were set back and new erosion control structures avoided, then two outcomes could result:

- 1. Ongoing degradation of existing structures along the estuary edge and stranding of these structures in the estuary bed*
- 2. Release of contaminants from the structures and land not owned by Council into the Estuary.*

While the need for these structures may not be clear from one perspective, it was not the only driving factor behind the proposal. In this event, the actual impacts need to be assessed, and a response to the questions around impacts are provided elsewhere in this response.

It is worth further noting that many of the retaining structures are not legally in Council land, having been created by reclamation over decades by individual residents. If the revetment as described is not seen as a suitable solution, then we will need to return to this matter and agree a way forward with ECan, LINZ and other parties to determine who is responsible for these structures and land are. For now, we are attempting to resolve it in a pragmatic manner that is best for all.

Further discussion around the location of the shoreline and where this should be located will form part of proposed future discussions through the CHAP process. The CHAP process will not commence until interim measures for the community are in place."

Comment – J Head

I agree in principle with the Applicant's above response, that a solution needs to be found that adequately meets the communities requirements for continued living in the area and that what is proposed will have acceptable (but not necessarily positive) landscape and natural character effects.

As an aside, returning the shoreline to a location based on another point in time, while possible, is not particularly relevant in my opinion. Prior to European settlement, the spit landscape was very 'mobile' where the sequence of sand dunes, interspersed with swampy hollows and sand flats in the inter-dune low points would have been in a constant east to west 'rippling' migration pattern in response to the onshore (easterly) wind. This effect still occurs to a degree in some of the spit's easternmost residents' yards that face the dunes, where a battle still occurs to keep sand out of outdoor areas.

On the other side of the spit, the estuary shoreline would have also undergone far greater change in its shape and location than it does now. This would have been in response to the aforementioned shifting dune landscape combined with the ebb and flow of the estuary. While tidal erosion and depositional processes still occur, the natural pattern of dune migration has now been almost completely arrested following urban development of the spit including historic planned and ad hoc reclamation works. The natural processes derived from the original dune landscape would have had some influence on where the estuary edge was located at any given point in time. The former dunes have been largely removed, resulting in a highly modified and levelled environment underlying urban development and latterly red-zone 'parkland'. In places the shoreline is now highly modified and physically held in place to varying degrees of 'success'. As such, it seems arbitrary picking a 'fixed' shoreline position now, as any planned location will be in essence ignoring the spits original and naturally ephemeral nature. Or in other words, what is proposed is fixed, and as such is no better or worse than another fixed location in my opinion, now that natural processes have been substantially curtailed in order to provide for urban development in the area.

RFI Question 12

"The visual effects assessment notes a 'low' adverse visual effect finding is concluded in places. It is noted that on the TTatM 7-point scale 'low' can mean 'less than minor' or 'minor'. This needs to be clarified or where relevant couched as a 'very low' to 'low' (less than minor) adverse effect. Please note, including unconsented (and unsightly) landscape elements within the existing baseline, to increase the absorption capacity of the Project is not supported."

Applicant's response:

A range of visual effects have been identified during construction, post all project construction, and following completion of the project at approximately 5 years. While the specific location and nature of unconsented elements and structures have not been taken into account when assessing levels of effect, the site adjoins and forms part of an established modified urban edge within which landscape and visual effects have necessarily been considered.

For the purposes of this assessment, 'low' equates to less than minor. An updated summary table is provided below:" (not included in this memorandum)

Comment – J Head

The 'Low' level of effect in TTatM and whether it equates with a 'minor' or 'less than minor' adverse effect on the RMA scale has been addressed above in the comment on the Applicant's response to question 10.

I am satisfied that the landscape assessment does not place undue weight on the presence of potentially unconsented structures to 'downplay' the landscape values of the site and setting. The Applicant's landscape assessment simply includes these various modifications as part of their description of the baseline (note not *consented*) environment which in an overall sense is a highly modified one regardless of the various relatively small and unconsented structures. It is also worth noting that the Applicant concludes with a 'Very low' and permanent adverse effect arising from the proposed changes which is on the conservative side in my opinion, and as such does not overstate the benefits of the removal of any unconsented structures.

RFI Question 13

"The proposed progressive planting approach conflicts with landscaping best practice which is to plant within the planting season. Please advise the extent to which the proposed progressive planting approach has been relied upon to mitigate adverse effects, and the extent to which a requirement to delay planting to the next planting season following the construction works would increase these effects, and to what degree."

Applicant's response:

"The Project is a long linear construction project with a narrow construction corridor. Potential adverse landscape, natural character and visual effects during construction are proposed to be minimised through a number of measures, one of which is to undertake landscape planting progressively or on an 'ongoing' basis as works in a common area are completed. In other words, as the construction activity commences and moves to different areas across the Project Site, the completed areas will be prepared and appropriately planted as proposed, rather than it all being undertaken on completion of the Project. In this way, localised effects can be managed sooner.

However, as part of this approach it is intended that planting will be planned so that as much planting as possible takes place within the next available planting season to provide plants the best opportunity for establishment, with planning and site preparation to occur leading up to implementation. This is not considered to change overall effects findings. As noted in the response above (Q1) it is understood that construction duration is likely to be between 12 and 15 months for Southshore and around 5 months for SNBP."

Comment – J Head

I am satisfied with the Applicant's response above. It would be prudent (if consent is granted) that conditions be put in place to ensure that any new and completed planting is appropriately protected from subsequent construction phases and that conditions around appropriate planting methodology including plant replacement are included. That way the Applicant may elect to plant outside the planting season (1 April – 30 September) so long as the plants are carefully managed to establish

satisfactorily. This may require a landscape management plan to be prepared that would among other things detail out any 'emergency' watering regime during the drier months.

RFI Question 14

"Council's Senior Technical Engineer Land Drainage has advised that best practice stopbank construction limits the extent of planting on the bund, as it acts as a barrier to the inspection process. As such, to enable signs of stopbank failure to be visible, the landward side of the bund is required to be grassed, rather than planted. In addition, all trees within 5m of the centre of the bund need to be removed.

Please provide updated plans that reflect these requirements and provide supplementary landscape and ecological assessments as required (where these may have relied on planting on the landward side of the bund, for example in the landscape assessment native groundcover and shrub planting is partly relied upon to provide mitigation of the landscape and visual effects of the landform changes, particularly to views eastwards of the bund)."

Applicant's response:

*"Updated landscape plans are included as **Attachment M**.*

Planting has been removed in accordance with the feedback provided above. Further tweaking of the design will occur during the detailed design phase of the project.

Landscape and Ecology specialists have confirmed the reduction of planting does not alter their respective assessments. Further, specialist inputs will continue as the project progresses through the detailed design process."

Landscape comment from Boffa Miskell

"While establishing and maintaining inundation bunds through South Shore in grass will create a more open corridor and slightly increase their legibility, they would remain low-profile features within a more comprehensive mosaic of parkland vegetation. This outcome will continue to assist with their effective integration within this landscape and is not therefore considered to result in any material increase in landscape or visual effects.

In terms of natural character, we previously identified that "The proposed inundation bund will create a new, raised feature with a low profile, a gentle batter and a path on the crest where there is currently typically either a path or grass." This would not change."

Comment – J Head

Attachment M appears to be missing sheets 1, 3 and 7. Looking at the sheets that are within Attachment M, it appears that there are trees within 5 m of the core of the bund. I assume that this would be the case too, on the missing sheets. However, in some places, existing / retained and additional vegetation (not grass) is shown on the landward side of the bund. I also assume this may be the case on the missing sheets. I understand that the planting design may well be 'tweaked' at detail landscape design stage, however, it would assist if these areas of vegetation were removed from the current set of plans, and missing sheets, if necessary.

I agree that removing taller vegetation cover from the bund, and trees near the bund would not be substantial enough to alter the landscape effects finding, which includes visual effects. As I mentioned

earlier, the Applicant has concluded that permanent landscape effects of the Proposal will be 'Very low' adverse, which in my opinion is conservative. To mitigate any potentially adverse effects of removing this vegetation from the bund near the bund, I suggest that the removed vegetation is relocated to a suitable area on the landward side of the bund. That way there would be no nett change in the level of proposed vegetation as it is currently shown on the plans. Further, the vegetation would increase in height over time, partially buffering the bund profile to landward views – a beneficial effect.

Jeremy Head
Registered NZILA Landscape Architect

19 March 2025

APPENDIX 5 – MEMORADUM BY MS MELANIE BURNS

Before the Independent Hearing Panel appointed by
the Canterbury Regional Council

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Application CRC242267 to
undertake erosion and inundation protection works at
Southshore and South New Brighton Park.

Addendum to Section 42A Officer's Report
Report of Melanie Jane Burns

Introduction

Background

1. This report forms part of the Canterbury Regional Council's (CRC) audit of the assessment of environmental effects (AEE) provided by Christchurch City Council [CCC] (the applicant) in support of resource consent applications for erosion and inundation protection works at Southshore and South New Brighton Park.
2. This report will provide the decision-maker with information and advice related to:
 - a. the actual and potential effects of the proposed activities on estuarine ecology and water quality in Southshore and South New Brighton Park.
3. While not required for a Council hearing for a resource consent application, I have read the Code of Conduct for Expert Witnesses in giving evidence to the Environment Court. I agree to comply with that code when giving evidence to the Hearing Panel in this matter. All my evidence is within my expertise and I have considered and stated all material facts known to me which might alter or qualify the opinions I express.

Qualifications

4. I hold the qualifications of Bachelor of Science in Ecology, and Master of Science in Environmental Science from University of Canterbury. My MSc research was undertaken in the Avon-Heathcote Estuary/Ihutai and my thesis was titled 'The effects of macroalgae mats on marine benthic fauna'.
5. I have nine years' experience as an environmental scientist specialising in estuarine ecology and coastal water quality. I also have 11 years' experience in resource consent monitoring of activities within the coastal marine area. I have been employed by Canterbury Regional Council as a Senior Scientist – Coastal Water Quality and Ecology since November 2021.
6. I have been involved with and led the estuarine ecology monitoring, coastal water quality, and contact recreational monitoring programmes at Environment Canterbury. I regularly contribute expert knowledge to internal technical requests including activities within the coastal marine environment.

Scope of Report

7. This report is prepared under the provisions of section 42A of the Resource Management Act 1991 (RMA). This section allows a council officer or consultant to provide a report to the decision-maker(s) on a resource consent application made to the council and allows the decision-maker(s) to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker(s) to request and receive from any person who makes a report under Section 42A "any information or advice that is relevant and reasonably necessary to determine the application".
8. This report is supplementary to the Section 42A Report prepared by the CRC for the above resource consent applications. Full details of the consent applications are provided in that report. To carry out this audit of the consent applications I have considered:
 - a. Assessment of Effects on the Environment (Jacobs, 2023);
 - b. Appendix C - Drawings (Jacobs, 2023);
 - c. Appendix D - Design Report (Jacobs, 2023);
 - d. Appendix M - Ecological Impact Assessment (Boffa Miskell, 2023);
 - e. Further information that was provided by the applicant on 9 April 2024, 23 October 2024, 20 November 2024, and 19 December 2024;
 - f. Amended Ecological Impact Assessment (Boffa Miskell, May 2025);
 - g. Memo of site visit and proposed amendments/further investigation (CCC, 16 July 2025).
 - h. Updated consent conditions (CCC, October 2025).

I have also reviewed relevant data from ecological monitoring of the Avon-Heathcote Estuary/Ihutai undertaken by Christchurch City Council and reported in Berthelsen et al. (2022). I have attended a site visit on 16 July 2025 with the applicant and their consultants. Finally, I have also considered relevant issues raised by submitters in relation to the effects I have considered in this report.

Assessment of Receiving Environment

9. The Ecological Impact Assessment (EIA) Report by Boffa Miskell (2023) has provided a detailed description of the estuarine ecology and mapped the eastern boundary of seagrass beds (*Nanozostera muelleri*, formerly *Zostera muelleri*) within the intertidal area along the project footprint in South New Brighton Park (SNBP) and Southshore.
10. I agree with the assessment of ecological value of the hard-bottom habitats in SNBP and the unvegetated soft sediment habitats along Southshore and SNBP as outlined in the EIA report (Boffa Miskell, 2023).
11. I disagreed with the assessment of ecological value of the vegetated soft sediment habitats where seagrass beds are present in Southshore as outlined in the EIA report (Boffa Miskell, 2023). However, Boffa Miskell have reconsidered their original assessment and there is now agreement that these beds have very high ecological value (Boffa Miskell, 2025).
12. Seagrass beds form a highly valuable estuarine habitat that supports a high biodiversity of fauna, act as a nursery for juvenile fish, provide important ecosystem services, including natural erosion protection. They are also important in reducing the effects of climate change through carbon sequestration. Seagrass (*N. muelleri*) are an 'At risk –

Declining' species under the New Zealand Threat Classification System (de Lange et al., 2023). In Canterbury, there are only a small number of locations where seagrass beds are present and the seagrass beds in Southshore are the largest area in the region. Long-term data at Plover Street, Southshore, suggests that these beds are increasing in percent cover (Berthelsen et al., 2022).

Assessment of Effects on the Environment

13. The application provides a detailed description of the existing erosion protection structures, and design and location of the new erosion protection structures. The application outlines the potential adverse effects from the construction of the structures and post-construction effects on the estuarine environment. I agree with the potential adverse effects that have been identified.
14. The potential adverse effects on the estuarine environment as outlined in the EIA report (Boffa Miskell, 2023) are:
 - a. Loss of habitat through reclamation and habitat disturbance (soft-bottom and hard-bottom),
 - b. Mortality of estuarine organisms,
 - c. Loss of estuarine vegetation,
 - d. Sedimentation and contamination, and movement of cobble beaches,
 - e. Noise and vibration effects,
 - f. Increased access to the estuary bed, and
 - g. Coastal squeeze.
15. I have considered the further information provided by the applicant and submissions. Outlined below are points of agreement and disagreement of these potential effects and my assessment of proposed mitigation.

Loss of Habitat through Reclamation and Habitat Disturbance

16. It is my understanding of the current proposal that only the consented structure at SNBP is considered existing environment. The remaining structures in SNBP and Southshore, have been removed from the calculations of 'declamation' and the overall reclamation assessment. Furthermore, the applicant has proposed design changes to the cobble beach area at SNBP, which will mean there will be an overall 'net zero' reclamation across the project footprint.
17. The applicant has indicated they are prepared to change the position of the erosion protection structures further landward than originally proposed to avoid all reclamation of soft sediment habitat and disturbance to seagrass beds, except in two specific locations (44a Rockinghorse Road and adjacent to the middens in SNBP) where there are site constraints. The applicant has stated that the detailed design drawings will reflect a 'net zero' or better reclamation of the estuary.
18. Condition 9 of the proposed General Conditions allows for non-material changes to be made to the detailed drawings/approved plans at any time. However, I recommend that any further revisions to the design drawings maintain an overall 'net zero' or better reclamation of the estuary. Also, any material changes to the design plans should be supplied to Environment Canterbury for review and approval. If a condition is included that outlines this mitigation measure, then I consider that the effects on habitat loss from reclamation will be negligible.

Mortality of estuarine organisms

19. The EIA report (Boffa Miskell, 2023) assessed that there will likely be mortality of sessile or slow-moving organisms (mobile organisms should be able to leave the area) from the disturbance of the soft sediment habitats during construction phase. The applicant proposes to mitigate these adverse effects by reinstating the excavated material within the same tidal window. Boffa Miskell assessed the resulting effects as very low. This proposed mitigation measure was not included in the proposed consent conditions. If a condition is included that outlines this measure, then I consider that the effects from mortality of estuarine organisms to be low, not very low as assessed by Boffa Miskell.

Loss of estuarine vegetation

20. My understanding of the current proposal is that the proposed erosion protection structures will not overlap with any seagrass beds or patches, and the eastern boundary (estuary edge) of the seagrass habitat will be re-mapped before construction begins to confirm the extent of overlap between the seagrass beds and the project footprint. If needed the project design will be revised to avoid seagrass beds overlapping with the footprint of the new structures.
21. The applicant has also outlined that if there are severe design constraints (e.g. at 44a Rockinghorse Road) and the overlap is limited to a very small number of isolated seagrass plants, that they will discuss with the consenting authority a suitable measure to avoid impacts on the seagrass habitat.
22. The applicant proposes to minimise the disturbance to seagrass beds by requiring that any works within 10 m of seagrass habitat is undertaken in accordance with a Seagrass and Saltmarsh Management Plan (SSMP). The SSMP will include (but not be limited to) requiring that the existing structures are removed from the landside only, with no machinery permitted to enter the estuary, and manual removal of the structures. Where the footing of the existing structures can't be removed without disturbing the seagrass beds, they will be left insitu and cut off at a level of 100 mm above the estuary bed. The works overseen by a suitably qualified and experienced marine ecologist.
23. These mitigation measures have been included in the proposed consent conditions (General Conditions - Condition 5 and Regional Consent - Conditions 4, 5 and 6). Therefore, I consider that the risk of any adverse effects on seagrass beds will be low.

Sedimentation, contamination, and movement of cobble beaches

24. The EIA report (Boffa Miskell, 2023) outlined the potential for resuspension of benthic sediment and associated contaminants from the excavated area, as well as the runoff of terrestrial sediment and contaminants from the works on the adjacent land. The applicant has included erosion and sediment control measures in the proposed General Conditions 17, 18, 19 and 20 to manage the runoff of terrestrial sediment and contaminants. I recommend that the erosion and sediment control plan is provided to Environment Canterbury for review prior to commencement of work. If this mitigation measure is included, then I consider that the risk of adverse effects from sedimentation to be low. However, the mitigation measures to minimise the potential for resuspension of benthic sediments and contaminants which included working only during low tide windows, reinstating the disturbed area of seabed within same low tide window, and ensuring that the disturbed areas are compacted and level with the surrounding seabed, have not been included in the proposed consent conditions. If a condition is included that outlines these mitigation measures, then I consider that the effects from resuspension of benthic sediment and contaminants to be low as well.
25. Establishment of cobble beach areas are proposed as part of the erosion protection structures in SNBP and Southshore. I was concerned about the potential damage to the

soft sediment habitats from the movement of these cobbles and the long-term changes in the composition of substrate in this area. The applicant has proposed to monitor the toe of the cobble beaches annually and after large storm events and remove any displaced cobble material and reposition it back into the cobble beach.

26. The proposed Regional Consent Conditions 10 and 11 include these mitigation measures. However, Condition 11 does not include the requirement to remove this material by hand. I have suggested some changes to the wording of Condition 11 (paragraph 50 below) to include this mitigation measure. If this is included, then I consider that the potential adverse effects to be low.
27. The EIA report (Boffa Miskell, 2025) assessed that if the deposited cobble and rock material is not free from fine sediment that this could result in adverse effects on water quality and estuarine organisms through both increased suspended and deposited fine sediment. I agree with this assessment. However, the management of the quality of the deposited material has not been included as a proposed consent condition. Furthermore, the cobble and rock material needs to be free from contaminated material, soil, and pest species, as these could also have adverse effects on the estuarine ecology. If appropriate mitigation measures controlling these attributes are included as consent conditions, then I consider the potential adverse effects on water quality and estuarine organisms to be low.

Noise and Vibration

28. The EIA report (Boffa Miskell, 2023) assessed the offloading of material, excavation and piling operations as having a very low level of effect as it will only occur intermittently and at low tide (so no propagation of noise through the water column). There has been a subsequent change to the application, and the Tern Street Jetty is no longer included, so there won't be any piling operations. I agree that the effects of noise and vibration on aquatic life will be very low.

Increased access to the estuary bed

29. The new erosion protection structures will include new stepped facilities to facilitate access to the estuary. I was concerned that the new stepped facilities may result in an increased number of people, watercraft, and vehicles, accessing the estuary bed. Which could result in trampling and disturbance to the soft sediment habitats and seagrass beds, as well as littering.
30. My understanding of the current proposal is that the number of stepped facilities along the project footprint will be limited to two formal well designed access points at Tern Street and Godwit Street. Furthermore, the applicant proposed that the access points will be designed to be a minimum of 30 metres from significant seagrass beds to minimise the disturbance from launching watercraft (e.g. kayaks). Also, new educational signage outlining ecological values, shellfish safety and dog access rules will be installed.
31. The proposed consent conditions (General Conditions 1 and 33) outline that there will only be two stepped facilities and new signage will be installed advising on the ecological values and water quality in the area. However, the proposed conditions do not require that these stepped facilities must be at least 30 metres from the edge of seagrass beds or significant patches to minimise the adverse effects. If this mitigation measure is included as a consent condition, then I consider that the adverse effects from increased access to the estuary bed to be low.

Coastal Squeeze

32. The applicant has proposed to install gabian baskets (SNBP), rock revetments (Southshore) and cobble beach structures (SNBP and Southshore) to protect the inundation bund from erosion. These structures could contribute to "coastal squeeze" in the intertidal zone, reducing soft sediment habitat and the area available for seagrass beds, as well as increasing water levels.
33. The applicant has agreed to trial a 'soft edge' natural beach in SNBP (replacing part of a cobble beach) but plans to retain the other cobble beach structures along Southshore as well as the rock revetment structures.
34. Advice from Environment Canterbury's Senior Natural Hazard's Scientist, Mr Bruce Gabites, is that apart from two areas between Heron Street and Penguin Street, the current position of the LINZ bund is located a sufficient distance landward of the existing protection structures that it is unlikely to be subject to coastal erosion in the next 20 years. Mr Gabites also considers that there is no reason from a coastal process and hazard perspective why a 'harder' engineered rock revetment is required for the majority of the Southshore estuary shoreline when a slightly 'softer' engineered cobble beach would be sufficient.
35. The applicant engaged NIWA (now Earth Sciences New Zealand) to assess whether vertical land movement, Sea Level Rise (SLR) and sedimentation will increase water levels and reduce the intertidal zone. This was to help determine if the proposed activities could contribute to "coastal squeeze". I have reviewed the report by NIWA (2024) and the updated EIA by Boffa Miskell (2025).
36. The NIWA (2024) report highlights that over the proposed consent duration (20 years: expiry 2045) there will be a small loss (between 1.8 m and 16.2 m) of intertidal area (due to it becoming submerged at low tide) under the lower SLR scenarios (SSP 2-4.5 p17 and SSP 5-8.5 p50). Most of these areas are around the slopes of the low tide channels (Boffa Miskell, 2025). However, under the higher SLR scenario (SSP 5-8.5 p87) there could be a much larger loss of intertidal area up to 303.5 m particularly at the northern end of the site (Table 3-1, NIWA 2024).
37. The NIWA (2024) report then assessed the proportion of the intertidal area currently occupied by seagrass beds that could be lost under the different SLR scenarios. Most of the intertidal area currently covered by seagrass will remain intertidal and continue to experience an alternation of emersion/immersion periods (Boffa Miskell, 2025). Except under the most extreme scenario (SSP 5-8.5 p83) where some of the seagrass beds will become permanently submerged (up to 47% at the northern end of the site).
38. Although seagrass beds will only be affected under the most extreme SLR scenario, the unvegetated soft sediment habitats will be reduced under all SLR scenarios. Boffa Miskell (2025) considered that this would only result in a very slight change to macroinvertebrates compared to existing baseline conditions and assessed the adverse effects to be very low. In my opinion, there is still uncertainty about the potential adverse effects on the macroinvertebrate communities within the unvegetated soft sediment habitats. This is because macroinvertebrate community composition in intertidal soft sediment habitats is often strongly zoned by the tide. The loss of intertidal area could result in a loss of species or change in composition of communities if they are not able to migrate shoreward (Rullens et al., 2022). Mr Andrew Crossland who is an avifauna expert at the CCC also share concerns about the loss of intertidal habitat. Mr Crossland is concerned that the loss of intertidal habitat from coastal squeeze could affect a wide range of bird species that rely on the exposed mudflats, seagrass beds and shallow waters to meet their daily feeding requirements (Crossland, 2025).
39. The NIWA (2024) report also assessed the depth of high-water spring tides in the intertidal area which will increase with rising SLR and land subsidence. Boffa Miskell

(2025) stated that this could lead to longer periods of immersion in deeper water at high tide (or continuous immersion in areas no longer emerged at low tide), which could reduce the photosynthetic capacity of seagrass with the severity of effect being dependent on water clarity.

