

Section 42A Officer's Report: Hearing of resource consent application by South Port; Bluff Harbour Dredging and Disposal

• Prepared for

Report by Hamish Peacock
For Environment Southland

• March 2022



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Hearing of Application

Application: South Port Limited ("South Port") being **APP-20211362**

Notification: The application was publicly notified on 11 December 2021, submissions closed on 31 January 2022 and 9 Submissions were received.

Hearing: The hearing is scheduled to commence at 9.00 am on Monday 12 April to 14 April 2022, unless concluded earlier.

Executive Summary

South Port New Zealand Limited ("South Port") has applied to Environment Southland for resource consents relating to dredging and disposal of dredged material in the coastal marine area. The works include:

- ∴ Dredging soft sediment from the upper Bluff Harbour;
- ∴ Drilling, blasting, and breaking hard rock in the bed of the harbour;
- ∴ Dredging/excavating that hard rock onto vessels; and
- ∴ Disposal of both types of materials to two sites in Foveaux Strait, offshore of Tiwai Peninsula.

South Port's proposal is to dredge and remove seabed materials to targeted depths of 9.7 m chart datum (CD) in the harbour entrance channel, 9.45 m CD in the swinging basin and 10.7 m CD in the Island Harbour berth basins. Figure 1 in this report illustrates the locations and boundaries of the dredging works.

The application (reference **APP-20211362**) is for the following coastal permits:

- ∴ **Coastal Permit** to dredge soft sediment from the swinging basin and from the Island Harbour berth basins 3, 4, 5, 6, 7 and 8;
- ∴ **Coastal Permit** for the disturbance and removal of the seabed/rock through breaking, drilling, blasting and dredging of rock material from rock outcrops within the harbour entrance channel and from the margins of the channel; and
- ∴ **Coastal Permit** for the discharge and deposition of up to a maximum volume of 120,000m³ of soft sediment and 40,000m³ of rock at two disposal sites located in Foveaux Strait offshore of Tiwai Peninsula. The soft sediment and the hard rock material is to be disposed seaward of Tiwai Peninsula.

South Port proposes to utilise existing permits and supplement these with additional new permits now sought, which collectively (if granted) will authorise the suite of proposed works.

Location: The seabed/Coastal Marine Area within Bluff Harbour and Foveaux Strait south and east of Tiwai Point (offshore of Tiwai Peninsula).

Legal description: Crown land comprising seabed.

Existing permits:

South Port's existing authorisations/permits have different expiry dates in comparison to the term sought (10 years) by the above listed applications. Essentially, this provides different planning horizons as to when the work could be undertaken and differing intervals of the works.

The consents sought potentially could result in a term of April 2022 to April 2032, whereas the expiring of the existing authorisations includes:

- ∴ Deemed Coastal Permit under s.384(1)(c) of the RMA. This permit allows South Port to remove any blasted or fragmented rock that remains in the channel from the previous capital dredging campaigns in the 1970s and 1980s,

The Deemed Coastal Permit has had a legal opinion from South Port (through Chapman Tripp) and a legal peer reviewed by ES (through Wynn Williams). These legal opinions concluded that the Deemed Coastal Permit is valid (Appendix I provides those legal opinions); and

- ∴ Coastal permit 201285-V2 that consents the maintenance dredging and deposition of a maximum of 20,000 m³ of soft sediment per annum with an annual average volume of spoil not exceeding 12,000 m³ over the term of the permit. The permit expires on 2 December 2037.

For the purpose of the consent application, South Port has referred to the sought consents, as “**Capital Dredging**” and all other existing authorised/permitted works as “Maintenance Dredging”. The term of consents being sought is 10 years, with the programme of physical works restricted to 8 months each calendar year (restricted to February to September). The applicant has noted that they want the provision to perform the works over 24 months from commencement as a contingency.

The application outlines the potential to give effect to the Deemed Coastal Permit, the Maintenance Dredging Consent (Coastal permit 201285-V2), and the sought consents to achieve the depths required. The consents seek permission to excavate to the targeted depths beyond expiry of the Deemed Coastal Permit.

Key effects, concerns, risks and recommendations of the proposal are:

- (1.) The cumulative environmental effects, potentially as a result of the timing/programming (duration of consent) of the works involving existing consents/permits, and also the sought consents;
- (2.) The potential effects and risk to the environment in undertaking the works with adaptive methods (management plans), and the nature of that risk profile and ability or inability to manage the risks;
- (3.) The coastal process, and coastal ecology effects, as addressed in specific findings from the technical audits. Those findings are predominantly associated with the need for monitoring/validating the assessments prior to works commencing, the reliance on management and adaptive management plans, and risks and uncertainties of associated effects;
- (4.) The suite of conditions of consent are intended to provide certainty that the effects on the environment can be adequately managed. However,

significant work to develop the conditions is necessary to address some uncertainties and make the mitigation more robust; and

- (5.) Changes to the application and AEE overtime have created further uncertainty. The applicant has prepared an AEE, a suite of Technical Memos and proposed conditions of consent. As the proposal evolved over time, updated versions of the AEE occurred with consequential changes needed to confirm AEE findings. This might continue as I understand that the applicant has engaged with submitters in opposition subsequent to the close of submissions. I do not have visibility around the outcomes of such subsequent engagement and hence this report is based on the content of the application and supporting documents as publicly notified.

The technical audits commissioned by Environment Southland as the consent authority, and produced in developing this s.42 A Report, are central to the findings and each memo (the appendices to the AEE) covers:

- ❖ Mr Todd (Coastal Scientist); Coastal processes and associated effects (Appendix A);
- ❖ Mr White (Coastal Ecologist); Coastal ecology (Appendix B); and
- ❖ Mr Smith; Coastal geology (Appendix C)

The key policy provisions are those from the New Zealand Coastal Policy Statement (NZCPS), the Regional Policy Statement (RPS), and the Regional Coastal Plan (RCP). The RCP is old, and not altogether reflecting some of the more modern expectations of effect management, or management of delivery of complex consents, such as being sought by way of this application. However, some key provisions such as Policy 3 of the NZCPS seeks a precautionary approach, and Policy 10.1.1 of the RCP to avoid, remedy or mitigate the disturbance of the seabed when dredging and excavation in the CMA. These matters are evaluated within this report.

My recommendation is that the proposal warrants consent, but on the basis that changes to the conditions are made to address risks, uncertainty, and effects on the environment, including potentially financially bonding the applicant for the performance of certain conditions. I have also recommended the term be reduced from 10 years to 5 years (and a 5 year lapse period) to bring a real focus to programming the work thereby reducing cumulative effects on coastal ecology.

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1.0 Introduction

1.1 About the author

My full name is Hamish John Peacock. I am a Technical Director (RMA/Environmental Planning) at Pattle Delamore Partners Ltd (PDP) where I have worked since 2019.

I have a bachelor's degree in resource studies from Lincoln University where my focus was on urban and regional planning. I have 25 years' experience in resource management, having worked for Waimakariri District Council in consent processing, and for the past 23 years as an environmental consultant in the South Island.

I have hearing experience from other quasi-judicial hearings, the Environment Court and Environmental Protection Authority, including mediation and conferencing.

I have other experience in coastal works, including the development of Waitangi wharf and reclamation, (Chatham Islands), Port Flowerpot (Pitt Island), reticulation (wastewater) across Lyttelton Harbour and wastewater discharge permits into harbours (Lyttelton, Akaroa), and dredging and disposal consents associated with Oamaru Port. I also have experience in acting for the West Coast Regional Council in processing the notified consents for Mohikinui Hydro Proposal (Meridian Scheme) which required consideration of sediment transport and coastal processes impacting on the coastal erosion and/or replenishment. All of these projects have contributed to my understanding of coastal environments, ecology and processes.

I have read and agree to abide by the Environment Court's code of conduct for expert witnesses¹.

For the purpose of this application, I have co-ordinated the technical inputs from Environment Southland engagements of those technical specialists, and within this report I have outlined where we have worked together to inform the assessments, conclusions and recommendations.

1.2 About this report

1.2.1 Consultant's report prepared under section 42A of the RMA

The contents and recommendations of this report are not to be construed as Council policy.

¹ Environment Court of New Zealand Practice Note 2014, Section 7.1.
<https://environmentcourt.govt.nz/about/practice-note/>

The recommendations of this report are not binding on the commissioners hearing the application and making any decision under delegated authority.

1.2.2 Purpose and commissioning

Section 42A provides for a consent authority to commission a consultant to prepare a report on information provided by resource consent applicants and submitters.

The purpose of this report is to assist the Commissioners with:

- ∴ Considering any directions or requests that might be made before at the hearing (s 41C);
- ∴ Considering and determining the application (ss 104 through to 107); and
- ∴ If the requested consents are to be granted, setting any conditions on the consents (s 108).

1.2.3 Status as evidence

Once circulated to the parties, this report is to be treated as evidence before the hearing. Whilst it is my report as a planning expert acting as an expert witness, the report has no higher status than any other evidence provided to the hearing. As described in section 1.2.1, the report's recommendations are not binding.

1.2.4 Pre-circulation of evidence

Section 103B requires any evidence to be heard at a hearing, including any report prepared under s 42A, to be provided at least 15 working days before the hearing to the applicant and every submitter who wishes to be heard. This report will be provided to the parties in accordance with that timetable.

1.2.5 Information relied on in preparation of this report

In preparation of this report, I have had regard to the following documents:

- ∴ Resource Management Act 1991;
- ∴ The national and regional statutory plan provisions;
- ∴ The technical audits (Appendix A, B, C);
- ∴ The application, and its appendices;
- ∴ The s.92 response and collaborative workshop outcomes; and
- ∴ The submissions filed, as summarised in Table 2.

While no audit of the adverse effects of the exercise of the existing permit, or of the use of the Deemed Coastal Permit has occurred, it is important to distinguish that those authorisations are of a far smaller scale and nature to what is being sought in this proposal. As there is little monitoring and reporting of

environmental effects from those existing authorisations, as authors to this s.42A report and technical auditors, we have not been able to rely on such previous monitoring (lack of evidential basis).

2.0 Application, submissions and procedural matters

2.1 Process

South Port first applied for resource consents for the proposed works in 2020. That application did not satisfy s.88 RMA nor the Schedule 4 of the RMA and was returned with a list of reasons (Appendix D).

The current application was lodged and accepted for processing in September 2021. The process followed to date is outlined within Table 1.

The applicant requested public notification.

Table 1: Summary of Process			
Date	What	Who	Status
10/9/2021	Revised Application Lodged (following Rejected Application)	South Port	Replaced on multiple occasions to the Revised and Notified Application 9/12/2021
14/9/2021	Email confirming Public Notification of the Application	South Port	Process – Public Notification
4/10/2021	Section 92 Request for Further Information	ES Consultants	Appendix E (left hand column)
5/11/2021	Draft Response	South Port	Reviewed as part of the ES-South Port workshop
15/11/2021	Site inspection	Consultants to ES ²	Completed prior to the workshop
15/11/2021	Workshop s.92 Matters	ES staff and Consultants to ES, and South Port and it's consultants	Completed

² Due to COVID-19 Restrictions in Auckland this inhibited Steve White undertaking site inspections.

Table 1: Summary of Process			
Date	What	Who	Status
1/12/2021	Finalised Response	South Port	Provided in Appendix E (Centre and Right Hand columns).
9/12/2021	Updated application – ready for Notification	South Port	Replacement Application attributing to the s.92 matters incorporated into the Revised and Notified Application
9/12/2021	Submission Period, advertised on 11/12/2021, with 1 working day on 13/12/2021, open to 31/1/2021	Environment Southland	Notification
31/1/2022	Close of Submissions	Environment Southland	Completed
10/2/2022	Summary of submissions	Environment Southland	Refer Section 5.0
22/3/2022	s.42A Report Issued	Environment Southland and its selected consultants	This Report Issued 22/3/2022
12-13/4/2022	Hearing scheduled	All	Current

As depicted in Table 1, this consent process has been extensive, and has involved subsequent iterations of the application by South Port and their consultants. Collaboration between the applicant (and its consultants) and Environment Southland (and its consultants) has occurred. The workshop on 15/10/2021 proved very valuable, almost taking the form of conferencing on certain topics, allowing the applicant and their consultants to enhance the revised application so that it was ready for notification, and addressing most of the consent authority questions and enquiries as far as was reasonably possible.

My evaluation of this consent process is that Environment Southland has positively engaged throughout this process, and that has correspondingly been the case for South Port and its consultants. I would also evaluate that South Port have consulted extensively, evident by the support contained within Appendix 18 of the application, and submissions in support.

I do not consider the iterations of the application has led to changes to the fundamental scope of what is proposed.

2.2 Summary of the proposal and application

I have outlined the proposal at a high level in the Executive Summary. This section details the most specific elements as it relates to the actual and potential environmental effects, and the mitigation provided in the application (proposed conditions of consent – Section 7.2). There are numerous maps within the application, of which I have found Figure 1 (snipped below) from Appendix 6 most useful to understand the three locations of differing depths of dredging and the locations of the disposal. The other most useful information is from the cross sections of the channel where drilling, breaking and blasting is to occur from Figure 2-5 (body of Application) as an example, and the multiple cross sections within Appendix A of Appendix 22 (Geotechnical Report).