40. Boffa Miskell (2025) consider that given the limited changes in photosynthetically active radiation (PAR) at Southshore at high tide due to the good water clarity, and the ability of seagrass to up-regulate photosynthesis at low tide, that the magnitude of pressure from coastal squeeze on seagrass beds under the two lower RCP scenarios would be negligible. They also state that even under the most extreme SLR scenario the seagrass beds will only be a few centimetres below mean low water spring tide and with good water clarity should still have access to suitable light (Boffa Miskell, 2025).
41. Therefore, to minimise the adverse effects on seagrass beds from increasing water levels from coastal squeeze, requires either water clarity to remain high (i.e. low turbidity) so that seagrass beds can continue to photosynthesis with increasing water depths; or sediment mud content (from deposited sediment) to remain low so they can compensate for high turbidity by photosynthesising during low tide periods (emerged).
42. Long-term water quality monitoring at Penguin Street (Southshore) by Environment Canterbury has shown decreasing trends in turbidity over the last 10 years. However, increasing turbidity is expected to occur simultaneously with sea-level rise in many places (Flowers et al. 2023a). Although Southshore currently has good water clarity, it may become vulnerable in the future through the increasing frequency and intensity of extreme weather events that deliver more land-derived sediment and nutrients, which can increase water column turbidity (Seneviratne et al., 2012 as cited in Mangan et al., 2020).
43. Also, the ability of seagrass beds to up-regulate during low tide depends on not only the duration of emergence, but whether suspended sediments settle out and smother primary producers (Drylie et al., 2018). Monitoring of estuarine sediment grainsize by CCC at Plover Street¹ shows an increasing proportion of mud content in the surface sediment (see graph below) over the last 15 years.



44. Seagrass beds have shown some resilience to increases in mud content (up to ~33%). While areas of high mud content (>39%) are likely to lead to degradation and loss of seagrass habitats and the expansion of unvegetated soft sediment habitats (Flowers et

1.

¹<https://www.lawa.org.nz/explore-data/canterbury-region/estuaries/avon-heathcote-estuary/plover-street>

al., 2023b). The mud content at Plover Street in 2025 was recorded around 36%. Therefore, it is possible that the seagrass beds at Plover Street (Southshore) are already experiencing stress, which could reduce their ability to up-regulate with increasing SLR.

45. In my opinion, there is still some uncertainty around the level of adverse effects that increased immersion periods and higher water levels, arising from coastal squeeze, could have on seagrass beds.
46. Boffa Miskell (2025) also stated that to understand the adverse effects under the most extreme SLR scenario more comprehensive mapping across Southshore area is needed to assess the likely changes to the intertidal area, depth patterns in the new permanently submerged areas and whether some areas of soft sediment habitat not colonised by seagrass could become suitable/available for colonisation.
47. The applicant has proposed a consent condition stating that a decommissioning plan for the structures will be provided at least 12 months prior to expiry of the consent unless a new consent is sought to authorise the continued occupation of the structures.
48. Overall, the construction of rock revetments and cobble beaches along the estuary edge in Southshore will under all SLR scenarios result in coastal squeeze over the duration of the consent. It is my opinion that there is still uncertainty regarding the potential adverse effects from coastal squeeze on seagrass habitats and intertidal soft sediment habitats and the resulting effect on macroinvertebrate community composition. Given the advice from Mr Gabites, it is my recommendation that a 'softer engineered' solution along Southshore should be used instead of the rock revetments. Furthermore, a monitoring plan should be implemented to collect data to inform future coastal adaptation strategies along Southshore and consent applications.

Proposed Conditions

49. I have reviewed the proposed General Consent conditions and Regional Consent conditions and have suggested additions underlined.
50. Regional Consents - Condition 11
If needed, based on the results of the yearly mapping and of any post-storm inspection:
 - a. Reinstate the original position of the toe of the cobble beach structures.
 - b. Remove any material washed onto the soft sediment habitat and saltmarsh habitats, by hand (i.e. no machinery in the CMA).
 - c. Re-establish saltmarsh plants in areas where cobbles have caused damage to the saltmarsh vegetation.
 - d. Results of the yearly mapping and post-storm inspections and any activities associated with clauses a. – c. shall be documented and provided on request to Canterbury Regional Council.
46. General Conditions – Condition 12
At least 10 working days prior to the proposed commencement of construction, the consent holder shall submit to the Consent Authorities for certification, the following management plans:
 - a) A Construction Environmental Management Plan (CEMP);
 - b) A Construction Traffic Management Plan (CTMP);
 - c) An Erosion, Sediment and Dust Control Plan (ESDCP);

- d) A Spill Response Plan;
- e) Heritage Management Plan;
- f) Seagrass and Saltmarsh Management Plan (SSMP).

For the purpose of clarity, Canterbury Regional Council will take the lead in relation to feedback on the CEMP, ESDCP and Spill Response Plans.

Christchurch City Council will lead the feedback on the CTMP and Heritage Management Plan.

51. General Consents - Condition14

The Construction Environmental Management Plan (CEMP) required by Condition [x] shall clearly set 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, and Christchurch City Council at least five 30 working days prior to construction works commencing and shall be adhered to by the Consent Holder.

The CEMP shall include, but is not limited to:

- a) A map showing the location of all works;
- b) Details of the construction methods proposed for the inundation bund, gabion baskets, rock revetment, cobble beach and soft beach area; seawall;
- c) Details of forecast monitoring frequency including methodology for providing temporary joining of the inundation bund where tidal and rainfall events are likely to pose an inundation risk;
- d) A programme of works including an indicative timeframe and sequence of works, consistent with any seasonal and tidal restrictions specified in Condition [x] and the Construction Methodology required by Condition [x];
- e) The methodology for stabilising the site if works are abandoned;
- f) Controls on the disturbances within the CMA, including the placement of geotextiles or geofabrics in excavations
- g) Construction noise and vibration controls;
- 1. h) Water quality management;
- i) Reference to the Spill Response Plan (required by Condition [x]), outlining how compliance with its procedures will be achieved;
- j) Reference to the Seagrass and Salt Marsh Management Plan [SSMP] (required by Condition [x]), outlining how adverse effects on seagrass and saltmarsh habitats will be avoided;
- j) Archaeological and Cultural Discovery protocols;
- k) Site notices to inform the public of the works and direct people safely to alternative routes;
- l) The monitoring and visual observations, required in accordance with condition (x) to (x).
- m) Details of site induction processes for all personnel, covering all relevant environmental, health and safety, and cultural protocols;

n) Contact details for all key project personnel, including the designated Site Supervisor and specialist technical advisors (eg SQEP, archaeologist); and

o) Waste management and recycling protocols for all construction-generated waste.

Advice Note: The CEMP may be prepared as a combined joint document that addresses the matters required by both the Canterbury Regional Council and Christchurch City Council land use resource consents.

Response to issues raised by submitters

52. Ihutai Estuary Trust raised concerns about loss of estuary habitat through coastal squeeze, the use of cobble beaches and reduced ecosystem functionality, and increased access onto the intertidal soft sediment habitats. I agree with their concerns and consider that I have covered these within my advice.
53. Department of Conservation (DOC) raises concerns about coastal squeeze reducing the areas of saltmarsh and soft sediment habitat due to the proposed erosion protection structures and recommend monitoring seagrass and soft sediment habitat for effects of coastal squeeze. I agree with their concerns and consider that I have covered these within my advice.
54. Simon Francis Watts is in support of the application and says that seagrass meadows will be naturally replenished from offshore meadows. I am unaware of any offshore seagrass meadows within the Canterbury region. Seagrass beds in Canterbury predominately occur in intertidal areas with some extending into shallow subtidal areas.

Conclusions and Recommendations

55. I agree with the assessment of the ecological value of the hard-bottom habitats in SNBP and unvegetated soft sediment habitats along Southshore and SNBP. There is now agreement that the seagrass habitats along Southshore have very high ecological value.
56. The applicant has made changes to the design plans to address earlier concerns that were raised by CRC. However, there are still some mitigation measures that I recommend are included as consent conditions before I consider the adverse effects to be low.
57. I consider that there is still uncertainty around the potential adverse effects from coastal squeeze (and higher water levels) on seagrass beds and loss of intertidal soft sediment habitats on macroinvertebrate community composition, over the duration of the consent. It is my recommendation that a 'softer engineered' solution along Southshore is adopted and that a monitoring plan is implemented to collect data to inform future coastal adaptation strategies and consent applications.

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APPENDIX 6 – MEMORADUM BY MR BRUCE GABITES

Before the Independent Hearing Panel appointed by
the Canterbury Regional Council

IN THE MATTER OF The Resource Management Act
1991

AND

IN THE MATTER OF Application CRC242267 by the
Christchurch City Council to install a series of coastal
erosion and inundation protection works along the
estuary edge between South New Brighton and
Southshore.

Addendum to Section 42A Officer's Report

Report of Bruce Martin Gabites

Introduction

Background

1. This report forms part of the Canterbury Regional Council's (CRC) audit of the assessment of environmental effects (AEE) provided by the Christchurch City Council (the applicant) in support of resource consent applications for a series of coastal erosion and inundation protection works along the estuary edge between South New Brighton and Southshore.
2. This report will provide the decision-maker with information and advice related to:
 - a. the actual and potential effects of the proposed activities on nearshore coastal processes
3. While not required for a Council hearing for a resource consent application, I have read the Code of Conduct for Expert Witnesses in giving evidence to the Environment Court. I agree to comply with that code when giving evidence to the Hearing Panel in this matter. All my evidence is within my expertise and I have considered and stated all material facts known to me which might alter or qualify the opinions I express.

Qualifications

4. I have been employed by the Canterbury Regional Council (CRC) as a coastal hazard scientist since 2003 and have been responsible for monitoring rates of change along the Canterbury coast since this time. I hold a Master of Science degree in Marine Science from the University of Otago.

Scope of Report

5. This report is prepared under the provisions of section 42A of the Resource Management Act 1991 (RMA). This section allows a council officer or consultant to provide a report to the decision-maker(s) on a resource consent application made to the council and allows the decision-maker(s) to consider the report at the hearing. Section 41(4) of the RMA allows the decision-maker(s) to request and receive from any person

who makes a report under Section 42A "any information or advice that is relevant and reasonably necessary to determine the application".

6. This report is supplementary to the Section 42A Report prepared by the CRC for the above resource consent applications. Full details of the consent applications are provided in that report. To carry out this audit of the consent applications I have considered the relevant sections of the assessment of effects on the environment (AEE) submitted by the applicant, including its technical appendices. I have also reviewed further information that was provided by the applicant on the 16th of February 2025. Finally, I have also taken into account relevant issues raised by submitters in relation to the effects I have considered in this report.

Assessment of Receiving Environment

7. The Christchurch City Council is proposing to construct and install a series of coastal protection structures along the Avon-Heathcote Estuary edge and adjoining land between South New Brighton and Southshore to lessen the impacts of coastal hazards on the local community.
8. A large part of the estuary side of Southshore and South New Brighton was purchased by Land Information New Zealand (LINZ) on behalf of the government following the Christchurch Earthquake Sequence (CES), and an inundation bund was constructed on this 'red-zoned' land as well as adjoining properties to provide protection to the surrounding areas from seawater inundation.
9. The local community is concerned about two coastal hazards, both of which will be addressed in this project. The first hazard is the loss of land along the estuary edge due to coastal erosion, while the second hazard is inundation of low-lying land around the South New Brighton and Southshore area by seawater, which is caused by high estuary water levels or a combination of high water levels and locally generated waves.
10. In order to address these two coastal hazards, the Council is proposing to construct a series of gabion baskets, rock revetments and cobble beaches to armour and protect the shoreline against further future coastal erosion.
11. The current estuary edge in this area predominantly contains a series of ad-hoc and informal protection structures that were presumably installed by the previous adjacent landowners at various times and to varying construction and engineering standards and with a wide variety of materials.
12. A large portion of these existing or remnant protection structures along this stretch of coastline are in a poor condition and many individual structures have failed during, and as a result of the Christchurch Earthquake Sequence.
13. In addition, and due to land subsidence that occurred during the Christchurch Earthquake Sequence, many of these protection structures are now at levels where they are overtopped by waves and this combination of factors has led to erosion of the land behind.
14. The initial application planned to encapsulate and/or reuse the remnant protection structures into the new erosion protection works, however recent amendments to the proposal will see the remnant protection structures removed altogether with the edge protection structures and the inundation bund shifted inland.
15. The second intention of this proposal is to replace the existing LINZ bund with an engineered bund along the approximate orientation of the existing bund to a level of 11.5 m CDD (Christchurch Drainage Datum). This height has been chosen to be consistent with similar bunds and to satisfy the CCC requirements of a minimum bund level of 11.4 m CDD. A height of 11.5 m CDD will provide 0.1 m of freeboard above the Council's

minimum bund level of 11.4 m CDD to allow for construction tolerance and general settlement.

16. The edge protection structures are planned to be seaward of the inundation bund to provide protection to the inundation bund during high water level and coastal storm events.
17. The works that are proposed to occur in this project have a design life of 20 years which are intended to provide sufficient time for the CCC to undertake appropriate consultation and planning with the local community so that a series of future adaptation measures and strategies can be implemented to ensure the resilience of the community is maintained into the future.

Assessment of Effects on the Environment

18. I have read the Southshore and South New Brighton Park Preliminary Design Report (Appendix D) of the consent application and make the following comments on the information contained within it.
19. The design basis for the inundation bund is given in section 3.1.2 (Pg 8) and the criteria for the bund include the following features:
 - Design level of protection to be able to be maintained for 20 years to allow time for decisions with communities on longer-term adaptive 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.
 - Maximum storm scenario (waves and water level): Protection from erosion in a 50-year return period (2% AEP) extreme estuary water level combined with waves generated by a 50-year return period (2% AEP) south-west or westerly wind event blowing across the estuary.
 - 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).
 - No allowance for further land subsidence along the shoreline.
 - Bund 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.
20. One of the key pieces of information within the design report in my opinion is the estuary water levels provided in Section 2.3 and specifically within Table 2-1 (Pg 5) which is included below.

Table 2-1. Storm Tide Levels at Bridge St from Mulgor (2018) and GHD (2021)

Reference	Mean Sea Level (MSL)	Mean High Water Springs (MHWS)	Highest Astronomical Tide (HAT)	50-y BP	100-y BP	1000-y BP
Mulgor (2018)	9.21 m CDD	10.26 m CDD	10.43 m CDD	11.06 m CDD	11.14 m CDD	11.39 m CDD
GHD (2021)	-	-	-	11.12 m CDD	11.19 m CDD	11.43 m CDD

Note: CDD = Christchurch Drainage Datum

21. These values are the basis for the design level of the inundation bund and are also one of the key parameters in the design criteria for determining the amount of damage and the level of overtopping to the rock revetment. They therefore underpin the entire project and I consider it appropriate that they be examined.

22. Water levels within the Avon/Heathcote Ihutai Estuary have been measured by the Christchurch City Council at the Bridge St recorder site since 1997, and this data set has been synthetically extended back to 1960 (Jacobs 2019) to give a longer term record, and this longer record was used by Mulgor (2018) and GHD (2021) to calculate projected water levels of the estuary for a specified series of return period events. I have no reason to suspect that the values in this table are incorrect, and I therefore consider that these values are accurate and appropriate to use.
23. The highlighted values shown in Table 2-1 above are those that have been used in the design report and of particular note in this table is the height for a 50 year return period water level event which as calculated by GHD (2021) is 11.12 m CDD (Christchurch Drainage Datum).
24. The new inundation bund in Southshore and landward of the South New Brighton Park will be built to a level of 11.5 m CDD to be consistent with similar bunds and to satisfy the CCC requirements of a minimum bund level of 11.4 m CDD. It is expected that the build level of 11.5 m CDD will provide sufficient allowance for post construction settlement and variations in survey tolerances of up to 100 mm to occur so that the finished bund will still satisfy the CCC bund height requirements.
25. Based on the calculated water levels shown in Table 2-1, the inundation bund height of 11.5 m CDD will provide approximately 380 mm of freeboard above the 50 year ARI estuary water level event, approximately 310 mm of freeboard above the 100 year ARI water level, and approximately 230 mm of freeboard above the 200 year ARI estuary water level. The finished bund will provide approximately 470 mm of freeboard above the 20 year ARI estuary water level and is in my opinion, unlikely to be overtopped within the 20 year consenting timeframe.
26. The bund level of 11.5 m CDD effectively provides protection for estuary water level events with return periods of between 500 and 1000 years without taking into account changes in sea level due to climate change factors, or changes in ground levels.
27. A key requirement of the inundation bund is to provide protection against erosion in a 1-in-50 year estuary water level event in combination with a 1-in-50 year wave event.
28. An analysis of a 1-in-50 year return period wave event was not provided within the design report, however a slightly lower 1-in-20 year return period wave event had been calculated in an earlier study by Jacobs (2020). In this report, Jacobs (2020) found that waves with significant heights of approximately 0.7 m and periods of 3.1 s could be generated from winds blowing from the west or south-west across the estuary, and the resulting wave run-up elevations for these waves were calculated to reach 0.2 m above the extreme water levels in this event. Given this information, I would anticipate that a longer 1-in-50 year return period wave event would have slightly larger wave heights, longer periods and therefore higher run-up heights than those for a 1-in-20 year event.
29. If a combined wave and water level event were to occur at the same time within the estuary, and based on 0.2 m of wave run-up occurring in a 1-in-20 year return period wave event within the estuary, the proposed inundation bund built to a level of 11.5 m CDD is also likely to provide protection during combined events where the water level is at an ARI level of up to 1 in 200 years.
30. Assuming that a slightly larger amount of wave run-up were to occur in a 1-in-50 year wave event, the proposed inundation bund built to a level of 11.5 m CDD is also in my opinion, likely to provide protection during combined events where the water level is at an ARI level of up to 1 in 100 years.
31. A 1-in-50 year water level event on its own has an approximately 33% probability of occurring over the next 20 years (https://www.weather.gov/epz/wxcalc_floodperiod). Theoretically, a 1-in-50 year wave event has the same probability of occurring over the

same timeframe as the water level event, however I consider that there is a relatively high level of dependence between the estuary water level and the likelihood of a high wave event. In my opinion, high wave events are more likely to occur during high estuary water levels, however there also remains a level of independence between the two factors as a high estuary water level does not necessarily mean that a high wave event will also occur.

32. In my opinion, the probability of both events occurring concurrently will be less than the 33% probability of each event occurring on its own, however I also consider that the probability of both events occurring concurrently will also be noticeably higher than if the two events were treated as being completely independent of each other and simply multiplied together. If such a calculation were performed, the resulting event would be a 1-in-2500 year event (0.04% AEP event), which has a 0.8% probability of occurring within the next 20 years.
33. I therefore consider the use of a 1-in-50 year estuary water level event in combination with a 1-in-50 year wave event to be overly conservative considering that the design life timeframes for the proposed erosion protection structures are for 20 years. It is acknowledged in the design basis that the expected physical lifetime of the structures will be longer than 20 years, and that after this time, there may be a requirement for increased maintenance and repairs to occur and be undertaken in order to continue to provide a sufficient level of protection to the local community.
34. One of the key points of the design basis was that no allowance was made for climate change considerations such as increased water levels due to sea level rise, or other climate change factors (e.g. increased wind climate, changed fluvial/pluvial flood frequency). No allowance was also made for land subsidence along the shoreline.
35. The reason to not include climate change effects/SLR at the design stage was taken by the CCC after discussions with the local community that have been ongoing since the Christchurch Earthquake Sequence. What is being proposed in this application is therefore a relatively short-term solution that is being taken to deal with the impacts of the Christchurch earthquakes and to allow the CCC to consult further with the local community about future adaptation solutions to climate change.
36. If increases in sea level due to climate change effects and changes in local ground level are taken into account (such as from the NZ Seairise project), this is likely to increase the likelihood of an event occurring and therefore decrease the return period over the design life of the structures. However, I do not believe that the changes in the level of the sea or changes in the ground levels in the wider area over the next 20 years will have any material impact on the protection afforded to the community in this area by the construction of the inundation bund to this height. I therefore consider that a bund height of 11.5 m CDD will provide protection against inundation for at least the next 20 years even with sea level and ground level changes.
37. The requirements for the inundation bund as specified by the CCC are shown in section 3.2.1 (Pg 9) of the Design report and these are:
 - Construct an engineered bund to RL 11.5 m beside the existing LINZ bund alignment in Southshore, and between the Jetty near Beatty Street and the southern end of the campground on Halsey Street in South New Brighton Park, the same as is provided along the lower reaches of the Ōtākaro Avon River
 - The new bund will be approximately 5 m set back from the erosion protection or behind the existing LINZ bund in Southshore, whichever is further from the edge. The South New Brighton Park bund has been set back from the edge by between 40 to 180 metres.

38. The proposed orientation of the inundation bund is generally along the alignment of the existing LINZ bund through the Residential Red Zone in Southshore to avoid overlooking adjoining properties and to allow the ongoing use of the land in its current state. For the South New Brighton Park area, the original alignment of the proposed inundation bund was through coastal forest and generally followed existing paths to minimise the impacts on trees. For both locations, the ends of the inundation bunds are proposed to tie into existing areas of high ground to provide a continuous level of 11.5 m CDD.
39. Early in the Design report (Pg 1), it is stated that: "The existing LINZ bund was constructed as a temporary and non-engineered measure after the demolition of the RRZ (Residential Red Zone) properties to replace some of the inundation protection previously provided by private property boundary structures. This was generally constructed of site-won topsoil and did not respond to a specific design level and some locations along the LINZ bund are lower than the projected 50 year return period tide level."
40. The height and position of the LINZ bund along Southshore was noted in the earlier Jacobs (2019) Estuary edge condition inventory report (Section 7.1.2 – Pg 47) and this section stated that: "Within cleared RRZ, LINZ as the post CES land owner, constructed a temporary bund (O1-A) to a general elevation of 11.2 m following the March 2014 storm tide event (10.90 m) to provide protection from estuary flooding. At the time of construction, the bund was not continuous; as did not include the road ends which were council land. However, following flooding in these location in extreme storm tides in July 2017 (10.96 m), these gaps were filled by council as emergency works, such that the bund now provides continuous protection over a 1.6 km length from Godwit Street to south of Tern Street. As reported by Ch2M Beca (2019) the bund comprises of grassed soil section (constructed by LINZ) and aggregate or quarry run sections (constructed by council)."
41. The proposed alignment of the inundation bund has therefore been chosen for reasons that appear to have little to do with fulfilling a specific inundation hazard requirement.
42. The protection structures for the inundation bund have been designed so that less than 5% damage occurs to the armour units during a coincident 50-year wave and estuary water level event (section 3.3.2.1 of the Preliminary design report). Table 3-1 specifies the criteria used in the assessment and design of the rock revetment.

Table 3-1. Damage and overtopping criteria for the rock revetment

Return Period (years)	Water level (m CDD)	Significant wave height, Hs (m)	Significant wave period, Ts (s)	Armour unit damage criteria	Overtopping damage criteria
50	11.12	0.8	3.2	No damage	< 20 L/s/m at the revetment (no significant erosion behind the structure)

43. These two considerations – the proposed alignment of the inundation bund and the requirement for less than 5% damage to occur to the erosion protection structures – along with the use of a concurrent 1-in-50 year estuary water level event and a 1-in-50 year wave event within the estuary has driven the design of the erosion protection structures and to a large degree, also determined the location of the erosion protection structures.
44. Three different structures have been proposed to provide protection against erosion for different sections of the coastline within the project area, with these structures being a series of gabion baskets, a rock revetment, and a cobble beach. All three protection structures are proposed to have a crest height of 11.3 m CDD and have been designed

so that wave run-up may overtop them during large storm events without causing significant damage to the structures.

45. The design of the erosion protection works is such that additional material can be added to the structure at some point into the future should future sea levels require this to happen.
46. At Southshore, a rock revetment is proposed for the majority of the shoreline in this area, with a 330 m section of cobble beach proposed for the area between 62b and 88 Rockinghorse Rd.
47. A series of gabion baskets have been proposed for the South New Brighton Park area from the boat ramp to 50 m north of Jellicoe Marsh to provide protection to a series of middens which have historic and cultural heritage values so that they can be protected and preserved. These baskets have also been chosen for their small footprint which minimises the impacts on the ecology of the estuary mudflats while still being able to provide adequate protection against erosion.
48. A cobble beach was originally proposed for the southern end of this section of coast, however another recent amendment to the project will see the cobble beach replaced with a more naturalised, yet still engineered 'soft edge' shoreline. A recent amendment to the proposal would effectively see this area becoming a trial area for 'softer' engineered protection structures, and at the time of writing, will comprise a series of imported rock 'headlands' placed at regular intervals, with locally available beach material and imported sand used to create a series of SW facing beaches between the 'headlands'. Appropriate planting would also take place towards the back of the created beaches.
49. The cobble beach would however remain as an option for this area if the amount of future shoreline erosion is deemed greater than what the community is willing to withstand. As part of the trial of these proposed 'soft' engineering solutions, a series of yet to be determined 'failure triggers' or points at which the trial is deemed to have been unsuccessful in protecting the shoreline against erosion are to be included, and if or when these trigger points are reached, it is envisaged that the originally proposed cobble beach would be installed in this area.
50. It is acknowledged in the design report (Section 3.3.3.1 Pg 16) that: "A minimum median cobble size of $D_{n50} = 130$ mm is required at South New Brighton Park. Smaller depth limited wave conditions are estimated at Southshore due to the higher estuary bed elevation, and therefore the minimum required median cobble size is slightly less ($D_{n50} = 100$ mm)."
51. As already mentioned, the cobble beach option at South New Brighton Park is proposed to now become a 'backstop' option if or when a more natural 'soft edge' trial is deemed unsuccessful in this area. However, it is my opinion that if a conservative combination of wave and water level factors has been used in the design process and has found that a cobble beach will provide sufficient protection against coastal erosion for the next 20 years in the South New Brighton Park area where the combination of water, wave and river channel processes are likely to be greatest within the estuary, I see no reason from a coastal process and hazard assessment perspective why a 'harder' engineered rock revetment is therefore required for the majority of the Southshore estuary shoreline.
52. The higher estuary bed elevations around Southshore will effectively have the impact of reducing the wave heights in this area, and as this area is also further from where the main channel of the Avon River enters the estuary, I consider it likely that the impacts from the river channel are also likely to be lower. The wind fetch across the estuary from southerly through to south westerly wind directions is also slightly lower for the Southshore area (refer to section 4.2.3.1 of the Coastal processes assessment) and I therefore believe that the Southshore area is likely to be subject to generally less

energetic wave, water and river channel processes when compared to those adjacent to the South New Brighton Park area.

53. It is my opinion that a slightly 'softer' engineered cobble beach along the Southshore estuary coastline would also provide sufficient protection against coastal erosion for this area, and the selection of the rock revetment along the majority of the Southshore estuary shoreline appears excessive given the wave and water conditions that are to be mitigated against.
54. I have also read through the Coastal Processes and Natural Hazards Assessment in support of Resource Consent Application report (Appendix I) of the consent application and make the following comments on the information contained within it.
55. In my opinion, the key parts of this report are located within Section 4. This section provides a thorough assessment of the coastal processes that are operating within the project area and wider estuary environment, and in my opinion, the author uses appropriate data and sources of information to assess the environment in sufficient detail. I consider that the information provided within this section is therefore appropriate for the scale and location of the proposed activities, accurate, relevant and sufficiently detailed for me to make an assessment of the potential effects that the proposed structures may have on the coastal environment.
56. The assessment is limited in directly assessing the impacts of climate change and SLR, however climate change effects were considered in the amounts of projected future coastal erosion around the estuary edge (section 4.2.6 – Pg 29), as well as in the effectiveness of the inundation bund at the end of the proposed consent duration (section 5.1.5 – Pg 38).
57. The extreme estuary water levels are shown in Section 4.2.3 of the report, and as these values are the same as those used in Section 2.3 of the Design report, I see no need to repeat my analysis of these here.
58. The estuary edge has been subject to a number of investigations and reports since the earthquakes, including the Avon-Heathcote Ihutai Estuary Edge Condition Inventory report which was carried out by Jacobs in 2019. This particular report provides a detailed investigation into the condition and height of the various edge structures from North of Bridge Street through to the South Brighton Spit Tip, and it also quantifies the amount of erosion that has occurred since the CES by using the August 2010 estuary edge position as the baseline against which the amount of erosion since has been measured against. Due to its comprehensiveness and relatively recent assessment, I consider that it contains relevant information that is pertinent to this application.
59. The August 2010 shoreline position for the majority of the Southshore estuary coastline is not the same as the historic unmodified and therefore "natural" estuary shoreline of the 1950's or earlier. Numerous reclamations and protective structures have clearly been installed and undertaken since the 1950's which have encroached into the estuary and subsequently pushed the estuary shoreline further seaward. The 2010 shoreline is therefore noticeably different to the 1950's shoreline and generally further seaward, so by choosing the 2010 shoreline position as the baseline against which shoreline change has been measured, in many locations land that has been reclaimed between the 1950's and 2010 will appear to have been 'lost' since 2010, even if the erosion of that land since 2010 means that the shoreline is now effectively in the same position as it could have been if the land was not reclaimed in the first place.
60. The Jacobs 2019 shoreline assessment report concluded that 40% of the 7.1 km shoreline between South New Brighton and south of Tern St had been stable (+/- 1 m) since 2010, with a further 34% having undergone erosion since February 2011. The majority of the erosion that had occurred in this area was less than 4 m, with only 330

m (5%) of the 7.1 km of shoreline between South New Brighton and south of Tern St experiencing erosion of greater than 4 meters.

61. For the Southshore area, 37% of the shoreline behind the existing structures along the Godwit Street to south of Tern Street shoreline has eroded since the CES, with the amount of erosion being generally less than 4 m as it was concluded that the remnant protection structures still provide some degree of erosion protection. Erosion of greater than 4 m was only observed for a 40 m stretch of coastline immediately south of Godwit Street. Erosion was found to be prominent around areas where there were gaps in the protective structures, and in some instances, these areas of localised erosion have been informally filled with loose rubble and other material to prevent any further erosion.
62. The Jacobs 2019 shoreline assessment noted 75% of the South New Brighton Park area had suffered erosion, with the areas of highest erosion corresponding to the locations where the elevations of the reno mattresses were at their lowest.
63. One of the key sections of the natural hazards assessment report is Section 4.2.6, which specifies the projected amounts of future coastal erosion that may occur at given dates in the future under various amounts of sea level rise. The information contained in this section primarily comes from a report carried out by Tonkin & Taylor in their 2021 coastal hazards assessment for the Christchurch City Council. I have reviewed the information in this report by Tonkin & Taylor and consider that the values they have used for calculating amounts of change within the Avon-Heathcote estuary to be appropriate. I therefore am comfortable with the values for the various parameters (shown in Table 4.24 of T&T 2021 Pg 81) that are used in the calculations of the Area Susceptible to Coastal Erosion around the Avon-Heathcote estuary (Table 5.4 on page 111 of T&T 2021) and which are also summarised in Table 4.2 (Pg 29) of the natural hazards assessment report shown below.

Table 4.2: Summary of projected future coastal erosion produced by Tonkin & Taylor (2021) for Southshore from the combination of SLR, short term storm cut and extrapolation of long-term rates. Greyed boxes are most relevant estimates for the design life of this project.

	2050 (66%) ⁽¹⁾		2080 (66%)		2130 (66%)		
	0.2 m SLR	0.4m SLR	0.4m SLR	0.8m SLR	0.4m SLR	1m SLR	1.5m SLR
Southshore (T&T Cell 16; Plover to Tern Street)	-5 m	-6 m	-6 m	-12 m	-4 m	-12 m	-13 m
Southshore (T&T Cell 17; Plover to Ebbside Street)	-11 m	-14 m	-18 m	-24 m	-26 m	-34 m	-39 m

64. I do note that the T&T approach to future coastal erosion involves the use of a 'banks down' scenario where the existing protection structures are assumed to not be present. As the existing structures still have some protective function against coastal erosion, I consider the projected amounts of future erosion to be conservative if the structures remain as they presently are, however I also note that recent changes to the proposal now include the removal of these structures. In light of this change, I consider the use of the 'banks down' approach and therefore also the projected amounts of future coastal erosion to be appropriate.
65. I also note that the values for the storm cut distances within the T&T report (section 4.4.2 Pg 74 T&T (2021)) are considered to be conservative as these distances assume that an equilibrium beach profile is reached during a given storm. This approach therefore does not take into account the fact that an equilibrium profile may not be reached during the storm or alternatively assumes that an equilibrium profile is reached within the

storm's duration and without regard for whether it would be physically possible for the assumed changes to the beach profile to actually occur.

66. I also believe that the amount of future erosion is likely to be primarily driven by specific storm events rather than due to ongoing gradual erosion of the shoreline. As an example, the value of -5 m of erosion that is estimated to occur for Cell 16 through to 2050 with 0.2 m of SLR is composed of an estimated storm cut amount of 3 m coupled with additional erosion of 2 m due to SLR.
67. Overall, I consider that the information presented in this section of the report is accurate and I agree with the conclusion that erosion of between 5 to 11 m may potentially occur over the next 25 years through to 2050 if there is relative sea level rise of 0.2 m.
68. An important point to note about the amounts of future coastal erosion calculated within the T&T (2021) report and referenced here, is that the baseline against which the future erosion is measured from is the toe of the structure for Class 1 structures (significantly modified shorelines). This implies that the amount of erosion that could occur into the future is measured against the base of the existing structures along the Southshore coast, rather than from the current shoreline position. (section 3.2 pages 31-32 of T&T (2021). Any erosion that has subsequently occurred since the earthquakes could be considered to be expected to have occurred and therefore the amount of potential future erosion may be discounted by that which has already occurred.
69. The Jacobs 2019 estuary edge report found that: "The current LINZ inundation bund alignment is setback by 0 m to up to 20 m from the present-day edge." Further information on the distances between the LINZ bund and the estuary edge structures along Southshore are given in Section 7.3 of the Estuary edge condition inventory report (Jacobs 2019), and for the section of estuary coastline between Godwit and Heron St, section 7.3.1 (Pg 57) of the inventory report states: "The setback distance between the LINZ bund (O1) and the estuary edge varies between 0 – 15 m. The two areas where the bund is along the edge (44a Rockinghorse Rd and Heron St), it has been protected by council placed rock revetment."
70. Based on the projected amount of future coastal erosion between Plover and Ebbtide St from the Tonkin & Taylor 2021 analysis shown in Table 4.2 through to 2050, I consider that the existing LINZ bund between Godwit and Heron St is unlikely to be subject to erosion within the next 20 years.
71. For the section of estuary shoreline between Heron St and Penguin Street, section 7.3.2 of the Estuary edge condition inventory report (Jacobs 2019) (Pg 57) states: "The setback distance between the LINZ bund and the edge structures varies between 10-20 m along this sub area."
72. I consider that an approximate 25 m length of the estuary shoreline seaward of #78 Rockinghorse Rd as well as a 20 m length of shoreline at the end of Penguin Street may be susceptible to erosion of the LINZ bund within the next 20 years if the projected amounts of future coastal erosion for the area between Plover and Ebbtide Streets do occur.
73. For the section of estuary shoreline between Penguin Street and Plover St, section 7.3.3 of the Estuary edge condition inventory report (Jacobs 2019) (Pg 59) states: "The setback distance between the LINZ bund and the estuary edge structures is between 10-15 m along this sub area."
74. Using the projected amount of future coastal erosion between Plover and Ebbtide St from the Tonkin & Taylor 2021 analysis shown in Table 4.2 through to 2050, I consider it unlikely that erosion of the existing LINZ bund will occur for the area between Penguin Street and Plover Street within the next 20 years.

75. For the section of estuary shoreline between Plover Street to Tern Street, section 7.3.4 of the Estuary edge condition inventory report (Jacobs 2019) (Pg 59) states: "The setback distance between the LINZ bund and the estuary edge structures in this sub-area is in the range of 8-15 m."
76. Using the projected amount of future coastal erosion between Plover and Tern St from the Tonkin & Taylor 2021 analysis shown in Table 4.2 through to 2050, I consider it unlikely that erosion of the existing LINZ bund will occur for the area between Plover Street and Tern Street within the next 20 years.
77. Lastly, for the area South of Tern Street, section 7.3.5 (Pg 59) of the Estuary edge condition inventory report (Jacobs 2019) stated: "The LINZ bund terminates approximately 150 m from the southern end of this area, being is (sic) setback from the estuary edge around 15 m at Tern Street and around 60 m at its southern end."
78. Using the projected amount of future coastal erosion between Plover and Tern St from the Tonkin & Taylor 2021 analysis shown in Table 4.2 through to 2050, I consider it unlikely that erosion of the existing LINZ bund will occur for the area south of Tern Street within the next 20 years.
79. Overall, apart from two areas of between 20 to 25 m each between Heron and Penguin Streets, it is my opinion that the current position of the LINZ bund along Southshore is located a sufficient distance landward of the existing estuary edge structures that the LINZ bund is unlikely to be subject to coastal erosion for the next 20 years, even with relative sea level rise of up to 0.2 m. Put another way, I do not consider that the projected amounts of estuary edge erosion along the Southshore estuary shoreline are likely to result in erosion of the existing LINZ inundation bund in this area within the next 20 years, and I therefore struggle to see why hard coastal erosion protection works are required.
80. Another way to consider the information presented is that if the proposed inundation bund along Southshore was located 5 m or more further landward of the existing LINZ bund wherever possible, it is my opinion that there would likely be sufficient space for a natural estuary edge to develop. In my opinion, there is time and space for natural coastal, estuarine and ecological processes, including sea level rise impacts associated with climate change and ground level changes to shape the natural estuary edge without impacting on the level of protection afforded to the local community from the proposed inundation bund and necessitating the need for erosion protection works for the next 20 years.
81. I am generally in agreement with the conclusions reached in Sections 5 and 6 of the Coastal Processes and Natural Hazards Assessment report (Appendix I) and from the information provided, I don't expect that there will be significant impacts on coastal processes from the proposed activities either during construction or once the works have been completed.
82. The estuary is a relatively low energy environment, and the estuary edge is away from the main channels from the Avon/Ōtākaro and Heathcote/Ōpāwaho and therefore generally unaffected by river flow. The estuary edge is generally only affected by coastal processes around high tide and during storm tide events, so there is only a relatively short window over which coastal processes can act upon the estuary edge.
83. In my opinion, this time element is likely to limit the scale of any impacts that do arise to being relatively small, and localised. The structures to be built along Southshore will form a continuous structure and will be tied into existing structures and higher ground at the southern end of Southshore. I therefore believe that the chance of 'end effects' occurring will be low and even if such effects do occur, I believe that they'll be relatively small and localised due to the low energy environment and the short window through which waves can impact upon the coast.

84. If consent were granted for the erosion protection structures, I also don't believe that there will be many issues during construction from a coastal hazard perspective unless there is a significant storm or other natural hazard event that occurs while construction is occurring. The erosion protection works will occur in a gradual and staged manner along the coast as tides and weather windows allow, and one of the requirements for construction is that the edge won't be left unprotected during construction. This requirement should therefore limit the amount of edge excavation and erosion protection that can get done, to that which can be achieved in a day.
85. As the erosion protection works progress along the coast, there is potential for scour of the 'softer' unprotected shoreline to occur where this butts against the 'harder' erosion protection works. This risk will exist for the duration of the construction of the erosion protection works and essentially move along the coast as the works progress, however given the generally low energy environment in which the works will be occurring and the relatively small window over which the coast could be impacted, I consider that this risk can be mitigated by the construction methods and earlier mentioned edge protection requirement.
86. Based on the proposed design plans, and assuming that the proposed works are carried out by a competent and experienced earthworks contractor to the specifications, depths and heights, and with the proposed materials shown in the design document and the accompanying design drawings, I consider that the proposed inundation and erosion protection works will provide sufficient protection for well in excess of the design life of 20 years.
87. I am generally supportive of the approach that has been proposed for dealing with the impacts of coastal erosion and coastal inundation for the South New Brighton Park area. The coastal erosion and inundation issues have been separated out for this area with the inundation bund located between 40 and 180 m landward of the estuary edge. At these distances from the estuary edge, I consider it highly unlikely that this bund will be subject to erosion from coastal processes within the next 20 years, and particularly so once the gabion baskets to protect the historic middens are installed.
88. The design plans show that the inundation bund in the South New Brighton Park area will tie into areas of natural high ground at both ends of the bund. It is therefore my opinion that the inundation bund will provide a sufficient level of protection from inundation to the South New Brighton Park area.
89. One of the key documents for works in the coastal area is the New Zealand Coastal Policy Statement (2010) which contains a series of objectives and policies to direct the types and locations of particular activities. An assessment of this application against the relevant NZCPS objectives and policies is given in Section 10.3.4 of the consent application document. In my opinion, the most relevant NZCPS policies to this application are policies 24 to 27 as these underpin Objective 5 which relates to coastal hazard risks and climate change.
90. In my opinion, the proposed erosion protection structures in this project run contrary to clause e of NZCPS Policy 25 which specifies that hard protection structures are to be discouraged in areas potentially affected by coastal hazards over the next 100 years. This section of the policy also promotes the use of natural defences which in my opinion is also not achieved by the proposed erosion protection structures. As there is space available along the majority of Southshore, it is my opinion that if sufficient time were given, natural processes are likely to eventually create a natural estuary shoreline which will offer its own level of protection to this area against coastal erosion. I consider the option of 'doing nothing' to be one way of promoting natural defences.
91. I also consider that the replacement of the proposed inundation bund along the orientation of the existing LINZ bund does not achieve the intended outcome of clauses

a, c and d of Policy 25 which are to avoid increasing the risk of social, environmental and economic harm from coastal hazards; 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; and encourage the location of infrastructure away from areas of hazard risk where practicable.

92. Policy 27 of the NZCPS provides a range of strategies for protecting significant existing development from coastal hazard risk. A range of options for reducing risk are to be assessed as part of this policy, and when evaluating those options, clause 2a focuses "on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions". Additionally, clause 3 states that: "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."
93. In my opinion, if the inundation bund was located further landward than what is proposed in this application and thereby satisfying the requirements of clause d of NZCPS Policy 25, this would likely reduce the requirement for the accompanying erosion protection structures and thereby also satisfy the requirements of clauses a, b, d and e of NZCPS Policy 25. I also consider that locating the inundation bund landward will be consistent with and also satisfy clauses 1, 2 and 3 of NZCPS Policy 27.
94. Lastly, if the inundation bund was located further landward to satisfy Policies 25 and 27, then this would in my opinion, also be consistent with NZCPS Policy 26.