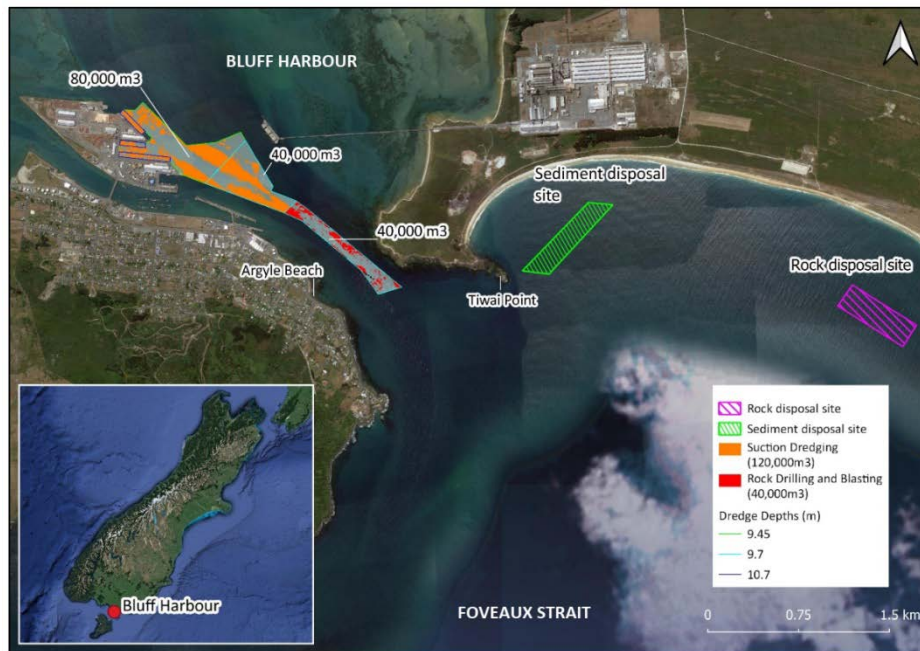


Figure 1: Reproduced Site Plan from Appendix 6 of application

Without repeating the entire proposal from the application, and that described in the Executive Summary, the proposal in a succinct form is:

- (1) To utilise existing permits and supplement these with additional new permits. The new (Capital Dredging) permits seek a 10-year term, but a programme restricted to 8 months (1 February to 30 September each calendar year), for a total actual works duration of 24 months;
- (2) Dredge soft sediment from the upper Bluff Harbour (120,000 m³)³;
- (3) Drilling, blasting, break hard rock in the bed of the harbour (channel) (20,000 m³)³;
- (4) In respect to the depth of "Capital Dredging"; the current swing basin depths of 8.2 – 9.4 m CD will be deepened to a target depth of 9.45 m CD, and Island harbour berth basins from 9.5 -10.7 m to a target depth of 10.7 m CD by the use of a trailer-suction dredge;
- (5) The deepening of the entrance channel from current depths of 8 - 9.7 m to target depth of 9.7 m;
- (6) Perform some pre-works trials of item (3) above before commencing;
- (7) Through use of hopper vessel/barge to dispose of the materials ((2) and (3)) in the locations illustrated in Figure 1 (located in Foveaux Strait offshore of Tiwai Peninsula). Both the rock disposal and soft sediment areas are approximately 130,000 m² each; and
- (8) Perform a variety of monitoring of the environment, and sensitive receptors, including the use of a variety of management plans.

2.3 Proposal and Environment Evaluation

My evaluation of the proposal, site inspection and my understanding of the Bluff Harbour and coastline is that the harbour is very much a working port. A "working port" includes past dredging, wharf structures, loading facilities, and vessel maintenance, set within a modified environment that has elements of natural ecology, coastal processes, a community and business activities, facilities and associated activities such as boat ramps, rowing, crayfish pots and recreational fishing. To date the co-existence of the Port and its operations amongst the aforementioned activities have had limited conditions, monitoring or reporting.

This working environment highlights that South Port have not avoided environmental effects but undertaken that work under the less onerous authorisations, allowed for by prior decisions, including s.384 of RMA. My key observation is that historically, the harbour has been subject to past

³ The total area of (2) and (3) is 650,000m² in area, of which 38,000 m² of subtidal rocky reef habitat will be removed from the entrance channel.

dredging, including blasting of bedrock to provide greater draught for safe(er) navigation of vessels to and from the harbour, berthing and development of the wharf facilities which has not avoided consents. This site context and the associated activities might “be at odds” with some more modern policy provisions for managing the coastal environment. My evaluation is that there has been an emphasis on this environment to be a working harbour and port foremost, and the environment being a highly turbid, dynamic environment relative to the tidal influence and natural processes (strongly) linked to the Foveaux Strait, with ecology that largely has thrived in these environments.

I have evaluated from Appendix 18 of the application (letters of support) that South Port have a central role within the Bluff settlement and the wider region in terms of social, economic and cultural impacts (many positive impacts). This illustrates the number of interested stakeholders in support of the application to benefit their interests. This has possibly led to why South Port have adopted a proactive consultative approach and the heavy reliance on a Communication Plan in the proposed conditions of consent, to keep the stakeholders to their business, and the community they work with (and employ) supportive of the consent application. The Communication Plan intends to keep affected and interested persons informed, and to manage expectations prior to and during the works. This may mitigate some of the potential effects on, or concerns from, stakeholders and interested persons.

The capital dredging of soft sediment from the mid-to-upper harbour and around the berths and swing basin is proposed to comprise of 120,000m³, and then 40,000m³ of rock from the channel. Andrew Smith (PDP), E3 Scientific, and Geosolve Geotechnical have provided clarity regarding the source and character of fine particles contained within these materials. The key consideration here is the influence of the upstream catchment with delivers some of the sediment, and that sediment which is brought into the harbour through the coastal processes and tidal action from Foveaux Strait and weather conditions. I concur with the descriptions provided in the application and that identified by the applicant's consultant geologist (GeoSolve Geotechnical) and Mr Smith (technical auditor). I also concur that with the described hydrodynamics of the catchment, harbour and Strait. I recognise the environment requires maintenance dredging, and the focus of consideration is primarily the one-off capital dredging, appreciating thereafter there will be the need for ongoing periodic maintenance dredging. This will most likely result in further variations to the maintenance dredging consents, and post 2026, potential for additional consents to replace the Deemed Coastal Permit.

2.4 Reasons for the proposal

South Port provide their reasons for the need for dredging, including removing restrictions on vessel loading and safe navigation and passage through the harbour, in the application. I have no reasons to doubt this, and consider their proposed improvements are reasonable to achieve their objectives.

Section 1.2 of the application outlines the economic, environmental and social benefits of the proposal. I broadly recognise that dredging deepens and widens the passage for larger vessels, and allows vessels to pass with greater loads on a wider variety of tides. As a result of the proposal, South Port (s.92 response) predicts increased cargo volumes (10-15%), safer conditions of passage in and out of the Port, which in turn makes Bluff Port more attractive for inwards and outwards goods. The greater bulk carrying (e.g., loads and wood) capacity will potentially result in secondary benefits from the land transport changing more from trucks to rail, decreasing road safety issues. Within Section 1.2 of the application a paragraph also outlines the importance of the Port should Rio Tinto operation at Tiwai cease. This may attract new industry and opportunities which the port may be in a better position to support with the Capital Dredging completed.

My evaluation of these purposes (and benefits) is they all seem logical, and I have no reason to speculate whether or not this project is necessary. Furthermore, one submission (Forest and Bird) has suggested that sea-level rise could avoid the need for the project. My expectation is that sea level rise due to climate change might take considerably longer to afford the draught clearance sought by South Port. In lieu of dredging and sea level rise, I understand that South Port does not fully load vessels and their operations are restricted to high tide (safer) passage through the harbour and harbour mouth, compromising their effective operations and flexibility for users.

2.5 Reasons for the consent application

The proposed works require resource consents under the **Regional Coastal Plan**.

Rule 10.1.2 of the Regional Coastal Plan provides for a controlled activity for dredging, and associated drilling, blasting and tunnelling, in any 12 month period where:

- (i) the volumes are less than or equal to 50,000 m³; and
- (ii) extraction from areas of less than 4 ha; and
- (iii) extending less than 1,000 m over foreshore and seabed.

My evaluation is that the proposal exceeds all of these controlled rule standards. Therefore, consent is required under **Rule 10.1.3 [Capital Dredging of Seabed] as a discretionary activity**.

Rule 10.1.5 of the Regional Coastal Plan has a discretionary activity (DA) status for where Rules 10.1.1 and 10.1.2; drilling and tunnelling of the foreshore and seabed activities cannot be complied with. Rule 10.1.1 and 10.1.2 deals with Capital Dredging in the Bluff Port Zone through the same standards as 10.1.2 (noted above).

Rule 10.1.6 of the Regional Coastal Plan has a discretionary activity (DA) status for where the disturbance of the seabed or foreshore is not maintenance dredging (covered in Rules 10.1.1-10.1.3), and the disturbance is not rectified within one month of completion of the activity is a discretionary activity.

Rule 7.2.2.1 of the Regional Coastal Plan has a restricted discretionary (RDA) status for discharge to coastal waters for the disposal of dredged material (soft sediment and rock). Under this RDA status it is important to understand the temperature, pH changes, the DO concentrations, visual clarity and other matters (standards) listed in Rule 7.2.2.1 *"after reasonable mixing of any contaminants or water within the receiving water and disregarding the effect of any natural perturbations that affect the water body."* Those standards can be implied as a condition of consent, whereas South Port has identified they cannot comply (i.e., >20% visual clarity at the receiving surface water), and have not used the standards within their conditions, rather relying on an adaptive management monitoring approach. In not complying with the RDA requirements, the activity status for this activity is a discretionary activity (Rule 10.2.4).

My evaluation of these rules is that the thresholds set some environmental management expectations as to the quantum of dredging and disposal, area and proximity to foreshore of dredging, and drilling and blasting activities. However it is worth noting:

- ∴ The volumes of material (120,000m³ of soft sediment and 40,000 m³ of rock) exceeds the 50,000 m³ of rule 10.1.2;
- ∴ The cumulative area of dredging is approximately 665,000 m² in area, exceeding the 4ha (40,000 m²) of rule 10.1.2; and
- ∴ The channel drilling, blasting, breaking and dredging are generally within 100-200 m of the foreshore, and then occurs up to the wharf and loading facilities on the harbour island.

More importantly, what can be taken from the reason for the consents documented in the application, is that dredging is expected at a scale as a controlled activity within the Regional Plan (underline is my emphasis added). This does not set the permitted baseline example, but rather what the plan envisaged to occur through consenting controlled activities. Furthermore, this plan rule provision is restated through the policy provisions. My view of this is that the quantum of the proposal over that envisaged by the controlled activity status needs consideration, and a strong focus on how the conditions of consent can avoid, remedy, or mitigate the actual and potential environmental effects.

While all the applications together provide for a **discretionary activity status**, the learnings from the different status can be valuable, along with the level of mitigation necessary to address the actual and potential environmental effects. This is particularly valuable for the water quality standards at the edge of a reasonable mixing zone⁴ that could be appropriate. This definition is not specifically helpful in establishing the reasonable mixing zone for the purposes of monitoring. I have addressed this matter in Section 7.3 of this report.

2.6 Resource consents applied for

The application (reference APP-20211362) has applied for the following resource consents to authorise proposed activities in the seabed within Bluff Harbour and Foveaux Strait south and east of Tiwai Point, to be exercised in conjunction with the existing consents/authorisations:

- ❖ Coastal Permit to dredge soft sediment from the swinging basin and from the Island Harbour berth basins 3, 4, 5, 6, 7 and 8;
- ❖ Coastal Permit for the disturbance and removal through of the seabed/rock through the seabed/rock through breaking, drilling, blasting and dredging of rock material from rock outcrops within the harbour entrance channel and from the margins of the channel; and
- ❖ Coastal Permit for the discharge and disposal of up to a maximum volume of 120,000 m³ of soft sediment and 40,000 m³ of rock at two disposal sites located in Foveaux Strait offshore of Tiwai Peninsula.

The locations, as outlined in the application documentation, are:

Location: Centre of swinging basin: 4829468N 1243281E

Centre of berth basins:

Berths 3 & 4	4829504N 1242725E
Berth 5	4829611N 1242626E
Berth 6	4829575N 1242530E

⁴ "Reasonable Mixing" is defined in the RCP as "The Resource Management Act requires that any standards imposed through classification or through Section 107 be met "after reasonable mixing." This implies the existence of a zone where underlying standards need not be met. The size of the zone where the water does not meet standards depends on the:

- effluent flow rate and concentration;
- design of the outfall;
- depth, velocity and rate of turbulent mixing of the receiving water; and
- ambient concentrations in the receiving water.

The size of the zone where the water does not meet standards is not fixed but varies over time with variations in the factors listed above (this information is taken directly from Resource Management Ideas No 10 "Reasonable Mixing" produced by the Ministry for the Environment).

Berths 7 & 8 4829800N 1242615E

Centre of harbour entrance channel: 4828749N 1244359E

Disposal site (sediment):

4829176N 1246514E

4829196N 1246312E

4828631N 1245765E

4828604N 1245986E

Disposal site (rock):

4828318N 1248754E

4828125N 1248607E

4827661N 1249289E

4827865N 1249428E

Legal Description of Property: Crown land comprising seabed.

Figure 2-2 of the application illustrates the dredging and rock blasting locations. The rock blasting and breaking mapping (Figure 2-5) and more regular cross sections from Appendix 22 of the application illustrate the cross sections of the extent of the channel margins where rock blasting and breaking and removal is planned to occur, additional to the existing authorisations. Figure 2-4 of the application is one of the better aerials of the sediment and rock disposal sites.

2.7 Class of activities

Overall, the application is a **discretionary activity** under Rules 10.1.3 (dredging of the seabed), 10.1.5 (drilling and blasting of seabed), 10.1.6 (disturbance of the seabed or foreshore) and 10.2.5 (deposition of dredged material) of the Regional Coastal Plan.

2.8 Further information requests and notification

Appendix E provides the questions and responses to the s.92(1) requests, that in summary are included:

- ❖ Timeframes, Scenarios of implementation of consents and programme, including implementation of existing permits and the Capital Dredging works;
- ❖ Risk Assessments;
- ❖ Ecological effects (noise, monitoring, Marine Mammal Management Plan (MMMP), blasting effects, seagrass impacts, benthic monitoring, mataitai reserve monitoring, rehabilitation / offsets);

- ❖ Proposed Conditions;
- ❖ Rock disposal (monitoring);
- ❖ Cultural effects;
- ❖ RMA (s.107 RMA matters);
- ❖ Bond;
- ❖ Geotechnical/Geology;
- ❖ Birds;
- ❖ Biofouling;
- ❖ Coastal Process, and
- ❖ General questions (frequency of vessels and anticipated demand).

One area, I have grappled with in evaluating the application, and timing of the information, has been the Cultural Impacts, which I address in detail in Section 3.7 of this report. In short, the CIA was provided on 17 May 2021, with a later CIA addendum provided on 8 December 2021. The CIA was provided on an understanding it amounted to Awarua Rūnanga's written approval. However the CIA was more of a statement of values, and the written approval was in the form of a letter and was conditional, so therefore not in a form which would generally be accepted by a consent authority as an affected party written approval. Whilst noting this, I do interpret South Port's efforts to partner (consistent with the principals of Te Tiriti o Waitangi) with Te Ao Marama Inc. on behalf of Awarua Rūnanga. I am unaware of what the MoU between these parties and South Port provides for, apart from understanding that Iwi will be trained in the mammal observation roles to ensure they are suitably experienced.