Conclusions

95. I consider the data and information used in the Design and the Coastal Processes and hazards assessment reports to be appropriate and relevant, and I am satisfied that the reports have provided sufficient detail for assessments of the impacts of the proposed activities on coastal processes within the Avon-Heathcote estuary.
96. No allowance for increased water levels due to sea level rise or other climate change impacts or changes in ground elevations were included in the design process. The reason to not include climate change effects/SLR at the design stage was taken by the CCC after discussions with the local community that have been ongoing since the Christchurch Earthquake Sequence.
97. What is being proposed in this application is therefore a relatively short-term solution to deal with the impacts of the Christchurch earthquakes while the CCC consult further with the local community on long-term climate adaptation options.
98. I consider the use of a storm scenario of a 1-in-50 year estuary water level event occurring concurrently with a 1-in-50 year wave event as a design level for the inundation bund to be overly conservative for a design period of 20 years.
99. It is my opinion that the proposed height of the inundation bund of 11.5 m CDD for both South New Brighton Park and Southshore will provide protection from estuary water level events of between 500 and 1000 years without taking into account the impacts of climate change or local land changes. When built to this height, it is also likely to provide protection against inundation during a storm scenario of a 1-in-100 year estuary water level event occurring concurrently with a 1-in-50 year wave event.
100. I do not believe that the changes in the level of the sea or changes in the ground levels in the wider area over the next 20 years will have any material impact on the protection afforded to the community in this area by the construction of the inundation bund to this

height. I therefore consider that a bund height of 11.5 m CDD will provide protection against inundation for at least the next 20 years even with sea level and ground level changes.

101. The proposed orientation of the inundation bund is generally along the alignment of the existing LINZ bund through the Residential Red Zone in Southshore to avoid overlooking adjoining properties and to allow the ongoing use of the land in its current state. For the South New Brighton Park area, the original alignment of the proposed inundation bund was through coastal forest and generally followed existing paths to minimise the impacts on trees.
102. The proposed alignment of the inundation bund has therefore been chosen for reasons that appear to have little to do with fulfilling a specific inundation hazard requirement.
103. Three different structures have been proposed to provide protection to the inundation bund against erosion for different sections of the coastline within the project area, with these structures being a series of gabion baskets, a rock revetment, and a cobble beach. All three protection structures are proposed to have a crest height of 11.3 m CDD and have been designed so that wave run-up may overtop them during large storm events without causing significant damage to the structures.
104. The design of the erosion protection works is such that additional material can be added to the structure at some point into the future should future sea levels require this to happen.
105. A cobble beach has been found to provide an appropriate level of protection against coastal erosion to the South New Brighton Park area and parts of Southshore over the next 20 years. If this conclusion has been reached for a conservative storm scenario in a relatively energetic area of the Avon-Heathcote estuary, it is my opinion that a similar structure would also provide sufficient protection against coastal erosion in the generally less energetic area of Southshore.
106. It is my opinion that a slightly 'softer' engineered cobble beach along the Southshore estuary coastline would also provide sufficient protection against coastal erosion for this area, and the selection of the rock revetment along the majority of the Southshore estuary shoreline appears excessive given the conditions that are to be mitigated against.
107. I consider that the information contained within the Tonkin & Taylor (2021) report into coastal hazards for the Christchurch City Council to be accurate and appropriate and agree with the findings of this report that erosion of between 5 and 11 m could potentially occur along the Southshore and South New Brighton shorelines over the next 25 years if relative sea level rise of 0.2 m occurs over this time.
108. I consider that erosion of the estuary shoreline is most likely to occur during episodic storm events as opposed to occurring at a low gradual rate.
109. I also believe that the existing position of the LINZ bund along Southshore is located sufficiently landward of the existing coastal protection structures in this area that the bund is unlikely to be subject to erosion within the next 20 years, even considering the changes that may occur due to sea level and local land level changes over this time.
110. Another way to consider the information presented is that if the proposed inundation bund along Southshore was located 5 m further landward of the existing LINZ bund wherever possible, it is my opinion that there would likely be sufficient space and therefore time for natural coastal, estuarine and ecological processes, including sea level rise impacts associated with climate change and ground level changes to occur without impacting on the level of protection afforded to the local community from the proposed inundation bund and necessitating the need for erosion protection works for the next 20 years.

111. I therefore consider that there is sufficient time within the next 20 years for conversations with the local community on longer-term adaptation planning responses to be considered and implemented before any further inundation or erosion protection works are required.
112. If the proposed works proceed as designed, I believe that the level of protection that they will provide will far exceed either the design life or the consenting timeframe. I do not believe that they represent a short-term solution as given the design criteria that has been applied and the information that has been supplied, it is my opinion they will provide protection from inundation for in excess of 100 years, and protection against erosion for at least a similar timeframe. The design of the rock revetment also allows for additional material to be placed onto it in the future if required and has therefore been designed with a longer timeframe in mind. I consider that the proposed structures represent a significant upgrade to the pre-earthquake levels of protection from coastal erosion and inundation to the local community.
113. If the works proceed as proposed, I see that the requirement for future discussions around adaptation to changes caused by climate change effects and increased sea levels to essentially become redundant as the level of protection provided to the community from the proposed structures will ensure that future works would be unlikely to be required for the next approximately 100 years.
114. I am supportive of separating the coastal inundation hazard from the coastal erosion hazard as is proposed at South New Brighton Park and generally see no reason why a similar approach cannot be taken for Southshore. I see no justification from a coastal process or hazard perspective why these two hazards need to be linked together as they are along Southshore, particularly when there is in my opinion, land available on which the inundation bund could be constructed.
115. Assuming that the works will be carried out by a competent and experienced earthworks contractor to the proposed levels, widths and depths specified in the design report and drawings and using the specified materials and methods, I consider that the changes to the coastal processes within the estuary either during the construction phase, or once the works have been completed to be less than minor.
116. In my opinion, the proposed inundation and erosion protection structures run contrary to the New Zealand Coastal Policy Statement policies 25 and 27. Clause d of NZCPS Policy 25 encourages the location of infrastructure away from areas of hazard risk where practicable, while clause e specifies that hard protection structures are to be discouraged in areas potentially affected by coastal hazards over the next 100 years, while also promoting the use of natural defences.
117. I believe that if the inundation bund was located further landward than what is proposed in this application, the requirements of clause d of NZCPS Policy 25 would be satisfied, and this would in turn likely reduce the requirement for the accompanying erosion protection structures and thereby also satisfy the requirements of clauses a, b, d and e of NZCPS Policy 25. I also consider that locating the inundation bund landward would be consistent with and also satisfy clauses 1, 2 and 3 of NZCPS Policy 27, and by extension, also be consistent with NZCPS Policy 26.
118. My overall perception of the information that has been provided is that the coastal inundation and erosion protection works that have been proposed and requested by the local community and the location of these works along the Southshore coastline are predominantly done for reasons that are not to do with the current coastal processes or the potential future coastal hazards and impacts that may affect this area.

References

119. GHD (2021). LDRP097 Multi-Hazard Baseline Modelling Joint Risks of Pluvial and Tidal Flooding. Report prepared for Christchurch City Council.
 120. Jacobs (2019). Avon-Heathcote Ihutai Estuary Edge Condition Inventory. Report prepared for Christchurch City Council.
 121. Jacobs (2020). Erosion management option report, Southshore, Ihutai/Avon-Heathcote Estuary. Report prepared for Christchurch City Council.
 122. Mulgor (2018). Extreme sea levels at Christchurch Sites: EV1 Analysis. Report to Christchurch City Council. 16 pgs.
 123. Tonkin and Taylor (2021). Coastal hazard assessment for Christchurch District. Report prepared for Christchurch City Council.
 - 124.
- Jacobs (2023). Southshore and South New Brighton Park Preliminary Design Report. Report prepared for Christchurch City Council. Appendix D.
- Jacobs (2023). Coastal Processes and Natural Hazards Assessment in support of Recourse Consent Application. Report prepared for Christchurch City Council. Appendix I.

APPENDIX 7 – RECOMMENDED CONDITIONS

Resource Consent CRC242267 (s9)

Applicant: Christchurch City Council

Recommended Duration: 10 Years

	Limits
1	The works authorised by this resource consent are limited to - The undertaking of earthworks; - The undertaking of vegetation clearance including works within 10m of a natural inland wetland along South New Brighton Park and Southshore Estuary Edge, as shown on Plan CRC242267 attached to and forming part of this resource consent.
2	The maximum depth of excavation for the works authorised by this resource consent must not exceed 1.2 metres below ground level. Advice Note: <i>It will be up to the Consent Holder to demonstrate compliance with the maximum excavation depth. This can be done, for example, via reference to a specified datum and reduced levels from that datum or via site specific survey points or other measurements.</i>
3	Excavation works must not be carried out within the exposed water table during times when groundwater levels are higher than the deepest part of the excavations.
4	All material imported onsite must be virgin aggregates and free of contaminants. Advice Note: <i>For the purpose of this consent, cleanfill is defined, as per the Waste Management Institute New Zealand Technical Guidelines for Disposal to Land Revision 3 (October 2022), as Virgin excavated natural material such as clay, soil and rock that are free of combustible, putrescible, degradable or leachable components. When discharged to the environment, clean fill material will not have a detectable effect relative to the background, and the fill site will be able to be utilised for an unrestricted purpose on closure.</i>
	Prior to Commencement of Works
4	Prior to commencement of the works described in Condition (1), all personnel working on the site must be made aware of, and have access to, the following: - Construction and Environmental Management Plan (CEMP) required to be prepared and maintained under Resource Consent CRC242268; - Construction Methodology Plan (CMP) required to be prepared and maintained under Resource Consent CRC242268; - Erosion and Sediment Control Plan (ESCP) required to be prepared and maintained under Resource Consent CRC242269;

	d. Seagrass and Saltmarsh Management Plan (SSMP) required to be prepared and maintained under Resource Consent CRC242268; e. Saltmeadow Remediation Plan (SRP) required to be prepared and maintained under CRC242268; and f. Resource Consents CRC242268, CRC242269 and CRC25199, and all associated documents.
5	At least 15 working days prior to the commencement of works on site, the consent holder must request a pre-construction site meeting with the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ecan.govt.nz), and all relevant parties, including the primary contractor. At a minimum, the following must be covered at the meeting: a. Scheduling and staging of the works; b. Responsibilities of all relevant parties, including confirmation that the persons implementing the ESCP on the site are suitably trained and/or experienced; c. Contact details for all relevant parties; d. Expectations regarding communication between all relevant parties; e. Procedures for implementing any amendments; f. Site inspection; and g. Confirmation that all relevant parties have copies of the contents of this resource consent document and all associated erosion and sediment control plans and any other discharge treatment methodologies employed.
	During Works
6	All practicable measures must be taken to: a. Minimise soil disturbance to that necessary to carry out the works described under Condition (1); b. Prevent soil erosion; c. Avoid placing excavated material in a position where it may enter: i. Any neighbouring site; ii. A surface water body; and iii. The Christchurch City Council's reticulated stormwater network, or any other private or public stormwater devices.
7	a. Tracking of material off-site during the works must be avoided at all times. b. In the event that material is tracked off-site, the tracked material must be removed as soon as practicable.
	Discovery of Contaminated Soils or Materials
8	In the event that any contaminated soil or material outside the scope of Detailed Site Investigation – Southshore and South New Brighton Erosion Protection, dated 30 November 2023 is uncovered by the works, a contamination discovery protocol must be implemented, including but not limited to the following steps: a. Earthworks within 10 metres of discovered contaminant soil or material must cease immediately; b. All practicable steps must be taken to prevent the contaminated material becoming entrained in stormwater. Immediate steps must include, where practicable: i. Diverting any stormwater runoff from surrounding areas away from the contaminated material' and

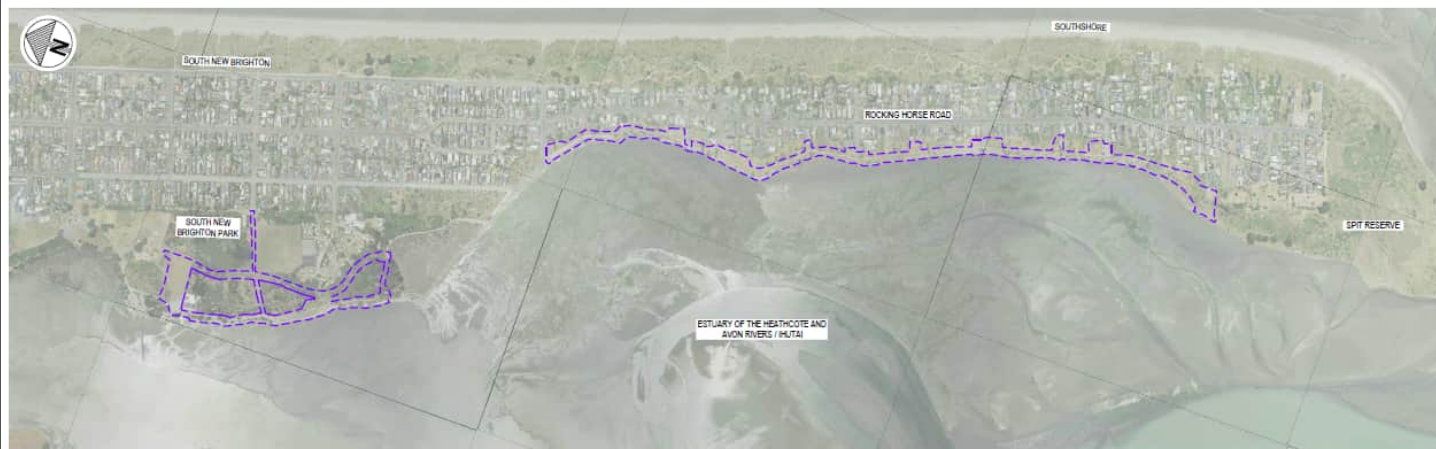
	ii. Minimising the exposure of the contaminated material, including covering the contaminants with an impervious cover; c. Notification of the Canterbury Regional Council, Attention: Contaminated Sites Manager, within 24 hours of the discovery; d. Earthworks within ten metres of discovered contaminant soil or material must not recommence until a suitably qualified and experienced contaminated land practitioner (SQEP) confirms to Canterbury Regional Council, Attention: Compliance Manager, that continuing works does not represent a significant risk to the environment; e. All records and documentation associated with the discovery must be kept and copies must be provided to the Canterbury Regional Council upon request. Advice Note: For the purpose of this condition, temporary stockpiling means material being stockpiled for no longer than the overall construction period or the stage of construction if construction occurs in stages, whichever is the shorter period, and only for as long as reasonably necessary. The overall requirement to avoid, where possible, the stockpiling of contaminated material or soils prevails.
9	Any material removed from the site during the works that is potentially or confirmed as contaminated, must be disposed of at a facility authorised to receive such material.
	Stockpiling of Contaminated Material
10	Stockpiling of contaminated material or soils must be avoided where possible. In the event that temporary stockpiling of suspected contaminated material is required, then the contaminated material stockpiles must be managed as below: a. Stockpiled contaminated material or soils must be kept separate from uncontaminated excavated soils stockpiles and any virgin aggregate or other material also stockpiled on-site; and b. Stockpiled contaminated material must be placed on polythene sheeting or similar impervious material to prevent contamination of underlying material; and c. Stockpiled contaminated material must include a perimeter bund or berm installed to prevent runoff leaving the area and stormwater from other areas entering the stockpile area; d. Stockpiled material must be covered or dampened during dry and windy conditions so as to prevent wind erosion; and e. If any rainfall is forecasted that has the potential to cause runoff from the stockpiles, or if the stockpiles are left overnight, over the weekend or over public holidays, the stockpiled material must be covered with plastic sheeting or a suitable material such as clean topsoil, or otherwise stabilised, to prevent stormwater runoff coming into contact with contaminated material. Advice Note: For the purpose of this condition, temporary stockpiling means material being stockpiled for no longer than the overall construction period or the stage of construction if construction occurs in stages, whichever is the shorter period, and only for as long as reasonably necessary.

	Spills
11	All practicable measures must be taken to avoid spills of fuel or any other hazardous substances within the site. These measures must include: - Refuelling of machinery and vehicles must not occur within 20 metres of: - Open excavations; - Exposed groundwater; and - Stormwater devices. - A spill kit must be kept on site that is capable of absorbing the quantity of oil and petroleum products that may be spilt on site at any one time, remains on site at all times. - In the event of a spill of fuel or any other hazardous substance, the spill must be cleaned up as soon as practicable, the stormwater system must be inspected and cleaned, and measures taken to prevent a recurrence; - The Canterbury Regional Council, Attention: Compliance Manager, must be informed within 24 hours of a spill event exceeding five litres and the following information provided: - The date, time, location and estimated volume of the spill; - The cause of the spill; - The type of hazardous substance(s) spilled; - Clean up procedures undertaken; - Details of the steps taken to control and remediate the effects of the spill on the receiving environment; - An assessment of any potential effects of the spill; and - Measures to be undertaken to prevent a recurrence.
	Artesian Aquifer Interception
12	In the event of an interception of unanticipated levels of artesian flows, all practicable measures must be undertaken to remedy or mitigate any change in aquifer pressure, water quality or temperature. This must include: - The contractor must immediately cease all works within the immediate area of excavation that caused the interception of the artesian flows; - The contractor must determine and document whether the flow is constant or increasing, if the turbidity is constant or increasing and if the flow is confined to the excavation; - The contractor must notify the site engineer and/or other appropriate personnel to determine the emergency measures required to arrest the artesian flow. Emergency measures must include, but not be limited to: - The installation of a layer of impermeable material to the extent required to reform a capping layer over the aquifer to prevent the upward movement of groundwater through the confining layer; or - Inserting a vertical pipe in the aquifer interception point (if practicable) and provide for a secure seal against the pipe to enable the stabilisation of the artesian flow in the pipe, and to determine the above ground water level to assess any further measures.

	d. The temporary artesian flow beyond the excavation must be controlled and mitigated with appropriate erosion and sediment control measures; e. The Canterbury Regional Council, Attention: Compliance Manager must be notified as soon as practicable but no later than two working days after the interception; and f. Upon remediation and arresting of flow from the aquifer interception, the construction methodology must be reconsidered and, if required, revised to avoid future interceptions of the aquifer.
	Accidental Discovery of Archaeological Material
13	a. Any activity which may modify, damage or destroy a pre-1900 archaeological site or material must follow the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014. An archaeological authority is required from Heritage New Zealand to modify, damage, or destroy any archaeological site, whether recorded or not in the New Zealand Heritage List/Rārangi Korero. b. In the event of accidental discovery of any archaeological material, all works must cease immediately in the part of the site known, or suspected, to be an archaeological site. c. The Canterbury Regional Council, Heritage New Zealand Pouhere Taonga and Papatipu Rūnanga, as well as the New Zealand Police in the case of discovery of koiwi/human bones, must be informed immediately of the disturbance, and the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014 must be followed. d. In the event of the accidental discovery of Māori archaeological sites or material, the accidental discovery protocol for Māori archaeology must be followed in addition to the process under the Heritage New Zealand Pouhere Taonga Act 2014. e. To ensure that all statutory and cultural requirements have been met, any works in the part of the site subject to the archaeological discovery must not recommence until authorised by the Canterbury Regional Council and: i. Upon completion of the archaeological authority process referred to under (c); and ii. In the event of the accidental discovery of Māori archaeological sites or material, and in addition to (c) upon completion of the process referred to under (d); and iii. In the event of the discovery of koiwi/human bones, immediately advise the New Zealand Police.
	After Completion of Works
14	Within two weeks of the completion of each stage of works authorised by this resource consent: a. All disturbed areas must be stabilised and/or revegetated; b. All spoil and other waste materials from the works must be removed from site. Advice Note: <i>The use of polymers for site stabilisation purposes, including those forming a component of hydro-seeding formulas, may require separate authorisations under the Resource Management Act 1991. Further, polymers are not considered a long-term or permanent</i>

	<i>stabilisation technique and may require repeated application to ensure the site remains stabilised.</i> Advice Note: <i>Vegetation planting on site shall where possible include locally sourced indigenous planting to enhance the cultural landscape, increase indigenous habitat, and provide ecosystem services that directly or indirectly improve the atmospheric carbon levels and temperature, soil retention, stormwater management, improve water quality and contribute to waste decomposition and nutrient recycling.</i>
	Administration
15	The Canterbury Regional Council may annually, on the last working day of May or November, serve notice of its intention to review the conditions of this resource consent for the purposes of: a. Dealing with adverse effect on the environment which may arise from the exercise of this resource consent, and which is not appropriate to deal with at a later stage; or b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
16	If this resource consent is not exercised before 31 March 2031, it lapses in accordance with Section 125 of the Resource Management Act 1991. Advice Note: <i>‘Exercised’ is defined as implementing any requirements to operate this resource consent and undertaking the activity as described in these conditions and/or application documents.</i>

SOUTHSHORE AND SOUTH NEW BRIGHTON PARK EROSION AND INUNDATION PROTECTION



LOCATION PLAN
NTE

DRAWING SCHEDULE

DRAWING NO.	DESCRIPTION
IA271200-CD-ORG-0001	COVER SHEET AND DRAWING SCHEDULE
IA271200-CD-ORG-0002	SHEET LAYOUT PLAN
IA271200-CD-ORG-1001	GENERAL ARRANGEMENT- SHEET 1
IA271200-CD-ORG-1002	GENERAL ARRANGEMENT- SHEET 2
IA271200-CD-ORG-1003	GENERAL ARRANGEMENT- SHEET 3
IA271200-CD-ORG-1004	GENERAL ARRANGEMENT- SHEET 4
IA271200-CD-ORG-1005	GENERAL ARRANGEMENT- SHEET 5
IA271200-CD-ORG-1006	GENERAL ARRANGEMENT- SHEET 6
IA271200-CD-ORG-1007	GENERAL ARRANGEMENT- SHEET 7
IA271200-CD-ORG-1008	GENERAL ARRANGEMENT- SHEET 8
IA271200-CD-ORG-2001	TYPICAL CROSS SECTIONS - SHEET 1
IA271200-CD-ORG-2002	TYPICAL CROSS SECTIONS - SHEET 2
IA271200-CD-ORG-2003	TYPICAL CROSS SECTIONS - SHEET 3
IA271200-CD-ORG-2004	TYPICAL CROSS SECTIONS - SHEET 4
IA271200-CD-ORG-2005	TYPICAL CROSS SECTIONS - SHEET 5
IA271200-CD-ORG-4001	ESTUARY ACCESS TYPICAL DETAILS

LEGEND

--- PROPOSED EXTENTS

INFORMATION ISSUE
NOT FOR CONSTRUCTION

Plan CRC242267

Christchurch
City Council

DATE	BY	FOR	REVISION	REMARKS
10/10/2020	IA271200	CD-ORG-0001	1	ISSUED FOR CONSTRUCTION

DATE	BY	FOR	REVISION	REMARKS
10/10/2020	IA271200	CD-ORG-0001	1	ISSUED FOR CONSTRUCTION

Jacobs

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

COVER SHEET AND
DRAWING SCHEDULE

PROJECT NUMBER	PROJECT NAME	PROJECT LOCATION	PROJECT STATUS
CH460000-3099	-	A1	NTS
0001			

APPENDIX 8 – RECOMMENDED CONDITIONS

Resource Consent CRC242268 (s12)

Applicant: Christchurch City Council

Recommended Duration: 20 Years

	Limits
1	The activity authorised by this consent shall be limited to: a. The disturbance of the foreshore and seabed; b. The deposition of material on the foreshore and seabed; c. The erection of structures on the foreshore and seabed; d. Reclamation of 898m² of the foreshore and seabed; e. Maintenance of the structures; and f. Occupation of the Coastal Marine Area Associated with the placement of erosion and inundation protection structures, along South New Brighton Park and Southshore Estuary Edge, shown on Plan CRC242268A attached to and forming part of this resource consent.
2	The works authorised under Condition (1) must be located within the Project Footprint, Southshore and South New Brighton as demonstrated within Plans CRC242268B – I attached to and forming part of this resource consent. Works within the Project Footprint must be limited to the following works and associated ancillary activities: a. Removal of an existing earth bund and existing structures including those located within the Coastal Marine Area (CMA); b. Installation of a new inundation bund; c. Installation of a new cobble beach, rock revetment, gabion baskets and a soft edge area; d. Installation of two stepped access points at Tern Street and Godwit Street which must be more than 30m from any seagrass beds; e. Planting, footpaths, nature play, and other landscape sundries as shown in the landscaping plans; f. Maintenance activities associated with the structures described in this condition; and g. Decommissioning of structures. Advice Note: For the decommissioning of structures, the Consent Holder should undertake the relevant planning assessment prior to the removal of the structures and obtain necessary resource consents if required.
3	The Consent Holder must removal all structures constructed at the expiry of this resource consent unless authorised by a resource consent. A decommissioning plan shall be prepared and structures removed prior to the expiry of consent.

4	Activities carried out in accordance with Condition (1)(a) to (1d) must cease five years from the exercising of this consent.
	Design and Construction
5	The activities and the erosion and inundation protection structures authorised under Condition (1) must be undertaken and constructed in general accordance with the design methodology described in the application and design Plans CRC242268J – O, attached to and forming part of this resource consent.
	Soft Edge Area
6	The consent holder must implement a soft edge along the eroded edge in the vicinity of South New Brighton Park, as shown on Plans CRC242268P - R, attached to and forming part of this resource consent.
7	The consent holder must prepare a detailed design of the soft edge area including materials, construction methodology and any associated planting or restoration works which must be prepared by a suitably qualified Coastal Engineer, Ecologist and Landscape Architect, and be submitted to the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz) 30 working days prior to the commencement of works for certification.
8	The soft edge area must be designed to: a. Provide erosion protection to the existing edge; b. Enhance the natural character and ecological values of the coastal environment; and c. Enable monitoring of the erosion rates and patterns.
	Prior to the Commencement of Works
9	Prior to the commencement of construction and following the submission of the management plans, the consent holder must request a pre-construction meeting must be held with the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz), and all relevant parties including the Christchurch City Council, the primary contractor, and the consent holder. At a minimum, the following must be covered in the meeting: a. Scheduling and staging of works; b. Responsibilities of all relevant parties including confirmation that the person or persons implementing the ESCP on the site are suitably trained and/or experienced; c. Contact details for all relevant parties; d. Expectations regarding communication between all relevant parties; e. Procedures for implementing any amendments; f. Site inspection; and g. Confirmation that all relevant parties have copies of the contents of this consent document, CRC242267, CRC24229 and CRC25199, and the Construction Environmental Management Plan (CEMP).
10	Prior to commencing works, the consent holder must provide a copy of: a. This consent document; and

	b. Consent documents, CRC242267, CRC242269, CRC251999 and RMA/2023/3243 or any variation thereof; To all persons undertaking activities authorised by this consent and explain to those persons how to comply with the consent conditions.
11	At least 10 days prior to the start of construction, the Consent Holder must erect a sign at the site explaining the nature of the work, timeframes expected for the completion of the works and a contact name and telephone number.
12	At least 10 days prior to work commencing, the consent holder must advise Canterbury Regional Council, Attention: Compliance Manager (via ECInfor@ECan.govt.nz) in writing if any existing structure is to be completely removed from the Coastal Marine Area. The removal of structures must be planned so that no more than 30m of the shoreline is exposed at one time.
	Construction and Environment Management Plan
13	The consent holder must 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 must be submitted to the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz), at least 30 working days prior to construction works commencing for certification that it complies with the conditions of this consent and must be adhered to by the consent holder. The CEMP must include but not limited to the following: a. A map showing the location of all works; b. Details of the construction methods proposed for the inundation bund, gabion baskets, rock revetment, cobble beach and soft beach area; seawall; c. Details of forecast monitoring frequency including methodology for providing temporary joining of the inundation bund where tidal and rainfall events are likely to pose an inundation risk; d. A programme of works including an indicative timeframe and sequence of works, consistent with any seasonal and tidal restrictions and the Construction Methodology required by Condition (16); e. The methodology for stabilising the site if works are abandoned; f. Controls on the disturbances within the CMA, including the placement of geotextiles or geofabrics in excavations; g. Construction noise and vibration controls; h. Water quality management; i. Reference to the Spill Response Plan required by Conditions (33)-(36), outlining how compliance with its procedures will be achieved; j. Reference to the Seagrass and Salt Marsh Management Plan (SSMP) required by Condition (20), outlining how adverse effects on seagrass and saltmarsh habitats will be avoided; k. Archaeological and Cultural Discovery Protocols; l. Site notices to inform the public of the works and direct people safely to alternative routes; m. Monitoring and visual observations required by this consent. n. Details of site induction processes for all personnel, covering all relevant environmental, health and safety, and cultural protocols;

	o. Contact details for all key project personnel, including the designated Site Supervisor and specialist technical advisors (eg SQEP, archaeologist); and p. Waste management and recycling protocols for all construction-generated waste. <i>Advice Note: The CEMP may be prepared as a combined joint document that addresses the matters required by both the Canterbury Regional Council and Christchurch City Council land use resource consents.</i>
14	The CEMP must be certified by the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ecan.govt.nz) acting in a technical capacity to works authorised by this consent first commencing, and the consent holder must undertake all activities authorised by this consent in accordance with the certified CEMP.
15	The CEMP may be amended at any time. Any amendment of the CEMP must be to achieve the purpose of the CEMP as set out in the conditions of this consent, and must be approved in writing by the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz) acting in a technical Certification capacity prior to works authorised by the consent operating under the amended CEMP. Upon approval of the amended CEMP the consent holder must undertake all activities authorised by this consent in accordance with the amended CEMP.
	Construction Methodology Plan
16	The consent holder must prepare a construction methodology plan (CMP) for each stage of works which must include, but is not limited to: a. A description of how the relevant structures and activities components will be carried out; b. The proposed timing of the works, including compliance with any seasonal or tidal restrictions; c. Identifying specialist inputs required for the stage, such as a stand over ecologist, Suitably Qualified and Experienced Person (SQEP) or archaeologist. The construction methodology plan must be submitted to Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz) for certification that the methodology complies with the requirements of condition (16)(a) – (d) above, at least 30 working days prior to the commencement of works.
17	The Construction Methodology Plan may be amended at any time. Any amendment of the CMP must be to achieve the purpose of the CMP as set out in the conditions of this consent, and must be approved in writing by the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz) for certification prior to works authorised by the consent operating under the amended CMP. Upon approval of the amended CMP the consent holder must undertake all activities authorised by this consent in accordance with the amended CMP.
	Ecological Management – Seagrass, Saltmeadow and Saltmarsh Areas

18	a. At least 30 working days prior to the commencement of works, the eastern boundary (closest to the estuary edge) of the seagrass, Saltmeadow and saltmarsh habitat (below MHWS) must be re-mapped by a suitably qualified marine ecologist to: i. Confirm the extent of any overlap between seagrass and the project footprint at 44a Rocking Horse Road; and ii. Confirm that there is no further overlap between seagrass, or saltmarsh and the project footprint. b. The project design or construction methodology required by Condition (16) is to be revised to avoid affected areas if the updated mapping identifies new areas of seagrass and/or saltmarsh that overlaps with the footprint of the proposed structures. c. Before work is undertaken in the proximity of seagrass and/or saltmarsh, a suitably qualified marine ecologist must mark the eastern boundary of the main seagrass meadow, as well as the location of small, isolated seagrass patches (with flags / stakes or similar), and the eastern boundary of saltmarsh habitat, to ensure that the seagrass and saltmarsh areas to be avoided are clearly visible.
19	All works associated with the removal of existing structures where seagrass, Saltmeadow or saltmarsh is within 10m of the structure, will be undertaken in accordance with the following requirements: a. Development of a Seagrass and Saltmarsh Management Plan (SSMP) as required under Condition (20) prior to the commencement of works near seagrass and saltmarsh habitats. b. Development of a Saltmeadow Remediation Plan (SRP) as required under Condition (22) prior to the commencement of works near Saltmeadow habitats. c. A detailed methodology for demolition of the existing structures must be included within the SSMP, to ensure disturbance of seagrass during demolition and removal of the existing structures is avoided. d. A Suitably qualified Experienced Ecologist must be present during works, in a 'standover' capacity, for the works between CH1260-1270 and 1310-11370m where seagrass, Saltmeadow and/or saltmarsh abuts the structures and any other areas identified by the pre-construction survey required under Condition (x). e. Demolition works must only occur from the landward side. Machinery is not permitted to enter the estuary for the purpose of removing existing structures. f. Physical removal of the existing structures within the estuary is to be done manually, including the removal of footings where possible without disturbance to the seagrass. In areas where structure footings cannot be removed without disturbance of seagrass, footings may be cut off at a level 100mm above the estuary bed and left in situ.
	Seagrass and Saltmarsh Management Plan
20	The seagrass and Saltmarsh Management Plan (SSMP) must be prepared by a suitably qualified marine ecologist to identify how risks on seagrass or saltmarsh adjacent to the construction corridor will be managed through the construction process. The SSMP must outline measures for the management of physical works near mapped seagrass, Saltmeadow or

	Saltmarsh areas. The SSMP is to be supervised by a suitably qualified marine ecologist who must be present on site when work is undertaken in areas where impacts on seagrass and saltmarsh may occur.
21	The SSMP must be certified by the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ecan.govt.nz) acting in a technical capacity to works authorised by this consent first commencing, and the consent holder must undertake all activities authorised by this consent in accordance with the certified CEMP.
	Saltmeadow Remediation Plan
22	The Saltmeadow Remediation Plan (SRP) must set out the measures to be undertaken to reestablish Saltmeadow remediation. The SRP must be prepared by a suitably qualified ecologist with input from a suitably qualified engineer with groundwater expertise. The SRP must include but not be limited to: - Identifying areas of low-lying surface landward of the erosion protection revetment, which have suitably saline soils for the reestablishment of Saltmeadow; - Confirming the areas are at least 0.2 ha to achieve an overall Net Gain; - Identification of species to be planted; - Planting timeframes; - Pest and weed control measures; - Maintenance measures; and - Ongoing monitoring required. <i>Advice Note: The SRP may be prepared as a joint document that also addresses the matters required by RMA/2023/3243.</i>
23	Where mapping carried out in accordance with Condition (22) indicates there has been a loss of saltmarsh below MHWS that is attributed to the project during construction phase, remediation must be required by planting of greater numbers of saltmarsh plants into sparsely vegetated areas of (or at the upper edge of) existing saltmarsh, to achieve no net loss or a net gain in saltmarsh extent.
	Deposition Material
24	- Any material deposited into the reclamation area must consist of clean rock or general beach gravel; and - Any rocks to form the revetment or cobble beaches must be quarry rock that so far as practicable are free of any sediment and will not contain any contaminants.
	Erosion and Sediment Control
25	The works authorised by Condition (1) must only occur in accordance with the Erosion and Sediment Control Plan required by Condition (7) of resource consent CRC242269.
	During Works
26	No construction related machinery, or vehicles must be on the estuary bed within the Coastal Marine Area at any time.

27	All construction related machinery, or vehicles must be stored securely and at least 20 metres away from the estuary edge.
28	No works may be undertaken in the two hours either side of high tide.
29	All material excavated that will be reinstated to the disturbed area must occur within the same tidal window and must be compacted and level with the surrounding seabed.
30	All material excavated from the land and Coastal Marine Area must be reused on site if deemed cleanfill or taken from the site and at a facility authorised to receive such material in accordance with RMA/2021/2094.
31	To prevent the spread of pest species, the consent holder must ensure that activities authorised by this consent are undertaken in accordance with the Biosecurity New Zealand's hygiene procedures and that machinery must be free of plants and plant seeds prior to use. <i>Advice Note: You can access the most current version of these procedures from the Biosecurity New Zealand website: http://www.biosecurity.govt.nz</i>
32	Any material removed from the site during works that is potentially or confirmed as contaminated, must be disposed of at a facility authorised to receive such material. <i>Advice Note: 'Contaminated' means land that has a hazardous substance in or on it that (a) has a significant adverse effects on the environment; or (b) is reasonably likely to have significant adverse effects on the environment.</i>
	Construction Spills and Hazardous Substances
33	a. All practicable measures must be undertaken to prevent oil and fuel leaks from vehicles and machinery; and b. Refuelling of machinery and vehicles where practicable must not occur within 20 metres of the Coastal Marine Area and must be supervised throughout the whole activity.
34	a. All refuelling equipment must have shut-off valves. b. The storage of fuel and other hazardous substances not otherwise subject to specific bunding, containment and management as contained in the CEMP pursuant to Condition (13) must not occur within 20 metres of the Coastal Marine Area and must be stored securely. c. All vehicles and works areas must have a spill kit capable of absorbing the quantity of fuel stored and other hazardous substances that may leak or be spilt. d. Spill contaminant equipment must be immediately available and kept on site at all times.
35	The consent holder must immediately inform the Regional On-Scene Commander – Marine Oil Spills of a leak or spill of a hazardous substance into the Coastal Marine Area. Within 24 hours of the spill the consent holder must provide the Compliance Manager with the following information:

	a. Clean up the spill as soon as practicable, inspect and clean the spill area, and take measures to prevent a recurrence. b. Inform the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ecan.govt.nz) as soon as possible of a spill event and provide the following information: i. The date, time, location and estimated volume of the spill; ii. The cause of the spill; iii. The type of hazardous substance(s) spilled; iv. Clean up procedures undertaken; v. Details of the steps taken to control and remediate the effects of the spill of the receiving environment; vi. An assessment of any potential effect of the spill; and vii. Measures to be undertaken to prevent a recurrence.
	Accidental Discovery of Archaeological Material
37	a. Any activity which may modify, damage or destroy a pre-1900 archaeological site or material must follow the archaeological authority process under the Heritage New Zealand Pouhere Taonga Act 2014. An archaeological authority is required from Heritage New Zealand to modify, damage or destroy any archaeological site, whether record or not in the New Zealand Heritage List/Rārangi Korero. b. In the event of accidental discovery of any archaeological material, all works must cease immediately in part of the site known, or suspected, to be an archaeological site. c. The Canterbury Regional Council, Heritage New Zealand Pouhere Taonga and Papatipu Runanga, as well as the New Zealand Police in the case of discovery of kōiwi/human bones, must be informed immediately of the disturbance, and the archaeological authority process under the New Zealand Pouhere Taonga Act 2014 must be followed. d. In the event of the accidental discovery of Māori archaeological sites or materials, the accidental discovery protocol for Māori archaeology, must be followed in addition to the process under the Heritage New Zealand Pouhere Taonga Act 2014. e. To ensure that all statutory and cultural requirements have been met, any works in the part of the subject site to the archaeological discovery must not recommence until authorised by the Canterbury Regional Council and: i. Upon completion of the archaeological authority process referred to under (c); ii. In the event of the accidental discovery of Māori archaeological sites or material, in addition to (c) upon completion of the process referred to under (d); and iii. In the event of the discovery of koiwi/human bones, immediately advise the New Zealand Police.
	Following the Completion of Works
38	The consent holder must remove all spoil and waste material from the site on completion of works.
39	All structures erected, extended, or placed in or on the foreshore or seabed during the exercise of the consent must be positioned to ensure that they do not cause erosion or exacerbate flooding.

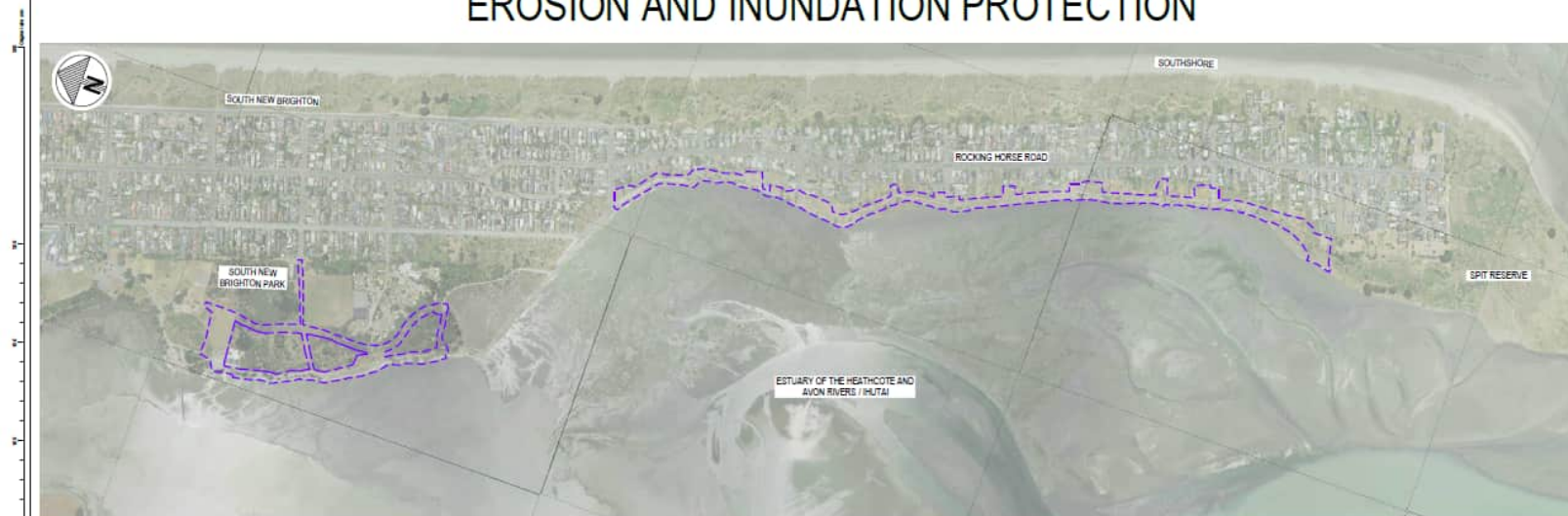
40	Following the completion of works and prior to the reopening of the area for public access, the consent holder must erect educational signs at the two public access points (Tern Street and Godwit Street), and at other locations. Each sign must clearly state: a. Information on māhinga kai / shellfish gathering including current health or contamination advisories; b. That dogs are prohibited from the Avon/Heathcote-Ihutai Estuary at all times; and c. Information on ecological values of the Avon/Heathcote-Ihutai Estuary including sensitive habitats, protected species, restoration areas and how users can minimise their effects. <i>Advice Note: The signs will comply with the CCC Parks Signage Manual.</i>
	Maintenance and Inspection
41	All structures erected, extended or placed in or on the foreshore during the exercise of the consent must be maintained to standard where they will continue to function as designed for the duration of the consent.
42	The consent holder must complete visual inspection of the structural integrity of all structures erected, extended, or placed in or on the foreshore or seabed during the exercise of this consent at the following minimum frequency: a. At least once every 12-months after completion of the structure; and b. Within one month of a coastal storm that is equal to or exceeds a 1-in-100-year Annual Recurrence Interval event.
43	The results of the visual inspections carried out in accordance with Condition (42), and any proposed maintenance, including proposed timeframes, identified as a result of the inspection, are to be advised to Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ecan.govt.nz) within 20 working days of the completion of the inspection.
44	If any of the structures constructed under this consent are damaged beyond repair and are required to be abandoned, the consent holder must remove the structure. <i>Advice Note: The consent holder should undertake the relevant planning assessment prior to the removal of the structure and obtain necessary resource consent if required.</i>
	Cobble Beach Monitoring
45	The consent holder must monitor the migration of cobble beach material onto the mudflat habitat (both at South New Brighton Park and Southshore) and onto the saltmarsh habitat below MHWS at Penguin Street (Southshore) by undertaking the following: a. Monitor and map the position of the toe of the cobble beach structures every 12-months, commencing at the completion of construction and annually thereafter, to assess whether the

	structures are encroaching or moving closer to the mudflat and saltmarsh habitats. b. Promptly inspect the cobble beach structures following large storm events; and c. Assess damage to the saltmarsh vegetation in case of cobble encroachment/inundation in the saltmarsh habitat.
46	Based on the results of the yearly mapping and of any post storm inspection required under Condition (45), the consent holder must: a. Reinstate the original position of the toe of the cobble beach structures; b. Remove any material washed onto the soft sediment habitat and saltmarsh habitats by hand (i.e., no machinery in the CMA); c. Re-establish saltmarsh plants in areas where cobbles have caused damage to the saltmarsh vegetation; and d. Results of the yearly mapping and post-storm event inspections and any activities associated with Condition (46)(a) to (c) must be documented and provided on request to the Canterbury Regional Council.
	Soft Edge Monitoring Plan
47	At least 30 working days prior to the commencement of construction of the soft edge area, the Consent holder must submit a Soft Edge Monitoring Plan (SEMP) to the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz). The SEMP must be prepared by a suitably qualified and experienced coastal scientist/engineer and must include, at a minimum: a. Baseline topographic and ecological surveys of the trial area and adjacent shoreline; b. Location and condition of intertidal and supratidal habitats; c. Presence of key ecological values or protected species; d. The location of permanent monitoring cross-sections; e. Parameters to be measured including specific “failure triggers” for erosion beyond a set line or the formation of a significant erosion scarp: i. Beach width; ii. Sediment volume; iii. Berm elevation; and iv. Ecological indicators. f. Details of how the Soft Edge Monitoring Plan will integrate with and inform the overarching Long-Term Monitoring and Adaptive Management Plan (LTMAMP); and g. Reporting format and timeframes.
48	Following construction, the Consent Holder must undertake monitoring of the soft edge trial area at the following frequency: a. Routine monitoring of at least once every six months; b. Event-based monitoring within three working days following any storm or tidal event that is equal to or exceeds a 1-in-100-year Annual Recurrence Interval event; c. Annual ecological monitoring at least every 12-months, assessing changes in habitat or species composition.