The other key notable difference between the South Port application, and what information was sought and provided through s.92 RMA, is that compared to most NZ harbour dredging consents or sediment movement consents (abstraction or deposition), South Port's approach has been to not model sediment movements.

In the November 2021 workshop it was made clear by the E3 Scientist that this was not beneficial to the project due to the dynamics of the harbour and Strait, which I understand, but is a departure to how most dredging consents weigh up coastal processes and sedimentation effects from within the harbour. This is important if sediment is to be monitored as a condition of consent, and relevant to what standards are appropriate to apply as a proxy to mitigate potential effects on those receiving marine and coastal environments.

2.9 Submissions

Following notification on 11 December 2021, submissions closed on 31 January 2022 and 8 Submissions were received, as listed in Table 2.

Table 2: Submissions received on South Port application			
No.	Name of Submitter	Oppose / Support/Neutral	Wish to be heard
1	Bluff Community Board	Support	No Response
2	Department of Conservation	Oppose	Yes
3	Matariki Forests Trading Ltd and – AVA Timber Limited Partnershiip	Support	Yes
4	Mediterranean Shipping Company (NZ) Limited	Support	No
5	Open Country Dairy Limited	Support	No
6	Royal Forest & Bird Protection Society of NZ – Dunedin	Oppose	Yes
7	Southland Chamber of Commerce	Support	No
8	Stephen James King	Support	No
9 ⁵	Robert Tawhiri Coote	Support	Yes

My evaluation of these submissions has focused on the two submissions in opposition, the evaluation of which is provided in Section 4.1 of this report.

The submissions in support all centre on the importance of the port and associated commercial and economic benefits it brings to the region, including certainty of materials and export market.

The late submission from Robert Tawhiri Coote, who performs the Harbour Pilot role for South Port (since 1995), brings to our attention the challenge of piloting large vessels within the restricted space, and the climatic and tidal context.

My elevation of the submissions in support and the supporting submission of Robert Tawhiri Coote, do not lead me to question any of their assertions within their submissions. However, those submissions in support do not examine or provide any perspectives based on the key considerations in Section 4.0 of this report, in so far as risks to the environment, marine and coastal ecology, marine geology, coastal process, cultural effects, nor policy analysis.

⁵ Late Submission received 1/3/20200 at 15:44.

3.0 Section 104 – Actual and potential environmental effects

3.1 The application and section 104(1)(a) matters

The broad approach by the applicant to address the actual and potential environmental effects has been to engage specialists where those areas are of greatest concern. This is an appropriate approach, particularly as this is a complex application. For the purpose of evaluating the AEE required under s.104(1)(a) RMA, I am comfortable with the landscape and amenity assessments, and acoustic assessment, where I have not raised specific issues within Section 4 (below). Rather than attempting to traverse every single environmental effect in this report, Sections 3.4 to 3.8 delve into greater detail of the key environmental effects considered. These key environmental effects include:

- ✧ Marine and Coastal Ecology;
- ✧ Marine Geology/geomorphology;
- ✧ Coastal Processes;
- ✧ Risks to the environment; and
- ✧ Cultural Effects.

3.2 The application and section 104(1)(b) matters

Section 104(1)(b) of the RMA requires regard to be had to any relevant provisions of national environmental standards, other regulations, a national policy statement, a New Zealand Coastal Policy Statement, a regional policy statement (or proposed), and a plan (or proposed plan). My detailed evaluation of the relevant provisions/policies is contained within section 3.8, and Appendix G.

3.3 The application and section 104(1)(c) matters

Section 104(1)(c) of the RMA requires having regard to any other matter the consent authority considers relevant and reasonably necessary to determine the application. In this report consideration has been given to the Marine Mammals Act and Te Tangi a Tauria (Sections 3.9.4 and 3.9.5.).

In respect to the scale, character, risk, and uncertainties with regards to some of the effects on the environment, I have included Section 7.5 (bonds). This is where I consider there is scope for the consent authority to have performance expectations in the form of bonds to give confidence to certain conditions or management plans, and thereby to safeguard the environment.

3.4 Consideration 1: Marine and Coastal Ecology

Much of this section is a result of evaluating Mr White's Technical Audit (Appendix A). As a precursor to my evaluation of Mr White's work, I understand that typically water quality and turbidity are one of the proxy measures used for assessing effects of dredging and deposition. In this section I raise the concerns shared between myself and Mr White on the adaptive monitoring and management plans, and focus on the aquatic ecology, bird life, marine mammals and biosecurity risks.

The application has outlined that South Port and its experts have drawn from other dredging applications (Lyttelton and Napier) on the methods to assess turbidity. However, the E3 scientist has also outlined that due to the limited baseline monitoring (single round in April 2021) and use of previous studies, that further baseline monitoring is needed to set appropriate trigger levels. I understand this is because the natural turbidity in Bluff Harbour is elevated (i.e., ranged from 0.81 to 4.4 NTU over 13 recordings between May and August 2016 (Appendix 7 of application and Attachment of Appendix 7)). For this reason, baseline monitoring is needed to calibrate what the trigger levels should be for turbidity (NTU) and secchi disc readings (Sd)(m)).

So before evaluating the environmental effects, I recognise that I don't fully know what the triggers will be for each situation; including background turbidity, weather, current and wave action, and how the dredging can move from different risk profile environments. This is why Table 2 (estimated turbidity (NTU) and water clarity (Sd) relationships in Bluff Harbour based on Baughman et al., (2015)), in Appendix 7 of the application notes that the values are only meant as a guide rather than what should be adopted into this consent, should it be granted. Mr White evaluates this matter, but does not direct us to exactly what conditions would be acceptable to enable the sustainable management of marine ecology. In the subsections of 3.4 (below), I traverse each ecological point that Mr White has considered.

3.4.1 Seagrass

My understanding from Mr White's technical audit, is that so long as the soft sediment dredging occurs on an outgoing tide, he appears satisfied that the suspended sediment will not adversely smother the seagrass. There is recognition of the conditions associated with monitoring seagrass and that forms an important basis for the conclusion reached that seagrass effects are minor.

3.4.2 Aquatic Ecology

Aquatic ecology covers species other than marine mammals (which are addressed in Section 3.4.4) including fish and seabed habitat including those sessile species inhabiting the rock surfaces and shellfish (e.g., paua).

Mr White's direction from his technical audit that I have taken consideration of, is that the effect on the bed structure and associated habitat and supporting fish species will be a loss. Mr White holds concern for the timeframe of rejuvenation of the seabed, particularly from cumulative effects and successive work programmes over multiple years.

While Mr White is silent on fish species, possibly because of the very mobile nature of them, I have assumed this is not an area of concern. I would have thought warning blasts and subsequent detonations may result in stunned fish, or loss of fish life if they are in close proximity to the blasting, but the warning blast maybe sufficient to deter fish from harm. However, this matter is raised as a challenge against condition 28 (refer to Section 7.4).

3.4.3 Avifauna / bird Life

I have evaluated based on Mr White's audit that he holds concerns for the effectiveness of Marine Mammal Observation (MMO) of seabirds and adaptive methods, and the timing of the works, potentially within the shoulder of the breeding season for the penguin. Mr White has also highlighted that "59 species were determined to have a threat categorisation of At Risk, Naturally Uncommon or above", but concedes that the potential effects of the proposal are "considered to be small".

While not an area of my expertise, I have reviewed the submissions of F&B and DoC that addressed the potential risk of the proposed activity on breeding and nesting penguins, and I note Mr White has done this too. Mr White holds concerns for the uncertainty of the consistent and reliable detection of marine mammals and seabirds such as the little penguins throughout the full extent of the Permanent Threshold Shift (PTS) and Temporary Threshold Shift TTS zones. To address this matter, I have developed a potential bond condition, and scoped how that bond could be used. I have not been helped by the lack of s.92 response to questions related to a bond, nor the workshop feedback that the applicant did not see a bond necessary. Accordingly, it has been challenging to develop an effective scope of bond focused on addressing this matter.

My understanding, and experience from having done shoreline work and submarine pipe installation consenting in Lyttelton, is that there is a risk to nesting and moulting penguins from such disruptions, particularly if penguins do not return to their nest. If works prolong, penguins are less likely to return to their nest and favour quieter, more protected locations.

3.4.4 Marine Mammals

My evaluation of Mr White's technical audit (Appendix A) is that he recognises and agrees that for Hector's dolphins, New Zealand fur seals, New Zealand sea lions, bottlenose dolphins, southern right whales, humpback whales and killer whales (orca), there is little evidence "*that the proposed works area is considered*

significant in terms of feeding, resting or breeding habitats for any marine mammal species relative to other areas within the Foveaux Strait region". Albeit, Mr White does see that there is "the possible exception for southern right whales and the South Coast South Island (SCSI) sub-population of Hector's dolphins".

Mr White notes that southern right whales mate during winter in Foveaux Strait and Hector dolphins transit through the area, including into the Bluff Port area. It might seem easy to hold concerns for and sensitise to the blasting works area and on the potential effects on marine mammals, but as Mr White also notes, the blasting works area is only a very small fraction of the general habitats available in the region (i.e., low occurrence). I take this to mean that the likelihood of the occurrence of mammals in the area is "small" in comparison to the much larger areas of ocean and coastline they can occupy. Mr white has advised me that he accepts the adaptive management approaches to MMO and potential responses documented in the Marine Mammal Management Plan, but that there needs to be greater certainty from further conditions being developed, such as additional MMO (vessels) sighting of greater distances from the blast zone.

I have evaluated from the DoC submission that there are sufficient concerns on actual or potential effects, and that there are necessary amendments to the conditions of consent. Additionally, as much emphasis is placed on the Marine Mammal Management Plan (MMMP), and the need to have more rigour in the certification of it and changes anticipated, I consider the operational actions within the management plan need to be reported more frequently, and I see the potential need for some independent audits (by Environment Southland as a regulatory authority) during the MMO operations. This is because there are blast trials, and audits of how the MMMP is being exercised to help ensure the actual and potential adverse effects on marine mammals assessed, do not eventuate.

Based on Mr White's observations, I have addressed the duration of consents elsewhere in this report, biosecurity matters (Section 3.4.5), monitoring (Sections 4.1.9 and 7.2), and risks (Section 3.8). Mr White has raised the issues of uncertainty and risks, which was a driver for the s.92 RMA process and workshop with the applicant, to better understand the risk profile(s) in respect to marine mammals and other ecological considerations.

In respect to the Marine Mammal Observers and Marine Mammal Observation Zone (MMOZ), I think much more precautionary approach could be taken as to understanding the maximum spatial extent of temporary threshold shift (TTS) and permanent threshold shift (PTS) for any marine mammal from the blasting scenarios. This is because the three blasting scenario's plotted in the application do extend out into the Strait and the mataitai reserve. Mr White picks up on this in his evaluation to suggest opportunities for further MMO, possibly through the use of UAVs/drones, which could extend the areas being monitored more effectively, which in turn addresses his concerns over uncertainty of effects on marine mammals. I have attempted to draft conditions to reflect more than one

vessel (site) of MMO is necessary, and that should be formed based on the spatial extent of the TSS and PTS.

3.4.5 Biosecurity

Mr White outlines his concerns for the further spread of the invasive *alga Undaria pinnatifida* as it has been introduced into the Bluff Harbour environment, and the proposed works may spread this further.

I anticipated this to be an issue during the s.92 RMA and workshop during which the applicant seemed content that having a biofouling requirement of visiting vessels to be sufficient. I have drafted a requirement of a Biosecurity Management Plan as a requirement by South Port (rather than a third party) on their operations, so they can impose that on all the vessels associated with these works. In developing that condition, I consider biosecurity effects are able to be managed in an acceptable way. Mr White also noted that *Undaria pinnatifida* is one of the parameters to be considered during benthic monitoring of rocky habitats within the Harbour channel and at the rock disposal site, but there is no information on what would or could be done by the applicant if it was found, other than broadly "*contingency measures and protocols to be undertaken should a biosecurity breach be detected and the actions that will be undertaken in that event.*"

3.5 Consideration 2: Marine Geology/Geomorphology

I have evaluated Mr Smith's technical Audit (Appendix C) and noted he has only a few concerns or observations. The following sections convey my interpretation from the technical audit and if that has an implication on the statutory assessments, and specifically a focus on whether there are conditions of consent Mr Smith thinks are necessary.

3.5.1 Stability of Material at Rock Disposal Site

Mr Smith notes that no assessment of the stability of the material in the disposal site is provided, also a matter raised by Mr Todd. This is in relation to mounding of the disposed material and it becoming too unstable in a mounded form. If rock is incorrectly placed (mounded too much in one location) and subsequent scour and potentially adverse coastal processes occur (i.e., from refraction of waves), then there are potential adverse coastal effects.

To address this matter, and to achieve greater uniform stability and seabed depths, the rock size and placement needs to be better managed, and I have developed conditions to assist with this.

Mr Smith also raises that over the longer term, this deposited rock material at the disposal site could become more unstable, and mobilise or be transported. I have relied on Mr Todd's expertise on coastal processes and his finding that if fragments greater than $D_{50} = 0.14$ m (rock size material) were able to be placed,

stable in the wave climate, between a depth of 13 to 15 m CD on shell hash, this would provide sufficient stability. Again, this matter can have a condition to address the potential effects of unstable deposited rock.

3.5.2 Blasting Rock

I concur that conditions would be beneficial for the rock blasting trial, and blasting plan, including reporting to Environment Southland of the findings, and how the trial informs the most effective blasting methodology. I would have thought it was in South Port's interest to minimise the detonation charge to avoid impacts on any nearby structures, vibration effects and marine environmental effects. I appreciate the approach taken is to set what the maximum charge could be to avoid effects beyond the TSS boundary, but marine mammals don't observe such boundaries, and the Blast Plan needs to have an incentive to use a charge appropriate to its performance, without having consequential marine effects.

Additionally, Mr Smith's audit briefly notes the blasting trial should also validate the noise / acoustic assessments. This is not a matter associated with geology or geomorphology but is intended by the applicant's proposal all the same.

3.5.3 Alternatives for Rock Disposal

While Mr Smith does not raise this matter in his technical audit, he asked the questions as to why South Port was not pursuing a practicable use of the hard rock as an alternative to discharging it into the CMA. Appendix D, item #13 highlights this shortcoming in terms of the s.105 RMA requirements. I have addressed this within Section 7.2 of this report.