	Monitoring must continue for the duration of the soft edge trial. If a cobble beach is implemented, monitoring under the SEMP is no longer required, and cobble beach monitoring is required under Condition (47).
49	Monitoring results must be collated and submitted to the Canterbury Regional Council within 30 working days of each monitoring round. Each report must include an assessment of: a. Changes in beach profile and sediment volume; b. Effects on adjacent shoreline stability; c. Effects on ecological values; and d. An evaluation of whether the soft beach trial is meeting the design objectives under Condition (8) and failure triggers identified in the Soft Edge Monitoring Plan.
50	a. If the monitoring undertaken under Condition (48) demonstrates that the soft edge trial is not achieving its intended erosion protection objectives and/or is resulting in adverse environmental effects beyond those assessed in the application, the Consent Holder must, in consultation with the Canterbury Regional Council, review the design and management of the trial. b. Subject to the agreement of the Canterbury Regional Council, the Consent Holder may implement an alternative erosion management option such as the construction of a cobble beach within the same general footprint as the soft edge trial. c. Prior to implementing any alternative erosion management option, the Consent Holder must submit for certification by the Canterbury Regional Council, Attention: Compliance Manager, a detailed design and construction methodology prepared by a suitably qualified and experienced coastal engineer/scientist demonstrating that the proposed works will: i. Provide improved erosion protection compared to the soft edge trial; ii. Maintain or enhance the natural character and ecological values of the coastal environment; and iii. Remain within scope and effects of this consent.
51	The Consent Holder must maintain the soft edge (or subsequent cobble beach if implanted) in accordance with the certified design and must update the Soft Edge Monitoring Plan accordingly.
	Complaints Register
52	The consent holder must maintain a Complaints Register for any complaints received during construction works. The Complaints Register must include: a. The date and time the complaint was received; b. The nature and location of where the complaint has originated, if provided; c. A summary of the complaint; and d. Any corrective action undertaken by the Consent Holder to avoid, remedy or mitigate the issue raised.
	Administration

53	The Canterbury Regional Council may annually. On the last working day of May or November, serve notice of its intention to review the conditions of this resource consent for the purposes of: a. Dealing with adverse effect on the environment which may arise from the exercise of this resource consent, and which is not appropriate to deal with at a later stage; or b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
54	If this consent is not exercised before 31 March 2029, it lapses in accordance with Section 125 of the Resource Management Act 1991. <i>Advice Note: 'Exercised' is defined as implementing any requirements to operate this resource consent and undertaking the activity as described in these conditions and/or application documents.</i>

SOUTHSHORE AND SOUTH NEW BRIGHTON PARK EROSION AND INUNDATION PROTECTION



LOCATION PLAN
NTS

DRAWING SCHEDULE	
DRAWING NO.	DESCRIPTION
IA271200-CD-ORG-0001	COVER SHEET AND DRAWING SCHEDULE
IA271200-CD-ORG-0002	SHEET LAYOUT PLAN
IA271200-CD-ORG-1001	GENERAL ARRANGEMENT - SHEET 1
IA271200-CD-ORG-1002	GENERAL ARRANGEMENT - SHEET 2
IA271200-CD-ORG-1003	GENERAL ARRANGEMENT - SHEET 3
IA271200-CD-ORG-1004	GENERAL ARRANGEMENT - SHEET 4
IA271200-CD-ORG-1005	GENERAL ARRANGEMENT - SHEET 5
IA271200-CD-ORG-1006	GENERAL ARRANGEMENT - SHEET 6
IA271200-CD-ORG-1007	GENERAL ARRANGEMENT - SHEET 7
IA271200-CD-ORG-1008	GENERAL ARRANGEMENT - SHEET 8
IA271200-CD-ORG-2001	TYPICAL CROSS SECTIONS - SHEET 1
IA271200-CD-ORG-2002	TYPICAL CROSS SECTIONS - SHEET 2
IA271200-CD-ORG-2003	TYPICAL CROSS SECTIONS - SHEET 3
IA271200-CD-ORG-2004	TYPICAL CROSS SECTIONS - SHEET 4
IA271200-CD-ORG-2005	TYPICAL CROSS SECTIONS - SHEET 5
IA271200-CD-ORG-4001	ESTUARY ACCESS TYPICAL DETAILS

LEGEND

--- PROJECT EXTENTS

INFORMATION ISSUE
NOT FOR CONSTRUCTION

Plan CRC242268A

Christchurch City Council	DATE: 12/01/2020 BY: [Signature] FOR: [Signature] PROJECT: 12/01/2020 PROJECT: 12/01/2020 PROJECT: 12/01/2020	Jacobs CHRISTCHURCH, NEW ZEALAND PROJECT: 12/01/2020 PROJECT: 12/01/2020 PROJECT: 12/01/2020	CHRISTCHURCH CITY COUNCIL SOUTHSHORE AND SOUTH NEW BRIGHTON PARK EROSION AND INUNDATION PROTECTION	COVER SHEET AND DRAWING SCHEDULE	PROJECT NUMBER: CH4600003899 PROJECT TITLE: SOUTHSHORE AND SOUTH NEW BRIGHTON PARK EROSION AND INUNDATION PROTECTION PROJECT FILE IN SYSTEM:	SCALE: A1 SHEET: 0001
	APPROVED: [Signature] DATE: 12/01/2020 FOR: [Signature]	APPROVED: [Signature] DATE: 12/01/2020 FOR: [Signature]	APPROVED: [Signature] DATE: 12/01/2020 FOR: [Signature]	APPROVED: [Signature] DATE: 12/01/2020 FOR: [Signature]	APPROVED: [Signature] DATE: 12/01/2020 FOR: [Signature]	APPROVED: [Signature] DATE: 12/01/2020 FOR: [Signature]

Plan CRC242268B

STRUCTURE ID	DESCRIPTION	LINEAR LENGTH (m)	AREA (m ²)	DESIGN ACTION
SM001	CONCRETE BARRIER WALL WITH BENTONITE	10.0	10.0	REPAIR
SM002	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM003	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM004	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM005	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM006	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM007	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM008	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM009	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR
SM010	WOODEN CONCRETE WALL WITH BENTONITE	10.0	10.0	REPAIR

- NOTE**
1. ALL EXISTING SERVICES ARE INDICATIVE ONLY.
 2. THE PROJECT EXTENTS ARE INDICATIVE AND TO BE CONFIRMED BY THE CONTRACTOR'S CONSTRUCTION METHODOLOGY.
 3. THE PROJECT EXTENTS COVER THE FOOTPRINT OF CONSTRUCTION PHASE ACTIVITIES FOR BULK EARTHWORKS INCLUDING TEMPORARY EXCAVATIONS AND CONSTRUCTION LAYOUTS AND ARE ASSOCIATED WITH THE BULK AND EROSION PROTECTION MEASURES.
 4. REFER TO THE LANDSCAPE DRAWINGS FOR THE PROJECT BOUNDARY FOR PLANTING AND PAINTING.
 5. REFER TO THE LANDSCAPE DRAWINGS FOR EXISTING TREES TO BE REMOVED AND REINSTATED.
 6. REFER TO THE LANDSCAPE DRAWINGS FOR TREES REQUIRING REMOVAL.
 7. PROVIDE INVESTIGATION OF ACTIVE SERVICES WITHIN THE BULK FOOTPRINT REQUIRED IN DETAILED DESIGN TO CONFIRM DEPTH OF SERVICE AND REQUIREMENT FOR AN IMPERMEABLE WATER STOP OTHER SIDE OF THE BULK FOOTPRINT.
 8. THE CONTRACTOR SHALL VERIFY AND NOTIFY ENGINEER OF THE PRESENCE OF ABANDONED OR OLD OF SERVICES UTILITIES BENEATH THE BULK FOOTPRINT. FURTHER ACTION FOR AGREEMENT WITH THE ENGINEER.

LEGEND

EXISTING SERVICES

- POWER POLE
- CABLE
- PIPE
- WATER
- ABANDONED WATER
- WATER METER
- VALVE
- HYDRANT
- ON PIPELINE / FORMER
- ON M1
- ON SINGLE SLUMP
- ON DOUBLE SLUMP
- ON TRIPLE SLUMP
- SEWER M1
- SEWER LINE
- ABANDONED SEWER LINE

EXISTING FEATURES

- TOP OF BANK
- VEGETATION
- GATE
- FENCE
- EROSION PROTECTION AND BULK STRUCTURES
- SALT MARSH TO BE PROTECTED
- SALT MARSH TO BE REMOVED
- SALT MARSH TO BE PROTECTED
- EXISTING SEAGRASS TO BE PROTECTED
- EXISTING MODERN TO BE PROTECTED
- MAW
- EXISTING TREE
- ON PIPELINE / FORMER
- ON SCUFFY DOME
- PROJECT EXISTING
- GRASSHAKES

SHEET LAYOUT PLAN
SCALE 1:500

SCALE 1:500 (A1)

0 10 20 30 40 50m

Christchurch City Council

DATE	BY	FOR	APPROVED
10/10/2020	10/10/2020	10/10/2020	10/10/2020
10/10/2020	10/10/2020	10/10/2020	10/10/2020
10/10/2020	10/10/2020	10/10/2020	10/10/2020
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10/10/2020	10/10/2020	10/10/2020	10/10/2020
10/10/2020	10/10/2020	10/10/2020	10/10/2020

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

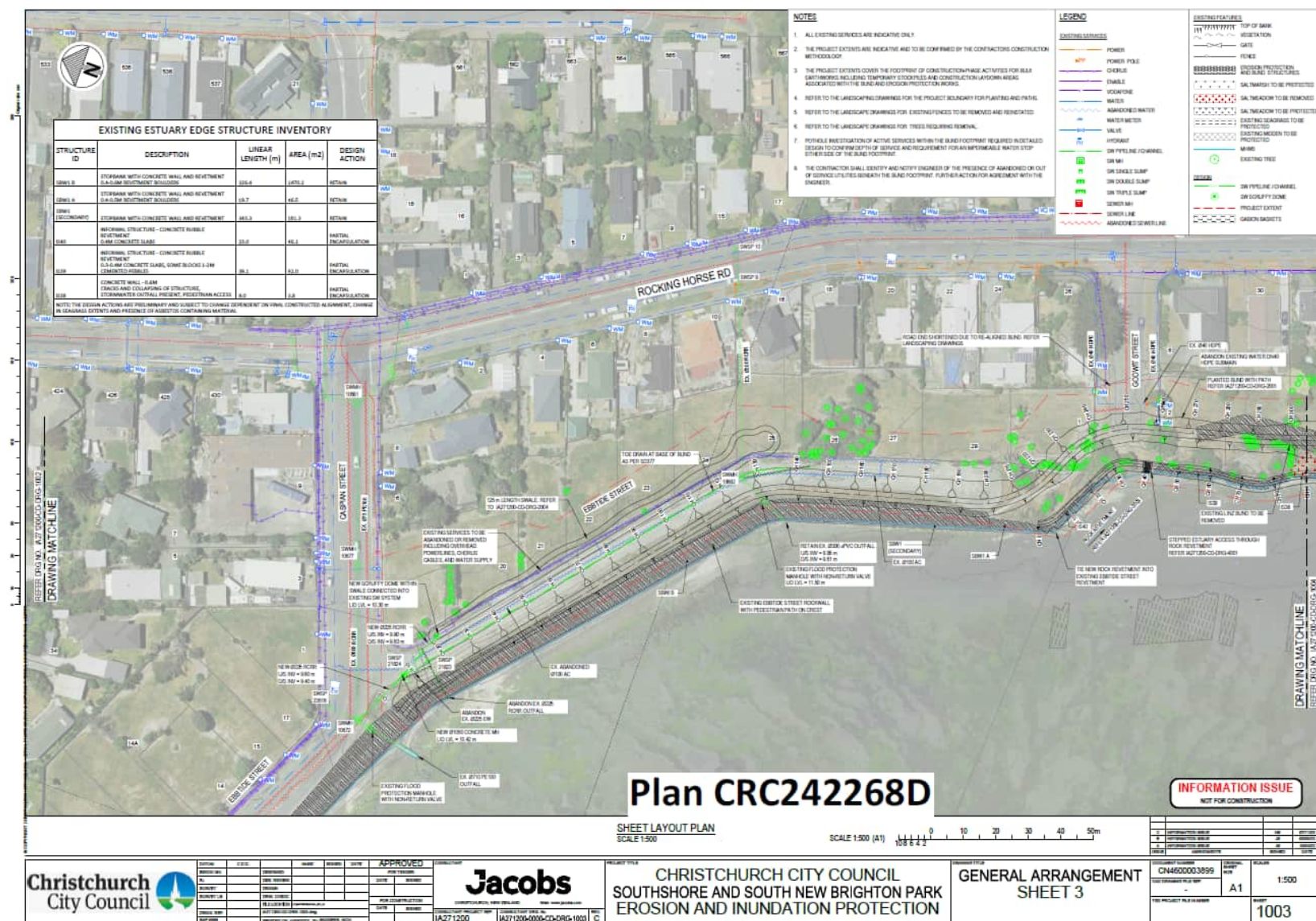
GENERAL ARRANGEMENT
SHEET 1

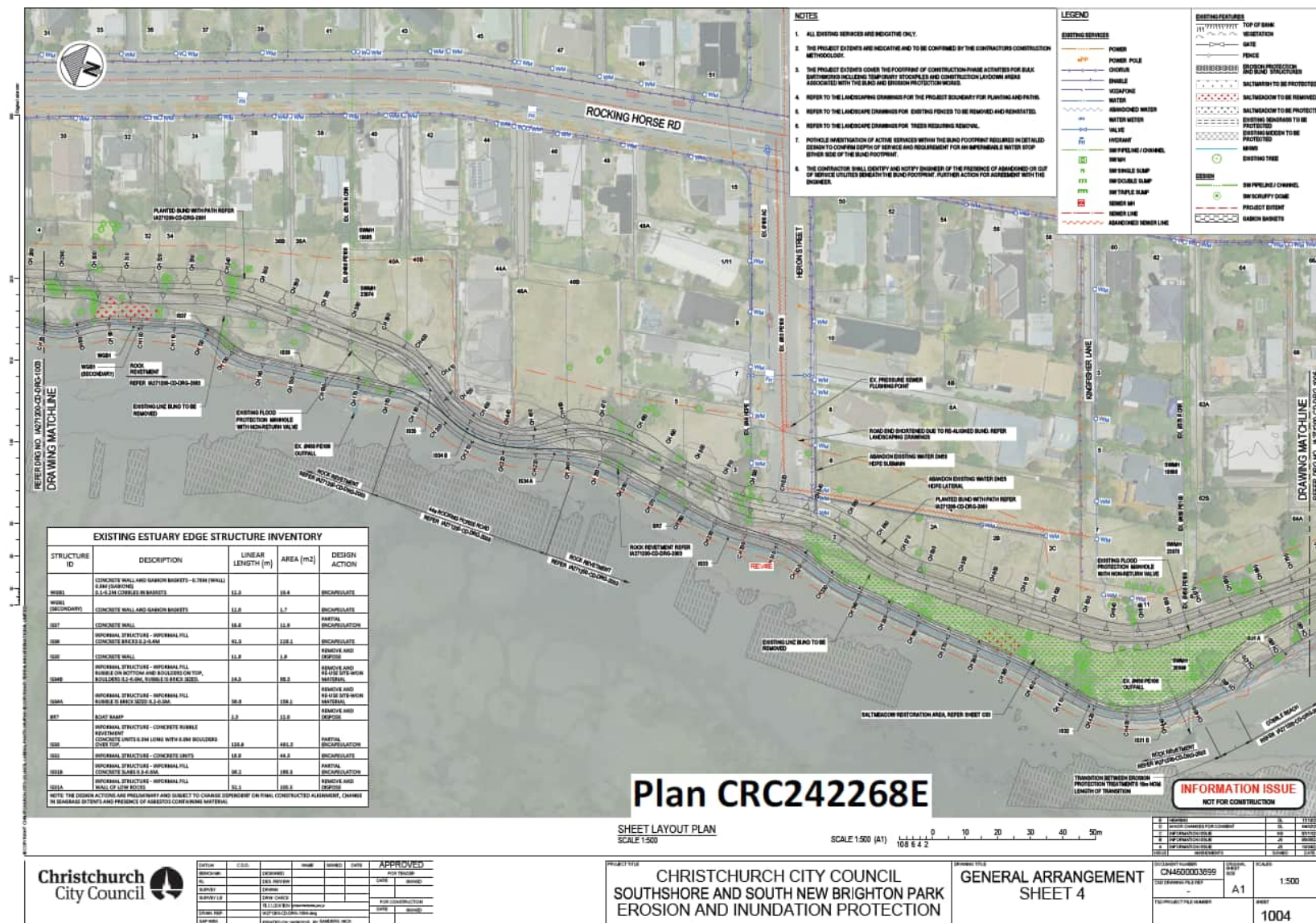
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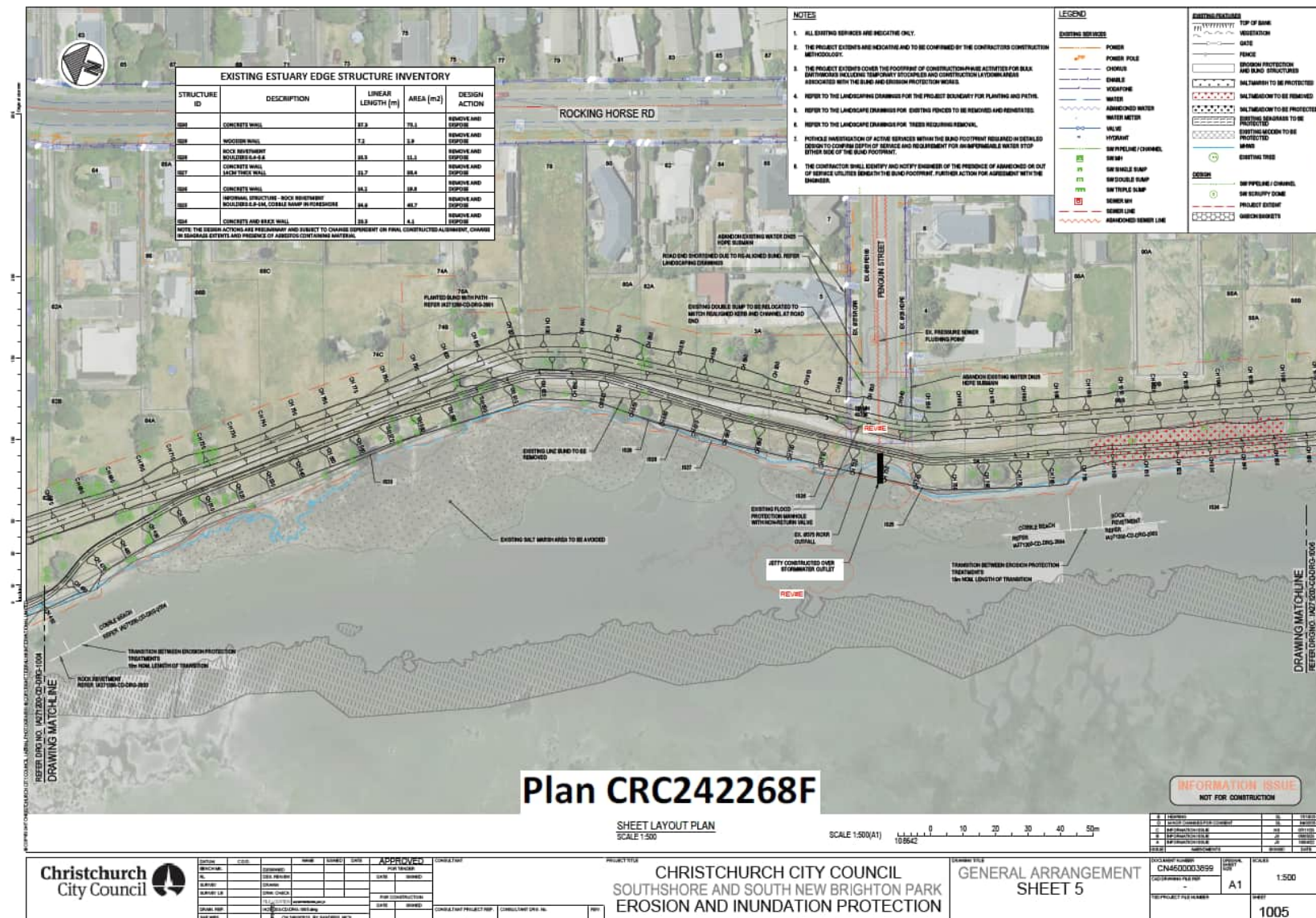
A1

1:500

1001



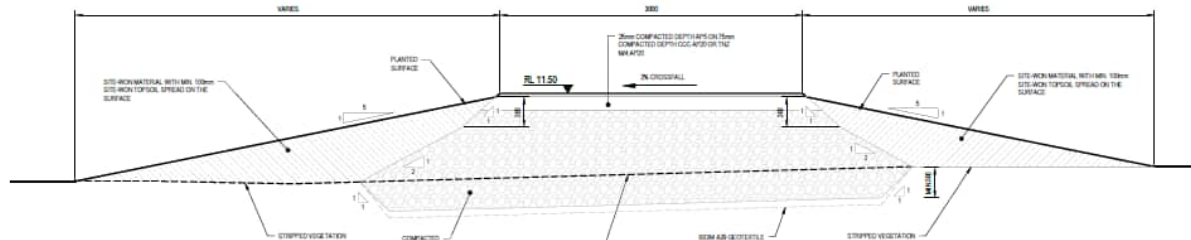




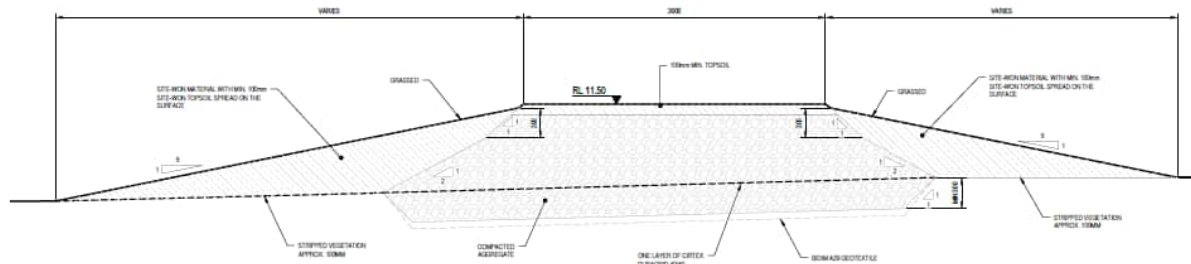
Plan CRC242268J

NOTES

1. ALL LEVELS ARE IN TERMS OF CHRISTCHURCH DRAINAGE DATUM (CDD)
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
3. REFER TO LANDSCAPING DIMENSIONS FOR PLANTING OF THE BUND SIDE SLOPES