3.6 Consideration 3: Coastal Processes

This section includes my evaluation of Mr Todd's technical audit and has focused on his key considerations of coastal process effects (coastal erosion, scour, seabed level impacting on waves, refracting and impacting along the coastline). The key areas of focus are the importance of the timing of soft sediment dredging and disposal, the management of the disposal of rock, bathymetric surveys, and greater levels of monitoring and reporting to validate the information contained within the AEE.

3.6.1 Soft Sediment Transportation

Soft sediment transportation effects up into the harbour have effects that can be avoided. The importance of dredging the berths that have higher silt content on the ebb of a tide addresses this matter, as it is recognised the tidal current in the harbour and entrance transport sediment out on the ebb of a tide. Also, I consider that the disposal of soft sediment at the disposal site needs to be a condition of consent, to ensure that the modelling and assessments of potential

effects prove to be correct. A condition controlling when sediment is deposited will enable the deposited sediment to be transported offshore into Foveaux Strait, rather than potentially re-entering the harbour.

3.6.2 Rock Disposal

Monitoring (in a grid pattern) of the management technique used when placing the rock material in the disposal site is important from an effects perspective. The hopper is reliant on tug boats moving the hopper into the correct disposal position during deposition. Minimisation of effects caused by fragments greater than $D_{50} = 0.14$ m (rock size material) is reliant on them being stable in the wave climate and, if incorrectly deposited, could mound up rocks and cause greater scour or coastal processes arising. My understanding is that the disposal shall be monitored, and the GPS position of disposal locations recorded and reported to avoid mounding. An issue may occur if the disposal results in mounding. There is no simple solution to reduce such mounding, and this is why I have developed a new condition requiring the reporting of the placement of rock (with GPS reference) to avoid the effects that Mr Todd raises.

3.6.3 Monitoring of Dredged Material

Mr Todd evaluated the technical reports in the application, and specifically notes the lack of volumes being dredged and disposed of being recorded over the last 70 years. Mr Todd does compare the 1984 Marine Chart and a 2020 bathymetric survey (Furgo) and concurs with the applicant's technical appendices in that there is no evidence of sediment build-up. Mr Todd supports the calculation that frequent long-period waves initiate transport of the disposed sediment away from the site.

3.6.4 Harbour Channel Dynamics

Mr Todd concurs with the coastal processes report (Appendix 5) as having negligible effect on tidal flows, very minor effect on wave refraction within the channel, and no effect on channel stability, based on the small channel entrance area increase. My concerns over the methods and management of blasting to achieve that, have been addressed elsewhere in this report in regard to ecological effects.

3.6.5 Disposal of Soft Sediments

I have taken on board Mr Todd's concern that a condition needs to be included in regard to the discharge of fine silts from the split hopper on the ebb tide, to ensure transport occurs in a net westward direction. An issue does remain, where Mr Todd questions the practicality to what occurs if deposition conditions significantly change. If the applicant has a hopper full, but the conditions cannot be complied with for disposal, then what does the consent holder do; wait a tidal cycle until the next ebb tide? Does that subsequently mean delays to the

programme? I have assumed that to comply with the conditions, the applicant would have to wait until the next ebb tide.

3.6.6 Bathymetric Surveys

Mr Todd observes that without modelling, and reliance on past practices, the effects of past works are not comparable to the scale of the proposed capital dredging deposits, which is an order of magnitude higher in volume (120,000 m³) within a concentrated period, compared to the maintenance dredging. The maintenance dredging is restricted to an annual average of 12,000 m³ and annual maximum of 40,000 m³. As Mr Todd reports, the changes in seabed bathymetry can occur for some time after the deposit, and those deposits which are close to the shoreline and shallow depths can cause change to the wave patterns, and corresponding changes to changes to shoreline. Mr Todd had suggested through s.92 requests and the workshop, the desire to have before and after bathymetric surveys, which I have attempted to capture by way of proposed consent conditions. The decision makers may be mindful of the potential use of bonds to have an incentive and certainty of the coastal process effects.

3.7 Consideration 4: Cultural Effects

In the absence of any independent technical audit of the CIA and Addendum, this section focuses on the cultural effects and processes by which the CIA was obtained by South Port. This section addresses some of the uncertainty as to how the proposed activities stacks up against the statutory tests. What has been provided in the application (CIA, Addendum, and assessment of statutory provisions) are, in places, at odds with the support signalled by mana whenua. Additionally, I am unaware of the acceptable risk profile to tangata whenua over the course of how South Port executes the consents, I and wish to raise this to the attention of the Commissioners.

In my evaluation, there needs to be sufficient certainty in the conditions of consent to satisfy tangata whenua. Paragraph 13 of the CIA Addendum expects an update to conditions to reflect the mitigation expected by Te Ao Marama Inc., which a significant focus of this report.

3.7.1 Process of Auditing CIA

No independent technical audit on cultural effects was undertaken through this consent review process, because the consent authority and myself were led to believe that through South Port's consultation, and information being provided by a Cultural Impact Assessment (CIA) by Te Ao Marama, there would be sufficient information to evaluate cultural effects.

3.7.2 Conditional Written Approval

Appendix 23 contains the conditional written approval of Te Ao Marama on behalf of Awarua Rūnanga. Te Ao Marama have been part of the South Port consultation, but the information provided is not an official written approval form, as it is conditional on the MoU and neither ES nor myself have been privy to the MoU or objectives both parties seek. Also, Te Ao Marama expect to see an updated version of conditions of consent, which I interpret to mean that they wish to sign off the conditions in some form of agreement between themselves and South Port. From my review I am seeking to ensure that cultural effects are suitably addressed through the consent conditions.

3.7.3 South Port's Partnering Approach

My evaluation of cultural effects based on the CIA and addendum (Dec 2020) is that through the further information sought there has been a CIA and an addendum to the CIA, which relies heavily on communication, education and participation (partnering) with mana whenua to ensure cultural effects are addressed satisfactorily against the RMA statutory tests (s.6(e), s.6(g), 7(a) and s.104 RMA).

Te Ao Marama on behalf of Awarua Rūnanga, and Ngai Tahu are supportive of the South Port application and the approach to management of actual and potential cultural effects. I am comfortable and accepting that they may consider all cultural effects are acceptable, but their acceptability is conditional, so not a formal Affected Person Approval. The key to understanding cultural effects sits with the CIA addendum, which states "*Awarua understand that this application will affect Iwi values, **the activity is one that isn't able to be mitigated** but we also understand the need for this project to be undertaken and that South Port are committed to working together throughout the project*" and "*the Cultural Impact Assessment identified that the project had the **potential for significant effects** on our values, rights and interests.*" The other key learning of cultural effects (Rangatiratanga and Kaitikitunga, Mauri, Mahinga kai, Tauranga Waka), is the importance of relationships and collaborative working between parties, which appear to me of a higher priority to assist with managing the cultural effects. This has been documented in the outcomes and mitigations in the addendum to the CIA and the importance of "***the adaptive marine management plan** that has the ability to alter the activity if an adverse effect is found on cultural values, rights and interests*" (para 4 of CIA Addendum).

However, the risks to the marine environment and aquatic life within could have consequential cultural effects, and this is where I am less sure the reliance on conditions of consent satisfying the cultural values identifies in the CIA, as the risk assessment in the CIA addendum has competing interests (between environmental effects and cultural effects). This is because I am unaware of the acceptable risk profile to tangata whenua through the course of how South Port

executes the consents, and how acceptable adjustments to the adaptive management plan and the MMMP might be to tangata whenua. This uncertainty is evident in the s.92 questions and responses (Appendix E) and I am concerned the CIA did not actually provide an impact assessment in terms of actual or potential cultural effects. This concern may expose my lack of experience in cultural assessments, however from my past experience, I have not had mana whenua perform some of the monitoring works, nor such a heavy reliance on communication plans addressing mana whenua cultural concerns.

3.7.4 Converting CIA to Conditions of Consent

I have attempted to include some of the cultural mitigations from Table 1 of the CIA Addendum into the Conditions of Consent (Section 5.1), which the Cultural Health Index, a pilot Kaupapa Māori monitoring programme within the harbour, baseline studies for all water quality effects and health status of paua and reef habitat, all assist to ensure cultural effects have been considered and are managed. However, this may require validation from Te Ao Marama on behalf of Te Runanga o Awarua to ensure this satisfies their expectations.

My interpretation of the CIA (Appendix 16) and the CIA Addendum is while there is support from Te Ao Marama, there needs to be sufficient certainty in the conditions of consent. Paragraph 13 of the CIA Addendum expects an update to ensure the potential for adverse cultural effects are suitably mitigated. In developing those conditions, it is assumed to satisfy the matters raised in the CIA, that will give certainty to the decision makers to meet the statutory tests (s.104, s.6(e), s.7(a) and s.8 RMA). This is slightly complex due to Te Ao Marama recognising the important function of tikanga and values relating to whanaungatanga and manaakitanga to ensure that relationship between South Port and tangata whenua are formed, respected and upheld. This has conditions which rely on third parties (i.e., marine mammal observers from tangata whenua) which, while volunteered as a condition, the consent authority has little certainty as to the effectiveness to satisfy iwi. Nor can the consent authority condition the effectiveness of the relationship, which amongst other matters, is an outcome sought (para 11 of the CIA Addendum).

3.7.5 Sensitive Cultural Areas

I reviewed the maps that plotted the location of the Motupōhue Mātaitai Reserve in relation to the dredge and disposal zone to ascertain the proximity of effects on the receiving environment (circa 700 metres⁶). The Fisheries (Declaration of Motupōhue Mātaitai Reserve) Notice 2014, cites regulation 20 of

⁶ The MMMP recognizes in Section 3 that blasting activities can potentially lead to permanent threshold shift at ranges up to 800m from the noise sources for noise sensitive species such as Hector's dolphins, whereas rockbreaking has a smaller acoustic footprint of 175m for Hector's dolphins. Blasting can lead to TTS within 2000m from source to baleen whales (low-frequency cetaceans).

the Fisheries (South Island Customary Fishing) Regulations 1999 in regards to the establish of the mātaimai reserve. This includes it must recognise the *“special relationship between the tāngata whenua ... and the proposed mātaimai reserve”*. My understanding and experience (from working in Lyttelton Harbour) of the framework of the mātaimai reserve is that the reserve sets out the aims of management in respect to sustainable fisheries, and traditional fishing grounds to be effectively managed by tāngata whenua. Appendix 16 (CIA) of the application includes Figure 2 (regulatory framework) that helps inform Te Ao Marama, but that does not recognise the Fisheries Regulations, nor this specific Fisheries (Declaration of Motupōhue Mātaimai Reserve) Notice 2014. However, page 27 of Appendix 16 (CA) does state the fact of the Motupōhue Mātaimai Reserve, and importance of strong traditions of mahinga kai, occupation and use. However, apart from turbidity monitoring from either end of the dredging area and near sensitive habitats (including the mātaimai), benthic monitoring of the drilling and blasting sites, and a pāua relocation programme, there remains little consideration of what impact the works will have on the maitaitai. I struggled with this in reviewing the CIA, as the importance of mahinga kai is raised numerous times, and (page 26 of the CIA) states:

“Ngāi Tahu have lost a lot of their traditional food gathering places in the Murihiku Region due to a variety of reasons such as modification to waterways including the coastal marine area, pollution discharges and ability to access areas.”

3.8 Key Consideration 5: Risk to the environment

This section has been provided as a result of s.92 RMA questions and answers regarding risks, and a Risk Assessment (Table 5-2) of the application attempting to quantify risks. This risk to the environment focuses on potential effects that might occur when South Port give effect to the proposal. The applicant's approach to risk assessments draws from the AEE, rather than justifying the likelihood, consequence, and mitigation (i.e., the manner to address the risks to the environment). The key risks that I consider for this application are that of timeframe(s) to give effect to the capital dredging works, the risk of noise and vibration from blasting works, the ecological risks (marine mammals, birds, and aquatic ecology), and the coastal process risks.

3.8.1 Risk Context

In Section 2.3 of this report, I recognise the working nature of the port and its environments, and the applicant has set the risk assessment on a profile (included in the s.92 response and Table 5-2 in the application) to recognise that there have been previous dredging programmes and rock blasting to deepen the channel for vessels. The risk assessment in the application is contained within Appendix H of this report, with my evaluation of that risk against each key risk items.

My evaluation of the risk assessment in the application is that it is a reasonable attempt to classify each and every element of the key risks. However, the risk table does not go so far as to justify those classification, nor address the longer term coastal or ecological risks, or likelihood or consequences of imperfect execution of the consents, including the cumulative effects (inclusive of the existing authorisations). An example of this is within the MMMP (Appendix 9), where section 3.1 addresses the potential for adverse effects, and the unmitigated likelihood of underwater noise from blasting and rock breaking operations impacting on marine mammals which assesses that activity as a **moderate to high with potentially significant impacts**. Then Section 3.1 of the MMMP describes the control measures for operations (i.e., the mitigation), and some of the exhaustive measures needed for the Best Practicable Option (drilling, breaking and blasting), methods to characterise noise, the establishment and operational MMOZ, the requirements of MMO personnel, and recoding of sightings, the practices for vessels, avoiding noises, strikes, entanglement. I am unsure if Appendix 1 (Proposed Conditions of Consent) of the application contained the set of conditions provided to Mr Beale in 2021, as noted in section 3.3 of the Appendix 9 (MMMP).

This is an example where the risks assessed places a huge amount of emphasis on the MMMP, rather than performance conditions of the MMMP being exercised. To this matter, I am concerned, without specific conditions focusing on the performance of the MMMP, that some of the risks may not be avoided through exhaustive measures. Generally, the risk assessment in the body of the application aligns with classification of an effects assessment, to be more consistent with the AEE conclusions and that section of the application, rather than an independent risk assessment.

The mis-matched risk profile in my professional opinion is accepting use of the existing authorisations, some with no conditions of consent, whilst purporting that with the suite of proposed conditions and management plans that the effects on the environment are minor as mitigated. I understand that existing permits cannot be re-litigated in this process, however, the effects and risks to the environment can be when the cumulative effects are considered. I will try to narrow in where I consider the greatest risks are and suggest any mitigation or bonds where I consider necessary. It is not inconceivable⁷ that Environment Southland may also need to use s.128 RMA if South Port cannot consolidate the overall work programme, as the cumulative effects could be much more significant, than just the capital dredging (proposed).

⁷ My engagement with ES does not extend to any review of the existing dredging consents or Deemed Coastal Permits and any associated conditions of those consents.

3.8.2 Timing/Programme/Duration Risks

Firstly, the **timeframe to execute the consents** (including the use of existing authorisation) and term sought, is potentially acceptable based on the best scenario of February to September (2023), being 8 months, which is illustrated in Figure 2.9 of the application (reproduced below). While this is a best case, South Port have sought a 10 year term, citing the following reasons (Table 3), which has my evaluation alongside:

Table 3: South Ports Rationale for 10 year consent	
South Port's scenario's	Evaluation
<i>Contractor availability (longer lead in times for specialist contractors)</i>	This is a commercial risk that is manageable, and able to have contractual conditions securing the contractors. I understand this might come at a cost, but is all the same possible, and as far as I am aware not cost-prohibitive.
<i>Significant downturn in global commodities</i>	I have evaluated this to mean that the demand for dredging lowers due to the downturn in global commodities, which in my experience and approach is we have assumed that South Port will exercise the consent if granted and that involves the exercising of the existing authorisations and the consents sought. The economic modelling and commercial evaluations that South Port undertake I would have thought are sufficient to pursue not just the consenting, but the execution of the consent, and I would not have thought that the market was that fickle, as evident by the letters of support in the application and nature of the submissions.
<i>Global pandemic</i>	I appreciate this is a very real risk, but for essential goods and services, however I would have thought the intensity of port use over the past couple of years has proven very little slow down of business due to global pandemic crisis for South Port.

Table 3: South Ports Rationale for 10 year consent	
South Port's scenario's	Evaluation
<i>If MSC (Mediterranean Shipping Company) left South Port</i>	I understand this is South Port's main client and source of revenue, which any business reliant on one key carrier if they are funding capital works (dredging or other) via no other financial reserves. South Port is owned predominantly (66%) by Southland Regional Council, and 9 others, which stands the company in reasonable position to build the capital for such dredging investments. When I reviewed the 2021 Annual Report of South Port, it outlines that "South Port achieved an after-tax profit of \$10.71 million (2020 - \$9.43 million), a 13.6% increase on last year's result". The annual report goes onto to recognise the increase in bulk cargo, in logs and woodchips (54% increase), yet the COVID-19 Alert level 4 lockdown results in lower cargo volumes.

South Port reported in their s.92 response they were motivated to complete the capital dredging programme in one 8-month period, but want contingency, and seek a 24 month duration to complete the work once commenced, allowing to:

"accommodate shipping delays, weather delays, restrictive consent conditions, environmental conditions, breakdowns and other unforeseen circumstance,..... and a 10-year consent for flexibility."

My evaluation of this timeframe and duration requires weighing up the environmental risk, likelihood, and consequence of potentially repetitive impacts on marine life, ecology, marine mammals, bird life is against the operational constraints. South Port even went so far to note in their section 92 response that under the current maintenance consent they can undertake maintenance dredging at any time. This highlights the existing authorisations may benefit from a s.128 RMA review. This was mooted in the initial application review as to why South Port did not want to bring all authorisations into consideration under this capital dredging consent. My evaluation of effects and risks is that the timeframe and duration set out in the consents present risks that don't align altogether with the risk assessment provided in the application.

For example, the repetitive noise from drilling, blasting, dredging within the harbour channel closest to the nesting penguins, assumes over the 10 year (duration of consent) little variability in penguin nesting season (September/October to January/February), and the risk to this species, as raised by Forest and Bird submission, is actually greater than that in the AEE (reference to seabirds in Table 5-3). Ironically, the risk assessment provided in Section 5.15 (Summary of Effects and Proposed Avoidance and Mitigation Measures) and specifically Table 5-3 (risk assessment) of the application only refers to seabirds, and drilling and blasting (Feb to late September) as “*mostly outside the penguin seasons*” accepting there maybe nesting penguins. Whilst outside my area of expertise, the likelihood (“Rare”) and Consequence (“Minor’), is an underestimate of potential effects on the nesting penguins and their chicks. For these reasons, I have recommended that consent only be granted for 5 years, to avoid the repetitive nature of works that would disrupt the seabed, the marine mammals and sea birds, and specifically any nesting that coincides with the drilling, blasting and dredging programme. Additionally, the reasons cited for the need for 10 years are not sufficiently robust, that South Port could commit and have certainty to complete the works within 5 years.

For example, South Port could isolate from pandemic incident, such as is occurring with COVID-19. Also in conforming to 5 years, surely there is less chance in shipping operations leaving Bluff Harbour as a destination, because the sooner the deepening is achieved, the more advantageous it is to the two key clients of South Port.

The risks assessment provided in the application in Section 5.15 (Summary of Effects and Proposed Avoidance and Mitigation Measures) and specifically Table 5-3 appears to take the current risk of all legal authorisations as an acceptable risk position (existing risk profile). My view of this is that approach would only be acceptable if those authorisations were originally assessed also alongside the current proposal, or how else could cumulative effects be assessed? While I appreciate a legal opinion has been provided which ES’s lawyers have concurred with the applicant’s lawyer that these consents are legally authorised, they were not authorised recognising the scale and nature of this current proposal. There were also not assessed under a framework like the RMA. Those permits and deemed coastal permit are for a far narrower set of works with effects much more limited to those here. The mitigation (timing, warning blast, soft start (blasting) and monitoring of the MMOZ) is unlikely to result in rare environmental risk and effects, and therefore I don’t agree the consequence is “minor”. In basic terms, if a nesting penguin were subject to disturbances in a repetitive manner, there is a highly possible chance that the penguin(s) would not return to its nest, thereby having more than minor consequences. There are options for further mitigation, such as inspections and relocations of penguins and their nests. I understand Napier Port did relocate little blue penguins in 2019/2020 to a new sanctuary. If penguins nest further around the coast from

the harbour entrance, I question why a pre-works survey was not undertaken or (and as necessary) a relocation programme was not committed to prior to the works commencing, and then ongoing surveys continue for the shoulder and nesting season⁸. Also, if the existing authorisations were relied upon for assessing a risk profile, then upon their expiry the risk profile, will change again, along with the and statutory expectations.

3.8.3 Risk of Noise and Vibration

The risk assessment in the AEE also addresses the **risk of noise and vibration** on the local community and neighbourhood that could cause annoyance and adverse reactions. The risk assessment (Table 5-3) recognises mitigation in the hours of works (Feb-Sept, 0730-1800, Mon-Sun inclusive), regular maintenance of equipment and the Harbour Communication Plan. In the absence of the acoustic testing, I am not 100% comfortable with the restricted operations being so generous, including for example Sunday mornings from 0730, when some residents typically expect quieter mornings. While no submissions have been received, this does not mean that Council will not receive complaints from residents, or campers (Argyle Campground in Gregory Street) if/when noise causes disturbances. Typical commercial or industrial working weeks do not normally include Sunday 0730 starts. I also recognise two religious organisations are located in proximity to the harbour, being St Marys Star of the Sea Ladies Group (194 Burrows Street) and Bluff Cooperating Church (56 Foyle Street), where typical congregations on Sunday mornings are most likely.

3.8.4 Risk on Seabed Ecology

The risk to the environment, where the **seabed ecology** is affected from the removal of rock habitat and sessile species (and potential repetitive nature), is a risk that it takes long(er) periods of time to recolonize the seabed. The E3 Scientific dredging assessment report notes the associated sessile species include algae, sea tulips, anemones, kina and paua, which the application notes can be removed under the Deemed Coastal Permit to 9.2m CD. If South Port are exercising the Deemed Coastal Permit, it has no conditions attached to it. To this point, the application considers the effect of removal of rock habitat should not be taken into consideration. I consider that the concern and risk has been not valued, or is under-valued, if South Port not once remove the seabed, but do this repetitively, possibly over 5 or 10 years.

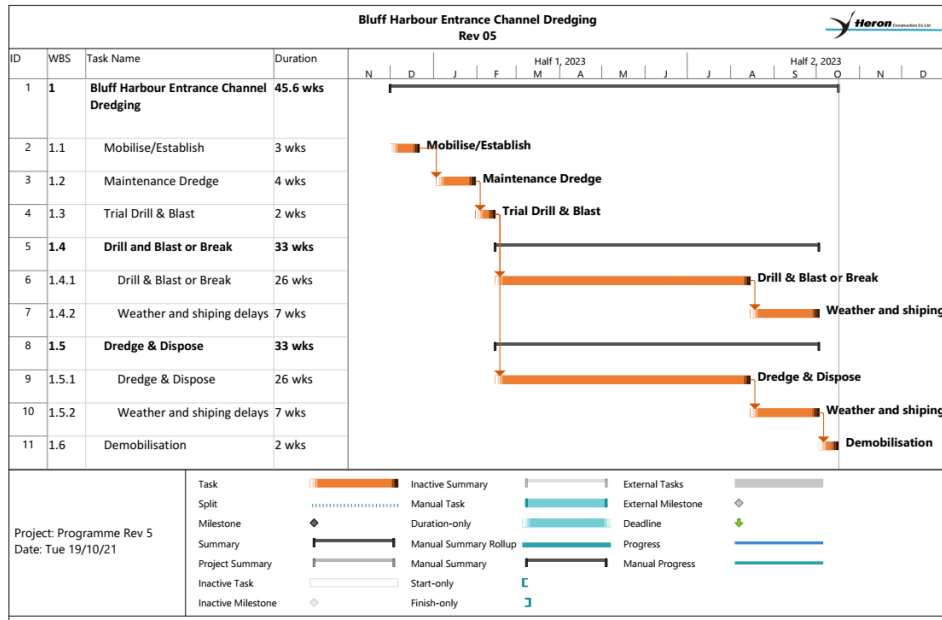
While E3 Scientific (section 7.5.2 of Appendix 6), recognise that the 3.8ha removal of seabed is only 10% of the total subtidal bedrock directly affected, this seabed removal is located through the middle swath, and margins of the harbour entrance where disturbances and currents make establishing these sessile communities most challenging. E3 Scientific report that "the recolonisation of

⁸ Additional condition added in Section 5.1; proposed conditions evaluation.

these blasted sites adjacent to productive rocky reef habitat should initiate within weeks”, which I note that latterly in that Section 7.5.2, it references “recolonisation within months”. I am unsure how long it took for recolonisation after the previous rock blasting exercise (1980s), as nothing has been monitored or reported. For this application I consider monitoring and action/process conditions are necessary to give certainty to the recolonisation occurs within a defined period (less than 12 months). The extent of this issue is relative to better understanding the recolonisation being expected within a specified period (specified months, but not more than 12 months) compared to what is acceptable.

The consequence of this effect is the risk of the sessile species not recolonising, and not naturally re-developing in the channel. I consider this risk greater than that described in Table 5-3 in the category of effects on marine ecology (post mitigation is reported to be Likelihood = Rare, and Consequence = Minor). The only mitigation given in Table 5-3 is “Restricting the drilling, rock breaking, blasting and dredging activities to the period 1 February to 30 September”, but such timing does not make any differences to timely recolonisation of sessile species. This reinforces the need for some form of pre-inspection/monitoring of the sessile species and densities through the channel subject to blasting and breaking, and then subsequent to works, the recolonisation timeframes. In my consideration, as blasting may occur over multiple years, progressive recolonisation is necessary, and over the entire affected blasting area recolonisation within 2-5 years⁹ of capital works being fully complete, then one should expect full recolonisation. Additionally, this is relative to the two-periods of works South Port plan (i.e., two, 8 month periods), rather than successive periods each year over 10 years.

⁹ Mr White has advised that 2-5 years is the time where he expects a stable biological community, to a similar (quality and quantity) extent to what existed prior to the proposed works.



3.8.5 Acoustic Risks

The acoustic assessments are having to rely on 12 months of monitoring to validate the assessments, which if found to be any different to that in the AEE, potentially may inhibit South Ports ability to exercise the consent, or possibly require a review of the conditions (s.128 RMA process), or operate on reduced hours. I have no reason to doubt the acoustic assessments, but I remain concerned about the proximity of the works and hours of blasting to residential and camping areas in Bluff and adjacent to the coastline within the harbour and mouth. To manage those effects, South Port have a Communication Plan that I consider the effects management are heavily reliant on the effective delivery and reception of communication to mitigate potential effects. This effectiveness is difficult to evaluate because it relies on how the expectations of those receptor people/parties is achieving the environmental outcome.. The extent of effective communication in the management of other users of the harbour, and not adversely affecting their use and connection with the harbour will also depend on how well expectations are managed through communication techniques.

3.9 Key Consideration 6: Plan Policy Evaluation

This section has been developed to bring a focus to the plan policy provisions, and to how those plan policy provisions direct the decision makers in their consideration of certain matters, and the statutory tests (s.104(1)(b) RMA). I have undertaken an evaluation of the assessment of plan provisions in the application from the New Zealand Coastal Policy Statement, the Regional Policy Statement and the Regional Coastal plan. My evaluation is in the right-hand column of Appendix G. I have added in **bold font** (the headings) of additional provisions that I think should have also been considered.

In light of the King Salmon case, it is beneficial to identify the hierarchy of plans under the RMA, how much weight to give the provisions of each document, and whether to give the Regional Coastal Plan (RCP) much weight at all. In this case, the RCP was originally notified in 1997, and became operative in March 2013, and is recognised to be “out-of-step with legislation and policy, as well as suffering from a number of drafting issues common to first generation regional plans” (ES Website). The Regional Policy Statement became operative in 2017, and the original New Zealand Coastal Policy Statement became operative in 1994 and was replaced in 2010. Again, the RCP is relatively dated in comparison to land and water management RMA Plans and current NPSs and NESs.

Broadly, I concur on some of the plan policy assessments provided in the application, especially where they relate the enabling of coastal development for Port activities, however, I note where I don't, or don't altogether agree with the assessment provided in the sections below. An overarching theme from my evaluation is the degree of effort gone into the proposed consent conditions in the application does not assist in the findings of numerous policies where the South Port application (assessment) found the proposal to be consistent with the relevant objectives and policies. I consider much more effort to avoid, remedy or mitigate actual or potential adverse effects is necessary to be more consistent with the thrust of numerous policies.