PLANTED BUND WITH PATH TYPICAL DETAIL
SCALE 1:20



GRASSED BUND TYPICAL DETAIL
SCALE 1:20

INFORMATION ISSUE
NOT FOR CONSTRUCTION

SCALE 1:20 (A1)
0 400 800 1200 1600 2000mm

Christchurch
City Council

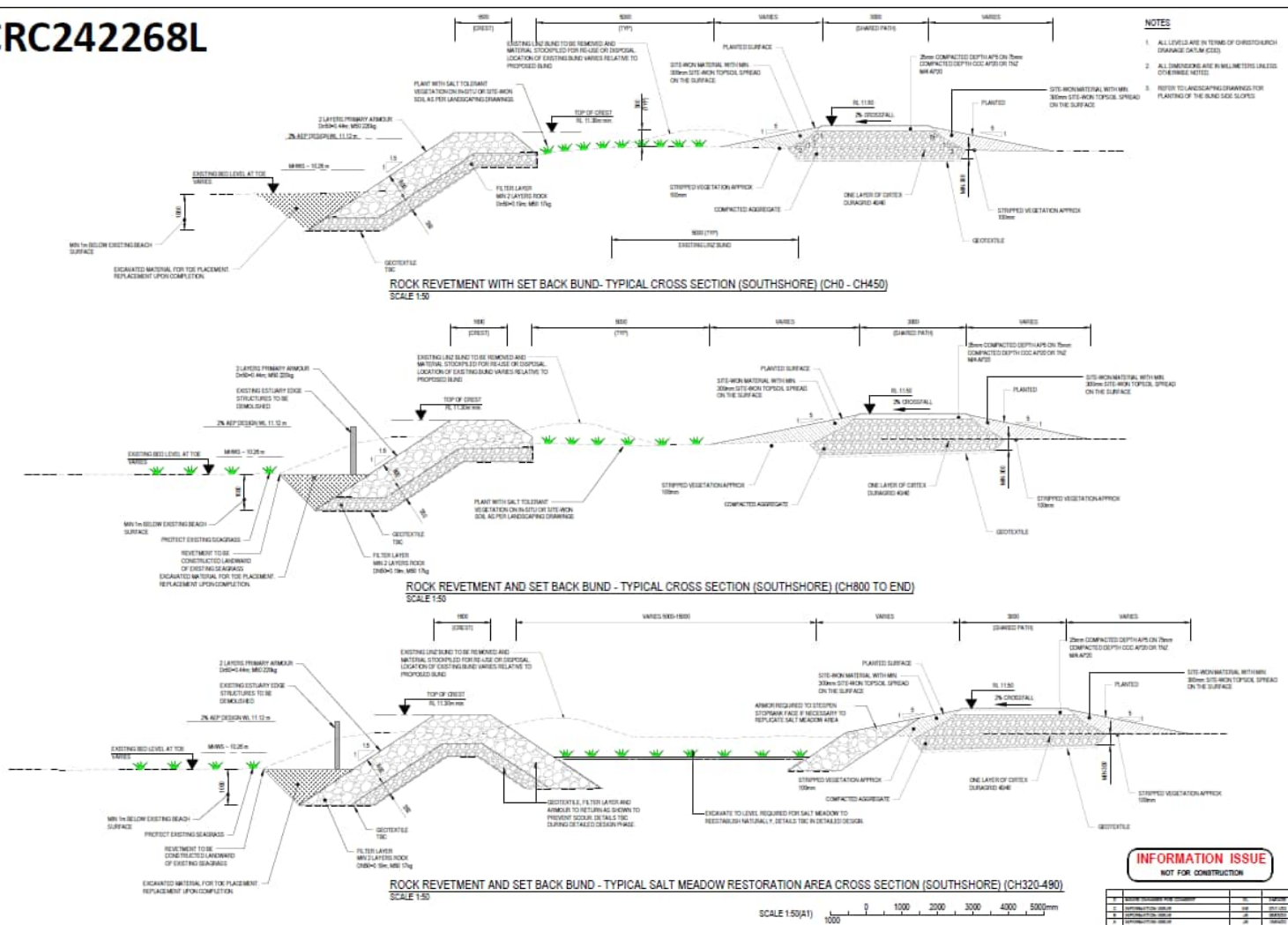
Jacobs

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

TYPICAL CROSS SECTION
SHEET 1

PROJECT NUMBER	CN4000000000	DATE	AS SHOWN
PROJECT NAME	AS SHOWN	DATE	2001
PROJECT LOCATION	AS SHOWN	DATE	
PROJECT SCALE	AS SHOWN	DATE	

Plan CRC242268L



INFORMATION ISSUE
NOT FOR CONSTRUCTION

DATE	2002
BY	AS SHOWN
FOR	2002

Christchurch City Council	APPROVED
DATE	2002
BY	AS SHOWN
FOR	2002

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

TYPICAL CROSS SECTION
SHEET 3

DATE	2002
BY	AS SHOWN
FOR	2002

Plan CRC242268M

COBBLE BEACH WITH SET BACK BUND - TYPICAL DETAIL (SOUTHSHORE)
SCALE 1:50

EBBTIDE STREET BUND - TYPICAL DETAIL
SCALE 1:50

EBBTIDE STREET SWALE - TYPICAL DETAIL
SCALE 1:50

NOTES:

- ALL LEVELS ARE IN TERMS OF CHIRSTCHURCH DRAINAGE DATUM (CSD)
- ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED
- REFER TO LANDSCAPING DRAWINGS FOR PLANTING OF THE BUND SIDE SLOPES

INFORMATION ISSUE
NOT FOR CONSTRUCTION

SCALE 1:50 (A1)

DATE	DESCRIPTION	BY	CHKD	APPROVED
2024-01-15	DESIGN	JAC	JAC	JAC
2024-01-15	CONSTRUCTION	JAC	JAC	JAC
2024-01-15	AS SHOWN	JAC	JAC	JAC

Christchurch City Council

JACOBS

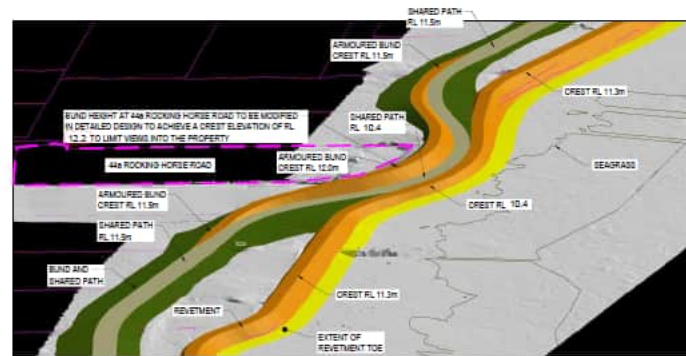
CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

TYPICAL CROSS SECTION
SHEET 4

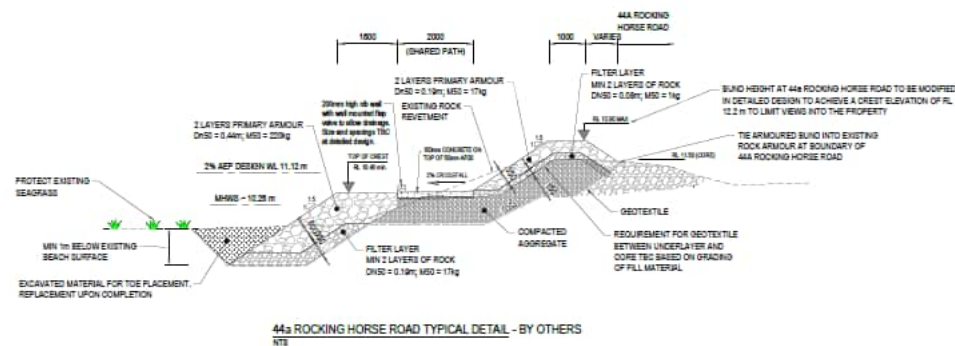
2004

NOTES

1. ALL LEVELS ARE IN TERMS OF CHRISTIANBURG DRAINAGE INTUM (CDE)
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.



44a ROCKING HORSE ROAD 3d PERSPECTIVE
SCALE 1:50



44a ROCKING HORSE ROAD TYPICAL DETAIL - BY OTHERS

INFORMATION ISSUE
NOT FOR CONSTRUCTION

10	PERFORMANCE 2000-01	100%	100%
11	PERFORMANCE 2001-02	95%	100%
12	PERFORMANCE 2002-03	90%	100%
13	PERFORMANCE 2003-04	85%	100%
14	PERFORMANCE 2004-05	80%	100%

Plan CRC242268O

PLAN
SCALE 1:20

Labels: LOCATION FOR HANDRAIL POSTS, TOP OF REINFORCEMENT, NEW REINFORCEMENT, TOP OF REINFORCEMENT.

TYPICAL ROCK STEP DETAIL
SCALE 1:4

Labels: 300mm SQUARE ROCKS BEDDED INTO CONCRETE TO FORM STEP (SEE A & CHIPPED TO SHAPE), 200mm CONCRETE BEDDING FOR ROCK STEP.

SECTION (TYP) 1-1
SCALE 1:20

Labels: NEW TOTAL 1.20m LENGTH VARIABLE DEPENDING ON POSITION, CREST OF REINFORCEMENT, TOP OF CREST, STONE BLOCKS CUT & CHIPPED TO SHAPE, 400mm CONCRETE BEDDING FOR ROCK STEP, COMPACTED COARSE AGGREGATE BEDDED IN RANDOM GEOMETRIC MATERIAL, EXISTING BEACH SURFACE, REINFORCEMENT SECTION (VARIES AT STEP LOCATIONS), STAINLESS STEEL HANDRAILS TO CCC STANDARD (HANDRAIL LONG REFER TO SPEC), 200mm DESIGN WL 11.12m, 100mm - 10.25m.

NOTES

- ALL DIMENSIONS IN TERMS OF CHRISTCHURCH DISTANCE (CD) (SEE)
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE NOTED.
- ROCK TYPE SAME AS REINFORCEMENT STEP RAY.

INFORMATION ISSUE
NOT FOR CONSTRUCTION

Christchurch City Council

Jacobs

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

SCALE 1:20 (A1)

0 400 800 1200 1600 2000mm

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR TENDER	10/10/2019
2	ISSUED FOR TENDER	10/10/2019
3	ISSUED FOR TENDER	10/10/2019
4	ISSUED FOR TENDER	10/10/2019
5	ISSUED FOR TENDER	10/10/2019
6	ISSUED FOR TENDER	10/10/2019
7	ISSUED FOR TENDER	10/10/2019
8	ISSUED FOR TENDER	10/10/2019
9	ISSUED FOR TENDER	10/10/2019
10	ISSUED FOR TENDER	10/10/2019

APPROVED

DATE: 10/10/2019

PROJECT TITLE

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR TENDER	10/10/2019
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4	ISSUED FOR TENDER	10/10/2019
5	ISSUED FOR TENDER	10/10/2019
6	ISSUED FOR TENDER	10/10/2019
7	ISSUED FOR TENDER	10/10/2019
8	ISSUED FOR TENDER	10/10/2019
9	ISSUED FOR TENDER	10/10/2019
10	ISSUED FOR TENDER	10/10/2019

APPROVED

DATE: 10/10/2019

PROJECT TITLE

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR TENDER	10/10/2019
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4	ISSUED FOR TENDER	10/10/2019
5	ISSUED FOR TENDER	10/10/2019
6	ISSUED FOR TENDER	10/10/2019
7	ISSUED FOR TENDER	10/10/2019
8	ISSUED FOR TENDER	10/10/2019
9	ISSUED FOR TENDER	10/10/2019
10	ISSUED FOR TENDER	10/10/2019

APPROVED

DATE: 10/10/2019

PROJECT TITLE

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR TENDER	10/10/2019
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4	ISSUED FOR TENDER	10/10/2019
5	ISSUED FOR TENDER	10/10/2019
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7	ISSUED FOR TENDER	10/10/2019
8	ISSUED FOR TENDER	10/10/2019
9	ISSUED FOR TENDER	10/10/2019
10	ISSUED FOR TENDER	10/10/2019

APPROVED

DATE: 10/10/2019

PROJECT TITLE

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

REVISIONS

NO.	DESCRIPTION	DATE
1	ISSUED FOR TENDER	10/10/2019
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3	ISSUED FOR TENDER	10/10/2019
4	ISSUED FOR TENDER	10/10/2019
5	ISSUED FOR TENDER	10/10/2019
6	ISSUED FOR TENDER	10/10/2019
7	ISSUED FOR TENDER	10/10/2019
8	ISSUED FOR TENDER	10/10/2019
9	ISSUED FOR TENDER	10/10/2019
10	ISSUED FOR TENDER	10/10/2019

APPROVED

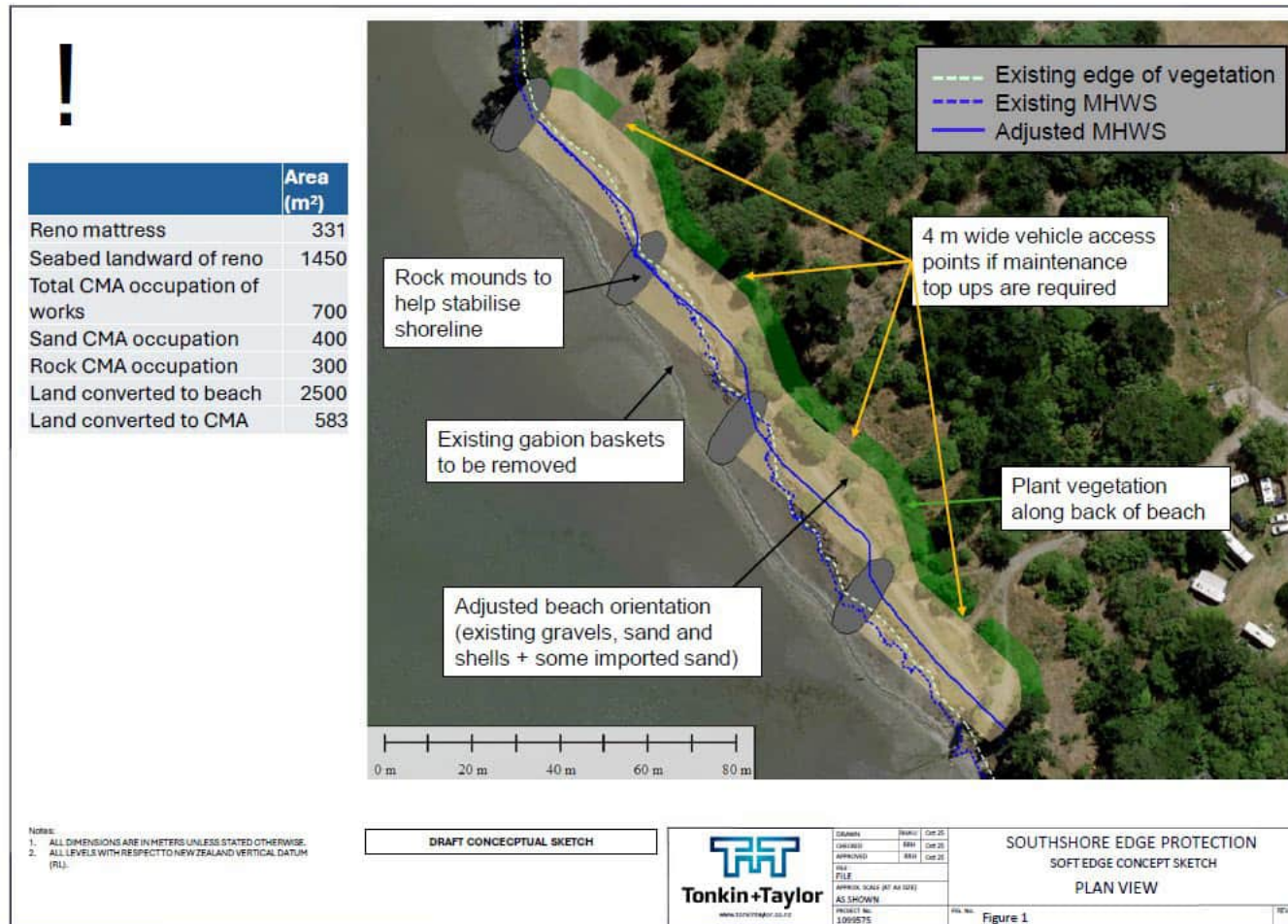
DATE: 10/10/2019

PROJECT TITLE

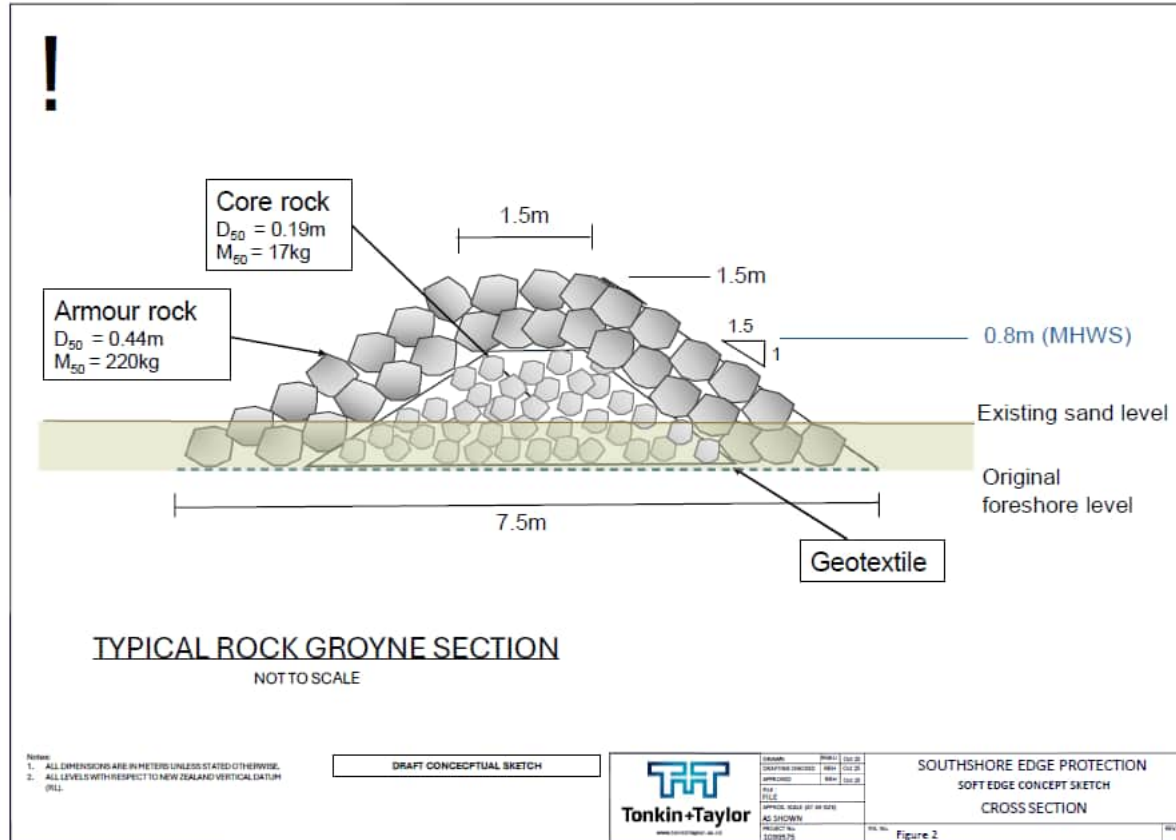
CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

REVISIONS

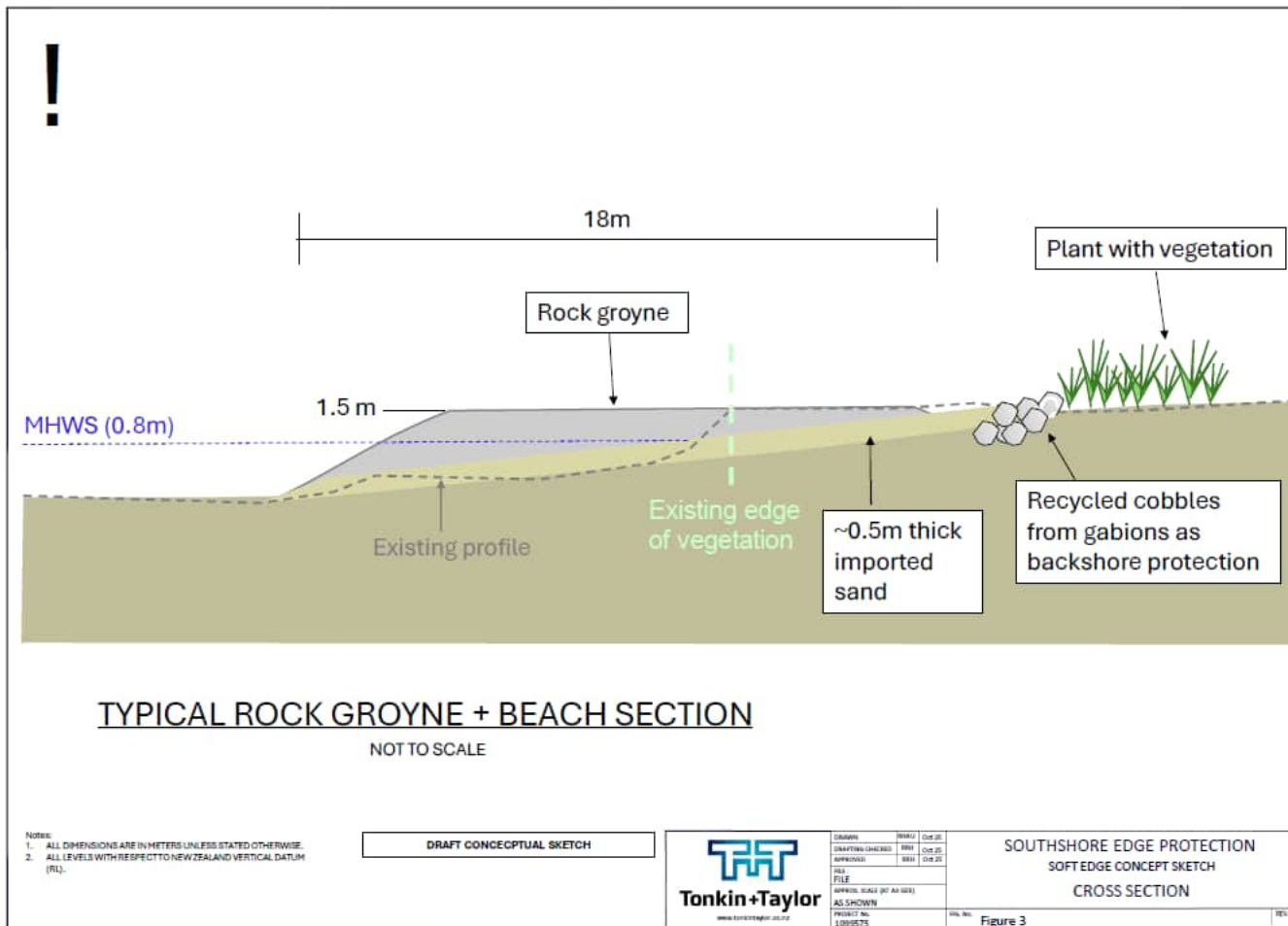
Plan CRC242268P



Plan CRC242268Q



Plan CRC242268R



APPENDIX 9 – RECOMMENDED CONDITIONS

Resource Consent CRC242269 (s15)

Applicant: Christchurch City Council

Recommended Duration: 5 Years

	Limits
1	The activities authorised by this consent must be limited to the discharge of: a. Sediment laden water associated with works undertaken in accordance with CRC242267; and b. Contaminants to land from the re-use of contaminated soil. c. Within the application site, including works within 10m of a natural inland wetland at along South New Brighton Park and Southshore Estuary Edge, shown on Plan CRC242269 attached to and forming part of this resource consent.
	Prior to the Commencement of Works
4	Prior to the commencement of the activities described in Condition (1), all personnel working on the site must be made aware of and have access to: a. The contents of this resource consent document and all associated erosion and sediment control plans and other discharge treatment methodologies; and b. Resource Consents CRC242267, CRC242268 and CRC251999 and all associated documents.
5	All erosion and sediment control measures detailed in the ESCP required by Condition (6) of this Resource Consent must be installed prior to the commencement of any earthworks or stripping of vegetation and topsoil on site.
6	At least 15 working days prior to the commencement of works on site, the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ecan.govt.nz) must be informed of the commencement of works.
	Erosion and Sediment Control
7	The discharges authorised under this resource consent must occur in accordance with an ESCP. The ESCP must: a. Detail best practicable sediment control measures that will be implemented to ensure compliance with the conditions of this resource consent; b. Be prepared by a suitably qualified person with experience in erosion and sediment control in accordance with: i. Canterbury Regional Council's <i>Erosion and Sediment Control Toolbox for the Canterbury Region</i> (ESCT), which can be accessed under http://esccanterbury.co.nz/; or c. An equivalent industry guideline. If an alternative guideline is used, the ESCP must provide details of the relevant alternative methods used and an explanation of why they are more appropriate than the ESCT; and

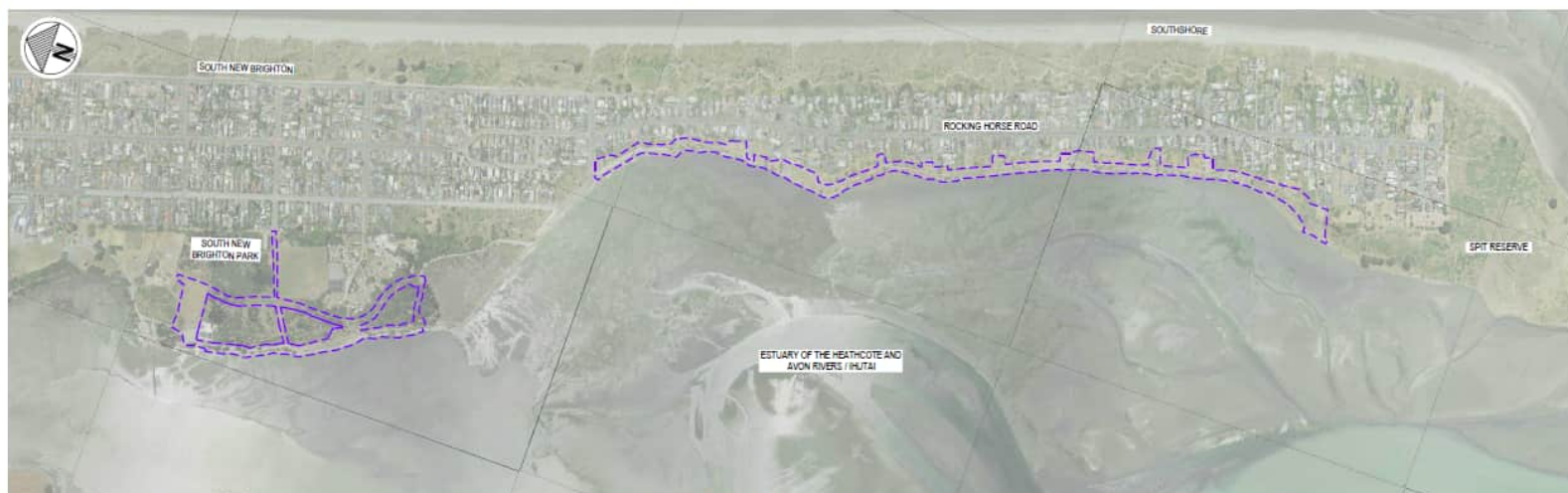
	d. Be signed by an engineer or suitably qualified person with experience in erosion and sediment control, confirming that the erosion and sediment control measures for the site are appropriately sized and located in accordance with the ESCT or alternative guideline.
8	The ESCP must: a. Include a map showing the location of all works; i. Detailed plans showing the location of sediment control measures, on-site catchment boundaries, and sources of run-off; ii. Detail how best practicable measures are taken to minimise discharges of sediment-laden stormwater run-off beyond the boundaries of the site; iii. Include drawings and specifications of designated sediment control measures, if these are not designed and installed in accordance with the ESCT; iv. Detail the methodology for stabilising the site entrance and exit points and any measures employed to prevent off-site tracking of sediment and other materials from the site; v. Include a confirmation that the erosion and sediment control devices have been sized appropriately in accordance with the ESCT; vi. Include a programme of works, including a proposed timeframe for each stage of the works and the earthworks methodology; b. Detail the management of any stockpiled material; c. Detail the inspection and maintenance of the sediment control measures; d. Detail sampling procedures and protocols; e. Define the discharge points where stormwater is discharged onto land/infiltrates into land; i. Include a description of dust mitigation to be used and details of best practicable options to be applied to mitigate dust and sediment discharge beyond the site boundary; ii. Detail the methodology for stabilising the site if works are paused for more than five working days or abandoned; iii. Detail the methodology for stabilising the site and appropriate decommissioning of all erosion and sediment control measures after works have been completed; and iv. Include measures such as Chemical Treatment Plan should the use of water treatment chemicals be required. Advice Note: <i>The use of water treatment chemicals may require additional consent under section 15 of the Resource Management Act.</i>
9	a. The ESCP must be submitted to the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz), after the commencement of the resource consent and at least 30 working days prior to works commencing, for approval that it complies with the ESCT and the conditions of this resource consent. b. The discharge must not commence until approval has been received from the Canterbury Regional Council that the ESCP is consistent with the ESCT or equivalent industry guideline as per the requirements under Condition (7)(b)(ii), and the conditions of this resource consent.

	c. Notwithstanding Condition (9)(a), if the ESCP has not been reviewed and/or approved within ten working days of the Compliance Manager receiving the ESCP, the discharge may commence.
10	The ESCP may be amended at any time. Any amendments must be: a. Only for the purpose of improving the efficacy of the erosion and sediment control measures and must not result in the reduced discharge quality; and b. Consistent with the conditions of this resource consent; and c. Submitted in writing to the Canterbury Regional Council, Attention: Compliance Manager (via ECInfo@ECan.govt.nz), prior to any amendment being implemented.
11	Erosion and sediment control measures must be inspected at least once per day as well as following any rainfall event that results in more than five millimetres of rainfall at the site. Any accumulated sediment must be removed, repairs made, as necessary, to ensure effective functioning of measures and devices. Records of any inspections must be kept and provided to the Canterbury Regional Council on request.
12	If the consent holder abandons works on-site, or pauses for more than five working days, adequate preventative and remedial measures must be taken to control sediment discharged from exposed or unconsolidated surfaces. These measures must be maintained for so long as necessary to prevent sediment discharges from the earth worked areas.
	During Works
13	All practicable measures must be taken to: a. Minimise soil disturbance to that necessary to minimise the potential for sediment-laden stormwater runoff to be generated; i. Prevent soil erosion as a result of stormwater runoff generated from the works area; b. Avoid placing excavated material in a position where it may become entrained in stormwater runoff and discharged to: i. Any surface water body; ii. Any neighbouring site; and iii. The Christchurch City Council reticulated stormwater network.
14	a. Tracking of material off-site during the works must be avoided at all times. b. In the event that material is tracked off-site, the tracked material must be removed as soon as practicable.
	Monitoring
15	a. During works and when a discharge of construction-phase stormwater is occurring, the stormwater runoff generated during the rainfall and flowing towards the discharge points into land must be visually assessed for: a. Any sheen of oil or grease or discolouration (other than discolouration from sediment); and b. Any sludge or emulsion; and b. Observations must be photographed and recorded; c. Records of visual assessments including photographs must be kept and provided to Canterbury Regional Council on request
	Discovery of Contaminated Soils or Materials

16	The works authorised by Condition (1) must only occur in accordance with the Discovery of contaminated material or soils protocols required by Condition (8) of resource consent CRC242267.
	Stockpiling of Contaminated Material
17	Stockpiling of contaminated material or soils must be undertaken The works authorised by Condition (1) must only occur in accordance with the Stockpiling of contaminated material or soils protocols required by Condition (10) of resource consent CRC242267.
	Spills
18	All practicable measures must be taken to avoid spills of fuel or any other hazardous substances within the site. These measures must include: - Refuelling of machinery and vehicles must not occur within 20 metres of: - Open excavations; - Exposed groundwater; - Surface water bodies; or - Stormwater devices. - A spill kit must be kept on site that is capable of absorbing the quantity of oil and petroleum products that may be spilt on site at any one time, remains on site at all times. - In the event of a spill of fuel or any other hazardous substance, the spill must be cleaned up as soon as practicable, the stormwater system must be inspected and cleaned, and measures taken to prevent a recurrence; - The Canterbury Regional Council, Attention: Compliance Manager, must be informed within 24 hours of a spill event exceeding five litres and the following information provided: - The date, time, location and estimate volume of the spill; - The cause of the spill; - The type of hazardous substance(s) spilled; - Clean up procedures undertaken; - Details of the steps taken to control and remediate the effects of the spill on the receiving environment; - An assessment of any potential effects of the spill; and - Measures to be undertaken to prevent a recurrence.
	Upon Completion of Works
19	Erosion and sediment control measures must not be decommissioned until the site is stabilised and the stormwater system for the developed site is functioning. Decommissioning of the measures must be undertaken in the following order: - All disturbed areas must be stabilised and/or re-vegetated as soon as practicable following completion of the works; - Any visible debris, litter, sediment and hydrocarbons must be removed from all sediment control measures and disposed at a suitable facility; and - Erosion and sediment control measures must be removed. Advice Note: <i>The use of polymers for the site stabilisation purposes, including those forming a component of hydro seeding formulas, may require separate authorisations under the Resource Management Act 1991. Further, polymers are not considered a long-term or permanent stabilisation technique and may require repeated application to ensure the site remains stabilised.</i>

20	Upon completion of works and the removal of erosion and sediment control measures, any visible sediment accumulation on impervious surfaces within or immediately adjacent to the works site must be removed to minimise the risk of sediment becoming entrained in stormwater. All sediment removed must be removed and despoised of at a suitable facility.
	Administration
21	The Canterbury Regional Council may annually. On the last working day of May or November, serve notice of its intention to review the conditions of this resource consent for the purposes of: a. Dealing with adverse effect on the environment which may arise from the exercise of this resource consent, and which is not appropriate to deal with at a later stage; or b. Requiring the adoption of the best practicable option to remove or reduce any adverse effect on the environment.
22	If this consent is not exercised before 31 March 2029, it lapses in accordance with Section 125 of the Resource Management Act 1991. Advice Note: <i>'Exercised' is defined as implementing any requirements to operate this resource consent and undertaking the activity as described in these conditions and/or application documents.</i>

SOUTHSHORE AND SOUTH NEW BRIGHTON PARK EROSION AND INUNDATION PROTECTION



LOCATION PLAN
NTS

DRAWING SCHEDULE

DRAWING NO.	DESCRIPTION
HA271200-CD-ORG-0001	COVER SHEET AND DRAWING SCHEDULE
HA271200-CD-ORG-0002	SHEET LAYOUT PLAN
HA271200-CD-ORG-1001	GENERAL ARRANGEMENT- SHEET 1
HA271200-CD-ORG-1002	GENERAL ARRANGEMENT- SHEET 2
HA271200-CD-ORG-1003	GENERAL ARRANGEMENT- SHEET 3
HA271200-CD-ORG-1004	GENERAL ARRANGEMENT- SHEET 4
HA271200-CD-ORG-1005	GENERAL ARRANGEMENT- SHEET 5
HA271200-CD-ORG-1006	GENERAL ARRANGEMENT- SHEET 6
HA271200-CD-ORG-1007	GENERAL ARRANGEMENT- SHEET 7
HA271200-CD-ORG-1008	GENERAL ARRANGEMENT- SHEET 8
HA271200-CD-ORG-2001	TYPICAL CROSS SECTIONS - SHEET 1
HA271200-CD-ORG-2002	TYPICAL CROSS SECTIONS - SHEET 2
HA271200-CD-ORG-2003	TYPICAL CROSS SECTIONS - SHEET 3
HA271200-CD-ORG-2004	TYPICAL CROSS SECTIONS - SHEET 4
HA271200-CD-ORG-2005	TYPICAL CROSS SECTIONS - SHEET 5
HA271200-CD-ORG-4001	ESTUARY ACCESS TYPICAL DETAILS

LEGEND

--- PROJECT EXTENTS

INFORMATION ISSUE
NOT FOR CONSTRUCTION

Plan CRC242269

**Christchurch
City Council**



DATE	BY	FOR	REVISION	DATE	APPROVED
12/01/2020	JAC	DESIGN	1	12/01/2020	JAC
12/01/2020	JAC	DESIGN	2	12/01/2020	JAC
12/01/2020	JAC	DESIGN	3	12/01/2020	JAC
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12/01/2020	JAC	DESIGN	18	12/01/2020	JAC
12/01/2020	JAC	DESIGN	19	12/01/2020	JAC
12/01/2020	JAC	DESIGN	20	12/01/2020	JAC

Jacobs

CONSULTANTS
1271200-CD-ORG-0001

CHRISTCHURCH CITY COUNCIL
SOUTHSHORE AND SOUTH NEW BRIGHTON PARK
EROSION AND INUNDATION PROTECTION

COVER SHEET AND
DRAWING SCHEDULE

PROJECT NO.	CH4600003899	SCALE	NTS
PROJECT TITLE	-	DATE	0001
PROJECT FILE IN NAME	-	DATE	0001

APPENDIX 10 – RECOMMENDED CONDITIONS

Resource Consent CRC251999 (s15 – discharge to air)

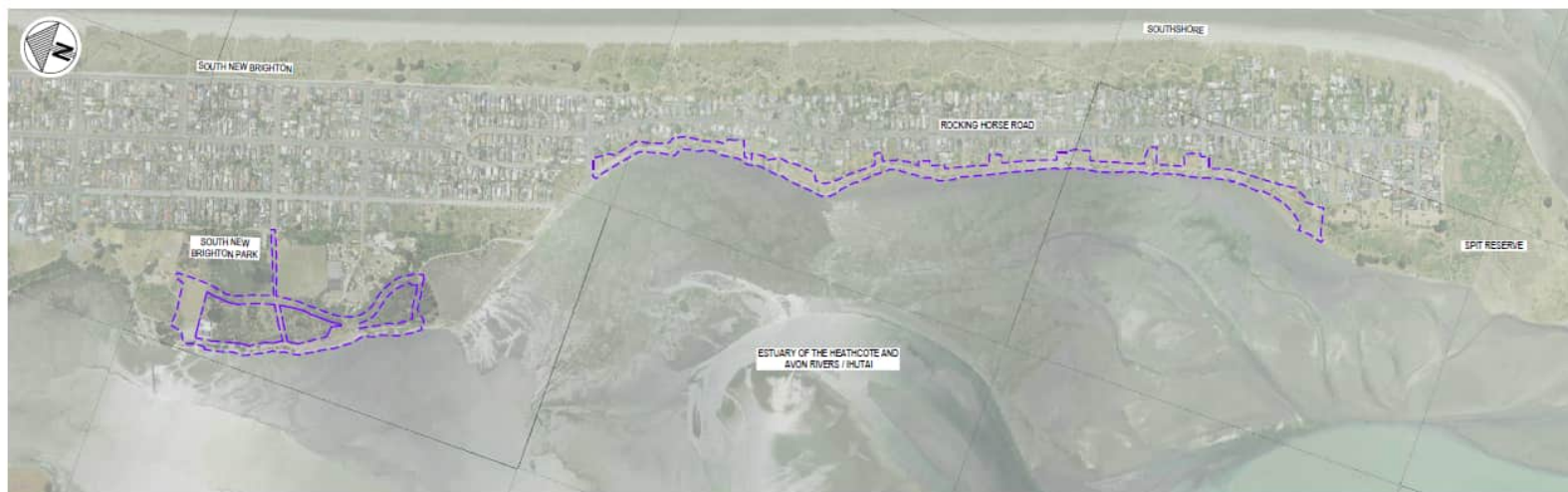
Applicant: Christchurch City Council

Recommended Duration: 5 Years

	Limits
1	The discharges to air authorised by this consent shall only be fugitive dust from unconsolidated surfaces as shown on Plan CRC251999, attached to and forming part of this consent.
	Dust Management Plan
2	The earthworks and storage activities must occur in accordance with the Dust Management Plan (DMP). a. The DMP must be submitted to the Canterbury Regional Council, Attention: Compliance Manager, at least 15 working days prior to works commencing. b. The DMP must detail the best practicable dust management measures that will be taken to ensure compliance with this consent, including but not limited to: i. A description of the activity that will result in the discharge of contaminant to air; ii. A description of how often the contaminants will be discharged; iii. A description of the intensity and character of the discharge; iv. A description of the maximum duration of the effect of the discharge; v. A description of the offensiveness of the discharge; vi. A description of the location of the discharge, including a description of the activities that occur on neighbouring properties and locations of any sensitive activities that may be affected; vii. An explanation as to how any adverse effects on sites that are sensitive to Ngai Tahu, such as statutory acknowledgement areas, silent file areas, or wahi tapu or wahi taonga are to be managed; and viii. A description of the management practices being implemented to minimise the discharge or the effects of the discharge of contaminants.
	During Works
	The consent holder must take all practicable measures to prevent the discharge of dust from excavations. This shall be by means that include, but are not limited to: a. Wetting the open excavation area, and any unsealed areas, as required; and

	b. Minimising drop heights.
	The consent holder must take all practicable measures to prevent the discharge of dust from stockpiles. This must include, but not limited to: a. Limiting stockpile height to a maximum 5 metres; and b. Spraying stockpiles with water as required.
	The consent holder must ensure that there is no discharge of dust, which is offensive or objectionable beyond the boundary of the property on which the consent is exercised.
	Records
	A record of complaints relating to dust must be maintained, and must include: a. Location where the dust was detected by the complainant; b. Date and time where the dust was detected; c. A description of the wind speed and wind direction when the dust was detected by the complainant; d. The most likely cause of the dust detected; e. Any corrective actions undertaken by the consent holder to avoid, remedy or mitigate the dust detected by the complainant; and f. The record must be provided to the Canterbury Regional Council upon request.
	Administration
	The Canterbury Regional Council may, once per year, on any of the last five working days of May or November, serve notice of its intention to review the conditions of this consent for the purposes of: a. Dealing with any adverse effect on the environment which may arise from the exercise of this consent; or b. Requiring the consent holder to carry out monitoring and reporting instead.

SOUTHSHORE AND SOUTH NEW BRIGHTON PARK EROSION AND INUNDATION PROTECTION



LOCATION PLAN
NTS

DRAWING SCHEDULE

DRAWING NO.	DESCRIPTION
IA271200-CD-ORG-0001	COVER SHEET AND DRAWING SCHEDULE
IA271200-CD-ORG-0002	SHEET LAYOUT PLAN
IA271200-CD-ORG-1001	GENERAL ARRANGEMENT- SHEET 1
IA271200-CD-ORG-1002	GENERAL ARRANGEMENT- SHEET 2
IA271200-CD-ORG-1003	GENERAL ARRANGEMENT- SHEET 3
IA271200-CD-ORG-1004	GENERAL ARRANGEMENT- SHEET 4
IA271200-CD-ORG-1005	GENERAL ARRANGEMENT- SHEET 5
IA271200-CD-ORG-1006	GENERAL ARRANGEMENT- SHEET 6
IA271200-CD-ORG-1007	GENERAL ARRANGEMENT- SHEET 7
IA271200-CD-ORG-1008	GENERAL ARRANGEMENT- SHEET 8
IA271200-CD-ORG-2001	TYPICAL CROSS SECTIONS- SHEET 1
IA271200-CD-ORG-2002	TYPICAL CROSS SECTIONS- SHEET 2
IA271200-CD-ORG-2003	TYPICAL CROSS SECTIONS- SHEET 3
IA271200-CD-ORG-2004	TYPICAL CROSS SECTIONS- SHEET 4
IA271200-CD-ORG-2005	TYPICAL CROSS SECTIONS- SHEET 5
IA271200-CD-ORG-4001	ESTUARY ACCESS TYPICAL DETAILS

LEGEND

--- PROJECT EXTENTS

INFORMATION ISSUE
NOT FOR CONSTRUCTION

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