Also, I broadly recognise that the objectives and policies provide some enabling activities, and where I have challenged the conclusions reached in the application, I have provided a summary in the following sections, drawn from the more detailed assessment in Appendix G.

What should be a precursor to this policy evaluation is the planning hierarchy expected where the subservient plans (somewhat dated) are to give effect to the higher order RMA plans.

3.9.1 NZ Coastal Policy Statement

My evaluation of risks and that of Objective 1 of the NZCPS, is I do not consider the application and its proposed conditions go so far to *"safeguardingthrough maintaining and enhancing.....and protectingand maintaining water quality."* Key to my conclusion is that the 10 year term, and 24 month period to potentially undertake the dredging could result in repetitive seabed works and discharges elevating suspended sediment, not meeting the intent of Objective 1.

In respect to Objective 3 and Policy 2 (principles of the Treaty of Waitangi) I applaud South Port for the inclusive and general good practice (nature) of their consultation, but in my evaluation, I do hold concerns for how the MoU will ensure sufficient mitigation of the values that tangata whenua have reported in Appendix 16 of the application, as outlined in Section 3.7 of this report. In the absence of tangata whenua being a submitter, evaluating their CIA and the addendum to it, is and will be challenging, which is why I raise the concerns.

I consider Policy 3 (Precautionary approach) to be a critical policy test to coastal activities which the NZCPS recognises the unknowns about the coastal environment, and the sensitive and dynamic nature of them, which amongst other matters the coastal environments is for meeting the needs of future generations. The application did not address the precautionary approach within the policy assessment, but has within the ecological and marine life (technical/appended) assessments. My evaluation in respect to the precautionary approach(es), is there are more precautions that can be taken via greater baseline monitoring, and then ongoing monitoring and reporting during and after the works. This could provide more action-orientated conditions if triggers are exceeded, or if the environment/ecology does not respond as reported in the AEE, then what should be done to take that more cautious approach. Also, in accepting an adaptive approach, I do not consider this is a "precautionary approach" when the effects have to occur, for example the turbidity monitoring will monitor the effect (as it occurs) before any adaptive measures occur. Additionally, this requires the technical team working for ES to understand trigger levels as to when implementation of the adaptive management is to be exercised, which again is not precautionary if the adverse effects have occurred. This requires a basis of the response to predetermined receptor-based trigger levels, before adverse effects occur to be precautionary. Another example could be the MMMP, where only when MMO have sightings can adjustments to blasting be made, but if blasting has occurred then marine mammals sighted, if it responsive, rather than precautionary.

Policy 11 (Indigenous biological diversity (biodiversity)) raises some concerns in respect to consistency with the "protection" expectation of Policy 11, and specifically the direction from Policy 11(a) to "avoid" adverse effects on taxa / ecosystems / habitats and areas in (i)-(vi). The application recognises bird species that

breed and/or feed and moult in and around Bluff Harbour that are nationally threatened or At Risk.

The application considers the timing (February-September) to *“generally sits outside of the peak breeding seasons and penguin moulting period”*. My evaluation, based on Mr White’s technical audit regarding Yellow-eyed penguin, Fiordland Crested penguin and Little penguin, has me questioning whether the applicant is avoiding adverse effects, or avoiding significant adverse effects and is avoiding remedying or mitigating other adverse effects on the relevant habitats, ecosystems, and corridors for these species, sufficiently to be consistent with Policy 11.

In regards to Policy 23 (discharge of contaminants...and having regard to managing discharges); I concur with the planning assessments in the application, but raise my concerns about the reasonable mixing zone and adaptive and responsive measures drafted in the Proposed Conditions of Consent. Policy 23 (e) expects the management of contaminant discharges to *“use the smallest mixing zone necessary to achieve the required water quality in the receiving environment.”* The turbidity meters to be located on the edge of the disposal site, need to be appropriately located as to monitoring the potential contaminants and effects from the soft sediment dredging, to have confidence in upholding the intent of Policy 23. For this reason, I have developed a “working condition” in Section 8.2 (condition 13A) of this report to try and address this.

On a positive note, the proposal is very consistent with Policy 9 (Ports) of the NZCPS, which I have not overlooked in appreciating South Port’s operational working and immediate environments.

3.9.2 Regional Policy Statement

An overarching evaluation of the RPS is that it is enabling, and heavily relies on maintenance and enhancement of water quality, restoration, rehabilitation or preservation of coastal environments, as well as enabling specified activities.

In respect to Policy 5 (Management of effects on coastal water quality and ecosystems) I generally concur with the policy assessment in the application. However, I find that the assessment does recognise that *“within and beyond the disposal sites, soft sediment communities will be maintained owing to their tolerance to natural sediment movements due to effects of tidal currents and wave action”*. My take from Policy 5 is that some form of management within the mixing zone, rather than just beyond it is necessary to avoid, remedy or mitigate adverse effects. No monitoring is provided in the proposed conditions (Appendix 1 of the application) to know how that is achieved due to the adaptive and response nature of the proposal.

While the application omitted an assessment of Policy 7 (Management of activities in the coastal marine area), the key planning considerations within this policy is the **enabling (management) approaches**, on the use and development activities, and the **emission of noise**, and commercial activities such that South Port will generate. The noise emission risks and effects are addressed in section 3.8.3 of this report.

Regarding Policy Bio.3 (protect coastal indigenous biodiversity), I acknowledge the assessment in the application, which appears to be focused on the nature of the proposal (timing of works, monitoring etc.). However, from my evaluation the assessment does not go so far as addressing if these measures protect the biodiversity, rather it seems to avoid adverse biodiversity effects, which I don't think will be altogether possible without greater controls through the conditions of consent.

3.9.3 Regional Coastal Plan

From my evaluation of the relevant policies, there are a number of inconsistencies between the expectation of the policy provisions and the rules in the RCP. There is some consistency in the "avoid, remedy or mitigate" (disturbance of the seabed dredging an excavation (Policy 10.1.1) drilling, excavation (Policy 10.1.3), disposal of contaminants) and "minimise" (deposition), however some inconsistency in Policy 10.2.2 "*provide(s) for the disposal of dredged material*", and Policy 10.2.1 ("*avoid, wherever practicable.....deposition.....into the coastal marine area*").

Policy 10.2.1 seeks to "*avoid, wherever practicable, remedy or mitigate the adverse effects ofdepositioninto the coastal marine area*", and Objective 10.2.1 to "*minimise deposition*". Section 92 questions were sought as to why South Port was not utilising the hard rock by bringing it onshore, or for use in coastal protection, which South Port's responses are noted in Appendix E citing that it was more practicable and cost effective means of disposal in the proposed locations.

3.9.4 Marine Mammals Protection Act 1978

Additional to the RMA and the NZCPS, the Marine Mammals Protection Act 1978 assists with the management of effects on marine mammals. This section has been included as an "other matter" (s.104(1)(c) RMA) that the Commissioners can consider. The Marine Mammal Protection Act provides a purpose, which includes that it is an offence to 'take' a marine mammal without a permit, where 'take' is defined to include:

(a) to take, catch, kill, injure, **attract**, poison, tranquillise, herd, harass, **disturb**, or possess:

(b) to brand, tag, mark, or do any similar thing:

(c) to flense, render down, or separate any part from a carcass:

(d) to attempt to do any act specified in paragraph (a) or paragraph (b) or paragraph (c).

[**bolded font** is my emphasis added s.2 Marine Mammals Protection Act 1978].

Additional to this matter, it is recognised that South Port are likely to require a Wildlife Permit from the Department of Conservation should the cause certain effects, or if they are doing any relocation or management of species.

As noted in Section 3.4, and recognised in the application the following species are recognised within the environments subject to the application:

- ∴ bottlenose dolphin (*Tursiops truncatus*);
- ∴ New Zealand fur seal (*Arctocephalus forsteri*);
- ∴ New Zealand sea lion (*Phocarctos hookeri*);
- ∴ Hector's dolphin (*Cephalorhynchus hectori hectori*);
- ∴ southern right whale (*Eubalaena australis*);
- ∴ humpback whale (*Megaptera novaeangliae*); and
- ∴ killer whale (*Orcinus orca*).

Additionally, the MMMP recognises that Foveaux Strait waters also supports sub-populations of endangered species, such as bottlenose dolphins and killer whales, as well as local recovering colonies of the vulnerable NZ sea lion.

3.9.5 Iwi Management Plan

The relevant natural resource and environmental iwi management plan (IMP) was developed by Ngāi Tahu ki Murihiku and Hosting on behalf of Ngāi Tahu ki Murihiku. The IMP was produced in 2008, titled "Te Tangi a Tauria - The Cry of the People". Section 9.4 of the application provides an assessment of it, and Appendix 16 (Section 12 and appendix 1) an assessment of the relevant provisions.

I concur with the policy analysis in the application, and consider Section 3.7 (consideration of cultural effects) in part, highlights the issues recognised by the application for coastal water quality and ecology. The CIA and application focus on coastal mining and extraction activities (provisions) from the IMP, including effects on:

- ∴ impacts on kaimoana, kaimataitai (sea food) and mahinga kai;
- ∴ impacts on cultural use of estuaries and the ocean;
- ∴ impacts on the ocean as a result of sediment loading;

- ∴ protection of intrinsic values of ecosystems; and
- ∴ maintaining healthy kaimoana.

The application recognises the importance of working collaboratively between South Port and Te Rūnanga o Awarua, and how that, amongst other methods, is consistent generally with the relevant provisions.

3.10 Summary of Evaluations of Policy Provisions

From my evaluations (above), I generally consider the proposal is, in the round, consistent with the relevant objectives and policies, noting where there are some discretionary elements I have outlined in the aforementioned sections. I do recognise the tension in my conclusion when you consider my evaluation of Objective 1 and Policy 3 of the NZCPS is the highest order policy provision and closest to giving effect to Part 2 RMA. My assessment of Objective 1 of the NZCPS requires a further understanding of the development of the conditions of consent (detailed more in section 7.4). Elsewhere, my policy elevation is within a context where I found mismatches and inconsistencies between some policies, possibly due to some provisions being dated, and others more modern, but also adaptive management approaches were less common when these provisions were drafted.

3.11 Adequacy of information s.104(6)

Section 104(6) allows a consent authority to (may) decline an application on the grounds that it has inadequate information to determine the application. The process of these consents, as outlined in Sections 2 and 3 of this report has gone to considerable effort to ensure there is adequate information to perform all the necessary assessments. I do not have reasons to think why this consent could be declined on the grounds of insufficient information, although elsewhere in this report I raise my concerns as to the extent and certainty of information, or reliance on the delivery of trials to inform the mitigation. This includes the CIA to evaluate cultural effects, the marine effects lacking baseline monitoring, and the robustness of monitoring and mitigation (the proposed conditions).

4.0 Submission

4.1 Submitters

Nine submissions were received, of which my evaluation has focused on the Department of Conservation (DoC) and Royal Forest and Bird (F&B) submissions in opposition, who wish to be heard. The key matters raised by these two submitters, and my evaluation is provided below.

- 4.1.1 DoC's submission is consistent with some of my concerns, and how my efforts in terms of drafting suitable conditions of consent, which might assist to satisfy the statutory expectations associated with

avoiding, remedying or mitigating actual or potential adverse effects. DoC suggests specific conditions for trial and execution of the drilling, blasting, and breaking activities according to different species, based on "worse-case circumstances". DoC also suggests specific conditions to ensure the marine mammal management plan has appropriate blasting scenarios according to the species.

- 4.1.2 DoC also raises concerns about the controls for the disposal of rock and sediment, but I am unsure what elements of the deposit and seabed deposition that they are not comfortable about from their submission.
- 4.1.3 My evaluation of the F&B submission is it holds some similar concerns *"due to the significant effect they are likely to have on the marine and coastal environment including on endangered marine mammals and indigenous birds."*
- 4.1.4 F&B raises the issue as to the need for the project, and that sea level rise may alleviate the need for the capital dredging. I address this in Section 2.4 of this report. I can only assume that South Port don't have the time to wait for such depths to be realised from sea level rise, when they have demands (vessel owners/operators) for more efficient and safer movements through the harbour and mouth.
- 4.1.5 F&B raises that South Port have not assessed the benefits and alternatives of using Port Otago. Conversely, the application, does report on the benefits of reducing vehicular traffic (heavy trucks) through the more convenient location of Bluff Harbour and Port. This broadly assesses the local demand and benefits. Appendix 18 of the application also contains letters of support, including a number of port users, who rely on the efficient transport and shipping from Bluff Harbour
- 4.1.6 F&B's submission raises the risk to a number of habitats of threatened species (fish and birds), and the threat classification, which puts the named species at greater risk, citing the application taking *"minimal and inadequate steps to avoid the effects of the activities [on] these species."* I share the concerns raised in the F&B submission in respect to impacts on species, specifically around the blasting noises. I don't have any view of the requisite Wildlife Act permits, as I assume they would be required, particularly in consideration of my further evaluation in Section 3.9.4 of this report, and the definition of 'take' of a marine mammal without a permit, or if relocation of birds (penguins), nests and chicks (or other wildlife) is a necessary remediation action.

- 4.1.7 F&B raises a number of matters in relation to the application not being consistent with the RMA, NZCPS, RPS, RCP, and I have completed my evaluation of those matters elsewhere in this report. My observation is South Port have relied heavily on the fact that their Deemed Coastal Permit and Maintenance Dredging Consents already does NOT avoid the effects, and their approach in adaptive management is a different strategic approach to that expected by some of the policy matters. For this reason, I can understand South Port's approach in not working through the effects management hierarchy expected in the NZCPS. This is not well structured or addressed in the application, but has become evident through our interactions and s.92 Q&A processes with the applicant and its consultants.
- 4.1.8 I concur with F&B that many of the management approaches and mitigations do not transpire into the Proposed Conditions of Consent, and also in the absence of evidential pre-application monitoring results, and reliance on trials and monitoring once consent is granted. In the absence of conditions that address these risks, this presents some issues to South Port, Environment Southland, and the environment itself. Even if consent were to be granted, if any of the subsequent findings¹⁰ from monitoring or trials proved to not materialise to be consistent with the AEE, then this could mean that South Port could not exercise the consents, or potentially Environment Southland undertake a s.128 RMA review of the conditions. I recognise that s.128 RMA cannot cancel the consent (other than in the event of material inaccuracies).

Mr White's technical audit has found that he accepts the adaptive management approach, only if the amendments and new conditions are accepted. His acceptance is more confident of adaptive management of the Hector dolphins, Southern Right whales, Bottlenose dolphins, Humpback whales, Orca, Beaked whales, sea lions, because their frequency in the harbour is low, and the MMO approach (inclusive of additional conditions) has been exercised in other ports and proven. Mr White is less confident of the adaptive management approaches (or lack of in the application) for penguins nesting and moulting along the shores in the harbour and harbour entrance. While Mr White is less confident, he is accepting that with (additional) conditions of monitoring and stop works when nesting or moulting penguins are found within close proximity to the blasting, would be an effective mitigation. If prolonged periods of stop works were foreseeable, then Mr White is also accepting that penguin relocation might be

¹⁰ An example of this is provided in condition 28 of the suggested conditions (Appendix 1 of the application) which states: "In the event that the open water blast is causing mortality to small marine fish species and is creating a feeding flock of gulls and terns, the consent holder shall revise this deterrence measure or discard completely."

necessary, and the Wildlife Permit process would account for those effects. I am satisfied that the adaptive management approaches are focused on avoiding or remediating the effects on penguins, from my interpretation of Mr White's knowledge.

- 4.1.9 The DoC submission recognises the sensitivity of the environment and ecology where the proposed works includes Hector dolphins, Southern Right whales, Bottlenose dolphins, Humpback whales, Orca, Beaked whales, sea lions, Yellow-eyed and Fiordland crested penguins, Foveaux Shags, and the Eel-grass beds. The submission also notes the vessel destinations, and environmental sensitivity of those locations (Fiordland, and the Sub-Antarctic Islands) and associated biosecurity risks of pest species. I address this matter in Section 3.4.5 of this report.

5.0 Conditions of Consent

This section has been developed to evaluate the approach by the applicant to conditions (mitigation) and identify the different techniques and management approaches. It should be noted that section 7.4, is where I have tabled the applicant's proposed conditions and my suggested changes and additional conditions.

5.1 Proposed Conditions of Consent

Section 7.2 of this report provides a table of the applicant's proposed conditions of consent, and where enhancements can be made, I have noted these.

My evaluation of the approach and proposed conditions of consent, is:

- (1.) That prior to works commencing South Port wish to undertake further monitoring that would ordinarily be expected to inform the AEE;
- (2.) There is a heavy reliance on the Harbour User Communication Plan to address potential effects on the environment and people.
- (3.) There are multiple management plans and an adaptive marine management plan according to how species react to the works. I understand that South Port may have a strategy to only further develop those management plans when they have certainty of consent being granted, and through that process, engage with affected parties, including the likes of Iwi, DoC, F&B and others to ensure their management plans are adequate. Then, South Port wishes to also get input from the Contractor to the works, and also the baseline data (refer 1.1 of Appendix 7 of the application).

- (4.) Greater certainty could be provided in mitigating actual and potential effects on marine life, sea birds and their sustainability in these environments, specifically with more detail that is to be developed into the management plans.

In summary, I do consider that an adaptive management approach is appropriate, in the absence of more certain information. However, I also consider that too much flexibility of adaption within the management plans, without having triggers, targets or standards in some of the conditions does not give enough certainty, given the conclusions I have reached throughout section 3.0.

5.2 Evaluation of Effects and Recommended Conditions of Consent

In my evaluation of the AEE section, and the Proposed Conditions of Consent, I think there are numerous missing conditions, that are needed to give more certainty that effects can be mitigated or remedied. These include:

- ❖ Biofouling Management Plans – which the application relies on Heron Construction Company Limited and Dutch Dredging NZ Limited, own bio fouling management plans (prepared in consultation with MPI and MNZ), rather than South Port having their own location specific Biosecurity Management Plan.
- ❖ Adaptive Marine Management Plan (draft in Appendix 7 of application), which will require South Port to implement an adaptive and conservative receptor-based approach to dredge management and sediment control, with triggers (Tier 1-3 trigger responses, and Tier 1-2 management responses for exceedances). Additionally, the receptor-based approach will have the deployment of turbidity meters near sensitive ecosystems.
- ❖ A Marine Mammal Management Plan (Childerhouse, 2021), (draft in Appendix 9 of application).

6.0 Part 2 RMA Assessments

It is worth understanding the relevance of Part 2 assessment in this consent, and weight given to the planning documents ought to determine whether a Part 2 assessment adds anything or could change the outcome. This is because the plan (policy) hierarchy has dated plans at the bottom and a national policy statement at the top, as I have noted earlier.

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.

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.

In this instance, there are some mismatches between the NZCPS, the RPS and RCP, and I consider a Part 2 assessment is beneficial.

Section 9.5.1 of the South Port application provides an assessment of Sections 5, 6, 7 and 8 of the RMA.

My evaluation of those assessments in the application, is all of the s.5 assessment relies on effective mitigation measures (as noted in the application), and my concern for effectiveness of mitigation remains until sufficient development of conditions of consent is completed. I remain confident that this condition development is possible, but also consider that the initial trials and monitoring to inform further conditions of management plans presents some risks in any approval/decision in the absence of the trial results. This could also mean that if the trials prove inconsistent with the AEE, South Port may not be able to exercise the consent.

I concur with the applicant's assessment of s.6(a) RMA, and I view the harbour as a working environment for the Port and its users, amongst other natural environment and processes, which in my view is an appropriate use of the coastal environment, in the context of a natural harbour for vessels to utilise for shipping. I have considered too that the proposed works actually reduce potential shipping effects, such as groundings and unsafe passage.

There are no outstanding natural features and landscapes and indigenous vegetation and land-based habitat directly associated with this application, thereby s.6(b) and s.6(c) not being relevant. The maintenance and enhancement of the CMA is not directly impacted (s.6d). The historic heritage is landward of the CMA, thereby s.6(f) not being relevant.

From my evaluation of s.6 RMA matters, I note the applicant has not provided, at least in section 9.5.1 an assessment of “*the protection of protected customary rights*” (s.6(g) RMA), but elsewhere in the application this matter is addressed. This is in the ability of tangata whenua to exercise their customary rights and values that Te Rūnanga o Awarua and Te Ao Marama Inc. representatives have outlined in the CIA and CIA Addendum. To this end, this is a matter for s.6(e) RMA as well.

While there was no assessment in the application of “significant natural risks” (s.6(h) RMA) as a result of the proposal, I am not aware of Bluff Harbour being susceptible to sea surge or tidal waves, or where an increased channel capacity could exacerbate the extent of natural hazard events.

As noted above in s.6(g) of the RMA and my evaluation, the application also assesses s.7(a) and s.7(aa) of RMA, which I concur with the application, but I do stress the importance of developing conditions of consent and management plans to ensure that the role of kaitiaki and the ethic of stewardship is achieved to the expectation of Te Rūnanga o Awarua and Te Ao Marama representatives. This might rely on the MoU between Te Ao Marama and south Port, which we have not been privy to.

An observation that I have in respect to the applications assessment of s.7(d) [intrinsic values of ecosystems] is that while there might have been some marine monitoring surveys, I don't think the applicant has altogether covered a range of studies necessary to support the development of conditions of consent and management plans. This is why, South Port is having to do further trials and sampling to inform the trigger levels, for example. While this is not uncommon, on critical matters this can be vitally important to the certainty in decision making on complex consents.

Broadly, I agree with the Part 2 assessments in the application, noting my observations above. My concern is primarily the reliance on effective mitigation (conditions) that provides more evidential basis to ensure actual and potential effects (and significant effects on tangata whanau and cultural values), are actually mitigated.

7.0 Recommendations

7.1 To grant or refuse consent (s.104B)

Section 104B sets that after considering an application for a resource consent for a discretionary activity or 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.

My focus within this report has primarily been in evaluating the environmental effects and framework and guidance from the plan policy provisions, to aid my recommendation to the Commissioners. A significant emphasis has been had to how actual and potential adverse effects can be mitigated, as outlined in Section 7.4. I recommend granting consent, which my conclusive reasons are detailed in Section 8.0.

7.2 Alternatives Assessment (s.105 RMA)

Section 9.5.2 of the application addressed the matters of s.105 RMA, which focuses on justifying that there are no significant adverse effects and avoiding effects from discharging nearer more sensitive locations such as "sensitive ecosystems associated with the upper harbour and the rocky shorelines around Tiwai Point and the Motupōhue Mātaitai." Section 9.5.2 of the application further discounts that alternative offshore disposal as an alternative "owing to the operational and safety issues posed by strong surface currents and strong prevailing winds in Foveaux Strait and load line convention restrictions which limits ships to a minimum freeboard."

My evaluation is that little consideration has been given by the applicant of s.105 RMA requirements and test, nor Policy 10.21 of the RCP ("avoid, wherever practicable.....deposition.....into the coastal marine area"), which seeks to avoid, wherever practicable deposition into the coastal marine area. Section 3.5.3 of this report I identify that the hard rock could have other land based or shoreline uses, but it appears such alternatives would be more logistically challenging and not as convenient (i.e., doubling handling).

7.3 Mixing Zones (s.107 RMA)

Section 9.5.3 of the application address s.107 RMA matters, which the application claims s.107(2)(b) that the discharge is of a temporary nature, with suspended sediment expected to span no more than one week. While this may be true, and Mr Todd agrees to the temporary effects from his technical audit, the effects of bursts, or repeated frequencies of higher turbidity (suspended sediment in the water column) needs to be addressed in the effects from the monitoring, reporting and adaptation when dredging. To this end, the adaptive and tiered management approach is acceptable as a philosophy to managing the

effects, yet I am less certain of the cumulative effects of discharges from soft sediment dredging, but also recognise the natural turbid waters the harbour, channel and strait. This does not make it automatically acceptable. To this end, I have tried to develop what conditions might be appropriate with tangible measures from Schedule 2 of the RMA, in terms of water quality.

7.4 Consent Conditions (s 108 RMA)

Table 4 includes the conditions which the applicant has suggested from the application, however for any changes and additions I have illustrated these in the right-hand column with deletions (~~strikeouts~~), new text (underline) and new conditions (**red font**).

Table 4: Conditions of Consent																		
#	Proposed Condition (Appendix 1 of AEE)	#	Evaluation and new conditions (red font)															
1.	The term of this consent is 10 years.		The term of this consent is 10 5 years.															
2	This consent permits the drilling, rock breaking, blasting, capital dredging and deposition of the following quantities of spoil: i. Up to a maximum of 120,000 cubic metres of sand and silt material; ii up to a maximum of 40,000 cubic metres of rock.																	
3	The drilling, rock breaking, blasting, and dredging of rock shall be carried out in the areas of seabed in the harbour entrance channel shown in red on the attached plan entitled "Harbour and Channel Dredging Areas", and defined by a centre point at the following co-ordinates (NZTM 2000): <table border="1"> <thead> <tr> <th>Easting</th> <th>Northing</th> </tr> </thead> <tbody> <tr> <td>1244359</td> <td>482874</td> </tr> </tbody> </table>	Easting	Northing	1244359	482874													
Easting	Northing																	
1244359	482874																	
4	The dredging of soft sediment shall be carried out across areas of seabed in the harbour as shown in orange on the attached plan entitled "Harbour and Channel Dredging Areas", and defined by a centre point at the following co-ordinates (NZTM 2000): <table border="1"> <thead> <tr> <th>Area</th> <th>Easting</th> <th>Northing</th> </tr> </thead> <tbody> <tr> <td>Swinging Basin</td> <td>1243281</td> <td>4829468</td> </tr> <tr> <td>Berth 3 & 4</td> <td>1242725</td> <td>4829504</td> </tr> <tr> <td>Berths 5 & 6</td> <td>1242626 & 1242530</td> <td>4829611 & 4829575</td> </tr> <tr> <td>Berths 7& 8</td> <td>1242615</td> <td>4829800</td> </tr> </tbody> </table>	Area	Easting	Northing	Swinging Basin	1243281	4829468	Berth 3 & 4	1242725	4829504	Berths 5 & 6	1242626 & 1242530	4829611 & 4829575	Berths 7& 8	1242615	4829800		Agree with this condition, however clarity from the applicant's consultant (email of 8/12/2021) as to whether the following coordinates are correct which were provided as part of the public notification of the consents: Grid references (NZTM 2000), being: Centre of swinging basin: 4829468N 1243281E Centre of berth basins: Berths 3 & 4 4829504N 1242725E Berth 5 4829611N 1242626E Berth 6 4829575N 1242530E Berths 7 & 8 4829800N 1242615E Centre of harbour entrance channel: 4828749N 1244359E
Area	Easting	Northing																
Swinging Basin	1243281	4829468																
Berth 3 & 4	1242725	4829504																
Berths 5 & 6	1242626 & 1242530	4829611 & 4829575																
Berths 7& 8	1242615	4829800																

Table 4: Conditions of Consent

5	<p>The discharge of spoil to water and deposition of spoil into the seabed shall be carried out in the areas hatched on the attached plan entitled "Proposed capital dredging works areas within Bluff Harbour and Foveaux Strait/Tiwai Peninsula", and defined by the following NZTM 2000 co-ordinates:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Dredged Spoil</th> <th style="width: 30%;">Easting</th> <th style="width: 30%;">Northing</th> </tr> </thead> <tbody> <tr> <td rowspan="4" style="text-align: center; vertical-align: middle;">Sand and Silt</td> <td>1246513.845</td> <td>4829176.496</td> </tr> <tr> <td>1246312.069</td> <td>4829195.624</td> </tr> <tr> <td>1245764.657</td> <td>4828630.816</td> </tr> <tr> <td>1245986.106</td> <td>4828603.574</td> </tr> <tr> <td rowspan="4" style="text-align: center; vertical-align: middle;">Fragmented Rock</td> <td>1248753.667</td> <td>4828317.608</td> </tr> <tr> <td>1248607.001</td> <td>4828124.632</td> </tr> <tr> <td>1249288.851</td> <td>4827661.488</td> </tr> <tr> <td>1249427.794</td> <td>4827864.757</td> </tr> </tbody> </table>	Dredged Spoil	Easting	Northing	Sand and Silt	1246513.845	4829176.496	1246312.069	4829195.624	1245764.657	4828630.816	1245986.106	4828603.574	Fragmented Rock	1248753.667	4828317.608	1248607.001	4828124.632	1249288.851	4827661.488	1249427.794	4827864.757	<p>Agree with this condition with minor amendments, however clarity from the applicant's consultant (email of 8/12/2021) as to whether the following coordinates are correct which were provided as part of the public notification of the consents:</p> <p style="padding-left: 40px;">Disposal site (sediment):</p> <p style="padding-left: 80px;">4829176N 1246514E 4829196N 1246312E 4828631N 1245765E 4828604N 1245986E</p> <p style="padding-left: 40px;">Disposal site (rock):</p> <p style="padding-left: 80px;">4828318N 1248754E 4828125N 1248607E 4827661N 1249289E 4827865N 1249428E</p> <p>Amendment to address the discharge from the hopper is to be recorded in a grid pattern with GPS coordinates evenly across the 13ha site, and a report of the GPS references of disposal to be provided to the Compliance Manager, Environment Southland.</p> <p>The discharge of spoil to water and deposition of spoil into the seabed shall be carried out <u>in a consistent grid reference pattern</u> in the areas hatched on the attached plan entitled "Proposed capital dredging works areas within Bluff Harbour and Foveaux Strait/Tiwai Peninsula", and defined by the following NZTM 2000 co-ordinates:.....[Insert Table]</p>
Dredged Spoil	Easting	Northing																					
Sand and Silt	1246513.845	4829176.496																					
	1246312.069	4829195.624																					
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Table 4: Conditions of Consent

			<p><u>5B. The Consent Holder shall provide the disposal grid references and volumes for every deposit, on the last working day of each month to the Consent Manager, Environment Southland.</u></p>
6	<p>The consent holder shall maintain a record of the quantity of soft sediment and rock dredged and discharged and the areas from which the dredged material was derived and shall report to the Compliance Manager at the conclusion of the works, and upon request.</p>		<p>NOTE to condition 6: This condition is also to avoid the little penguin breeding and moulting season and seagrass (<i>Zostera muelleri</i>) flowering and growing season.</p> <p>The consent holder shall <u>record using GPS references and</u> maintain a record of the quantity, <u>to an accuracy of 0.5 cubic metre</u>, of soft sediment <u>and rock blasted, broken and/or dredged and the GPS references as to where it is discharged and the areas from which the dredged material was derived</u> and shall report to the Compliance Manager, <u>Environment Southland on the last working day of each month when work has been undertaken and a summary report</u> at the conclusion of the works, and upon Environment Southland's request.</p>
	<p>Timing of the Works</p>		
7	<p>Drilling, rock breaking, blasting, dredging and deposition activities shall be limited to the period 1 February to 30 September to avoid the peak marine mammal migration season and peak seabird and fish breeding and coastal feeding seasons.</p>		<p>This condition would benefit from the potential for addressing the shoulder season(s) to nesting and moulting and a pre inspection for nesting birds, and an opportunity for ES to understand the tolerances, or amendments to the Blasting Plan for accommodating penguins and the potential impacts from these activities.</p>

Table 4: Conditions of Consent			
			<p>New conditions</p> <p>7B The consent holder shall perform pre-blasting penguin nesting/moulting inspections, no greater than 5 working days prior to commencement of blasting that is programmed for February and programmed for September, to report on the number of penguins that are occupying any shoreline 500m [OR ACCEPTABLE DISTANCE SPECIFIED FROM TECHNICAL EVIDENCE] from the programmed blasting. The report shall be provided to the Compliance Manager, Environment Southland 24 hours before blasting shall commence.</p> <p>7C The consent holder shall not undertake any blasting within 500m [OR ACCEPTABLE DISTANCE SPECIFIED FROM TECHNICAL EVIDENCE] if any nesting or moulting penguins are found. Blasting shall not re-commence until either south Port have commissioned and have authority for the relocation of the found penguins to a safe position and habitat, or through monitoring those found penguins do not return for more than # [SPECIFIED NUMBER OF DAYS FROM TECHNICAL EVIDENCE] days.</p>
8	Soft sediment dredging shall be limited to the period 1 April to 31 July, to avoid the seagrass (<i>Zostera muelleri</i>) flowering and growing season.		Amended condition - Soft sediment dredging shall be limited to the period 1 April to 31 July, and <u>to a slack or ebb tide</u> to avoid the seagrass (<i>Zostera muelleri</i>) flowering and growing season.

Table 4: Conditions of Consent		
9	Drilling, rock breaking and blasting activities and use of the trailer suction hopper dredge (TSHD) shall be limited to the hours between 7.30 am and 6 pm when marine species are less active and to minimise disturbance to residential and rural receivers.	<p>Amended condition – to address Mr White’s concerns.</p> <p>Drilling, rock breaking and blasting activities and use of the trailer suction hopper dredge (TSHD) shall be limited to the hours between 7.30 am and 6 pm <u>and restricted to daylight hours*</u> when marine species are less active and to minimise disturbance to residential and rural receivers.</p> <p>*Daylight hours can be defined as 30 minutes after sunrise to 30 minutes before sunset.</p>
New	Trail Blasting	<p>New Condition (scoped to address Mr Smith’s concerns)</p> <p>## The consent holder shall undertake a trial blast to determine the charge weights required to for the rock fragmentation and validate the vibration attenuation.</p> <p>## Prior to the trial blast commencement, the consent holder shall survey, photograph and document the condition of structures nearest each of the blast zones, defined in the Blast Plan.</p> <p>## Upon completion of the trail blast period, the consent holder shall document and report the findings to the Compliance Manager Environment Southland, advising on the site specific:</p> <ul style="list-style-type: none"> (a) Where the seismographs and hydrophones were placed and monitored during any blasting trials, with a map and map references to inform (b) and (c) of this condition; (b) The vibration attenuation parameters in relation to the nearest structures, and

Table 4: Conditions of Consent			
			(c) The anticipated rock fragmentation and associated charges, graphed so as to determine the lowest charge necessary to obtain the desired outcomes of rock fragmentation, and avoidance of impacts on the nearest structures, thereby informing the Blast Plan.
New	Blast Plan		<p>New Condition (to address Mr Smith's requirements)</p> <p>##. The consent holder shall submit the Blast Plan (updated Figure 10 of Appendix 6 of the consent application), with details as to how the consent holder will collect drilling records, cross referenced to the detailed blast plan and, photographic records to be kept as representative dredged material.</p> <p>##. The consent holder shall provide the Blast Plan and records, references to the blast plan and photographic records with any analysis to the consent manager Environment Southland every four months upon commencement of blasting, and no less than twice during any 8 month period or blasting campaign</p> <p>Advice note: it is therefore possible to submit to ES the Blast Plan records twice over the 8 months based on the restrictions of other conditions (Feb-Sept) of blast works.</p>

Table 4: Conditions of Consent		
	Marine Mammal Management Plan	
		<p>This new condition is to reflect that there will be changes to the MMMP from its Nov 2021 version, from the final specifications of activities, the CIA Addendum and possibly the outcomes of the Hearing.</p> <p>New</p> <p>The consent holder shall update the Marine Mammal Management Plan (MMMP) (November 2021) to reflect the outcomes expected from the CIA and addendum CIA (December 2021), and submit the MMMP to the Compliance Manager of ES Consent Authority for certification, 20 working days prior to the commencement of exercising any of the consents, and within 10 working days of any reviews and updates of the MMMP.</p> <p>Recognition is needed that the noise characteristics validation has to occur in week 1 of blasting and rock breaking, whereby the existing acoustic propagation modelling will be validated by the underwater noise specialist according to noaa (2018) guidelines to confirm that the levels identified in styles group (2020) are accurate or, if different to these levels, and that they are amended to use the empirically measured levels. This way, the changes (controls and monitoring) to the MMMP might be influenced by the specialist, but ultimately Environment Southland need to certify all variations to the MMMP.</p> <p>New ## - Condition on the performance of the MMMP. [TO BE DEVELOPED, AND CONSIDERED AGAINST ANY BOND REQUIREMENTS].</p>

Table 4: Conditions of Consent

Geology of Entrance Channel			
10	The consent holder shall supply the Council's Compliance Manager, Environment Southland with a report from an engineering geologist documenting the results of the trial drilling and blasting programme conducted in the entrance channel. The report is to be provided prior to commencement of the capital drilling, blasting and dredging. The purpose of this report is to report on the extent to which the rocks encountered in the trial is consistent with that predicted in the application.		
Sediment Control			
11	The consent holder shall ensure that dredging of the Berths 5 & 6 basin and Berths 7 & 8 occurs during slack or outgoing (ebb) tides to avoid depositing fine silts in Awarua Bay and the upper harbour including seagrass beds.		The consent holder shall ensure that dredging of the Berths 5 & 6 basin and Berths 7 & 8 <u>all the soft sediment</u> occurs during slack or outgoing (ebb) tides to avoid depositing fine silts in Awarua Bay and the upper harbour including seagrass beds.
12	The consent holder shall ensure that sediment dredged from the Berth 5 & 6 basin and Berths 7 & 8 is not to be deposited at the sediment disposal site during slack tide where little or no wave action is evident.		Consistent with Mr Todd's finding, is that all soft sediment material for disposal must occur during ebb tide (not a slack tide) conditions that would restrict transport of this material back into the harbour. This current condition brings to question what is "little to no wave action" that environment is frequently containing waves and wind action. The consent holder shall ensure that <u>any</u> sediment dredged from the Berth 5 & 6 basin and Berths 7 & 8 <u>the exercise of this consent is not to only to</u> be deposited at the sediment disposal site during slack ebb tide. where little or no wave action is evident.

Table 4: Conditions of Consent		
NEW		<p>NEW conditions for bathymetric surveys</p> <p>##. The consent holder shall complete and provide a baseline bathymetric survey of the soft sediment disposal ground be undertaken no less than six months prior to the commencement of the capital dredging.</p> <p>##. The consent holder shall complete bathymetric survey post disposal activities surveyed at the same positions as undertaken in condition (above) at periods of every 6 months to be undertaken until such time as the bathymetric survey show that the seabed in the disposal area has returned to the base elevation.</p> <p>## The consent holder shall report the findings of conditions ## and ##, within 10 working days of completion of the bathymetric surveys, reporting and evaluating the outcomes of sea levels to the Compliance Manager at Environment Southland.</p>
13	<p>The consent holder shall implement adaptive receptor-based dredge management involving a three-tiered trigger threshold system based on water clarity and duration (days). This will be informed by turbidity meters that when exceeded, require sediment management responses, as set out in the Adaptive Marine Management Plan (AMMP). These triggers shall be:</p> <ul style="list-style-type: none"> • Tier 1 trigger – Warning, reduced water clarity: commence management actions. • Tier 2 trigger – Water clarity reduced further, and daily duration exceeded: increase management actions. 	<p>13A Commentary on conditions: between conditions 13 and 42, there is a need to undertake turbidity monitoring at the edge of the disposal sites (both sites) and at the sensitive receptors as condition 13 does not explicitly state where those turbidity monitors will be placed nor what the tier 1-3 triggers are, to ensure we have captured the disposal sites as well.</p> <p>If these are all in the management plans (Appendix 7 specifically regarding turbidity) then we need to understand what water quality (quantitative values) is for the daily average and cumulative (over 2 consecutive days) sediment levels in the water column.</p>

Table 4: Conditions of Consent

<p>• Tier 3 compliance level – Cease dredging in the vicinity of the monitoring station(s) showing the exceedance until water quality daily average returns to acceptable levels.</p> <p>For Tier 1 and Tier 2 exceedances, the management responses will be:</p> <ul style="list-style-type: none"> • Alternating the dredging of ‘lower risk’ predominantly sand zones and ‘higher risk’ silted zones to assist with turbidity reductions and increase light availability until the Tier 1 level is no longer exceeded. • Assessing tidal movements and velocities and altering dredging positions/timings further based on these, until the Tier 1 level is no longer exceeded. <p>The turbidity meters shall be placed near sensitive habitats such as seagrass beds and at the eastern end of the Motupōhue mātaītai with another “control” turbidity meter placed near seagrass beds outside of the predominant tidal flow pathway. The final placement of the turbidity meters shall be subject to consultation and confirmation from Te Rūnanga o Awarua.</p> <p>Ongoing monitoring of the sensitive receptors using turbidity meters shall be carried out during the soft sediment dredging and disposal operations. This shall include daily monitoring of the meters during dredging in ‘higher risk’ sites (Zones B3/4, B5,</p>	<p>IF WE ADOPT THE MATTERS THAT OF Rule 7.2.2.1 (3rd Schedule RMA Classes AE, F, FS, SG, CR, S (standards) additional to condition 13:</p> <p>The consent holder shall report on compliance with disposal of the soft sediment disposal sites, as measured [need to define the reasonable mixing zone] Need to add frequency of monitoring and collection frequency – telemetry]:</p> <ol style="list-style-type: none"> 1 the natural temperature of the water monitored at the edge of the reasonable mixing zone shall not be changed by more than 3° Celsius and the natural temperature of the water shall not exceed 25° Celsius; 2 the change in pH at the edge of the reasonable mixing zone shall not result in a loss of biological diversity or a change in community composition as monitored by the seabed inspections; 3 the concentration of dissolved oxygen shall exceed 80% of saturation concentration; 4 fish and other aquatic organisms shall not be rendered unsuitable for human consumption by the presence of contaminants; 5 there shall be no undesirable biological growths as a result of any discharge of the soft sediments into the water; 6 physical, chemical or biological constituent from that water measured at the edge of the mixing zone shall not deem aquatic life
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Table 4: Conditions of Consent

<p>A4, B7&8, A3) and weekly monitoring during the 'lower risk' zones (Zones B11, E, C and swinging basin).</p>	<p>to be adversely affected through aquatic samples of aquatic life being tested for chemical or biological conditions;</p> <p>7 visual clarity shall not be diminished by more than 25 percent¹¹;</p> <p>8 the water shall not be rendered unsuitable for bathing by the presence of contaminants;</p> <p>9 the water shall not be altered in those characteristics which have a direct bearing upon cultural or spiritual values.</p> <p>Condition 13 amendment</p> <p>The turbidity meters, measuring Nephelometric Turbidity Unit (NTU) shall be placed near sensitive habitats such as seagrass beds and at the eastern end of the Motupōhue mātaītai, <u>and 20m off the shoreline centrally located in the middle of the dredged/blasting area, with another "control" turbidity meter placed near seagrass beds outside of the predominant tidal flow pathway. The final placement of the turbidity meters shall be subject to consultation and confirmation from Te Rūnanga o Awarua, and certification from Compliance Manager Environment Southland.</u></p> <p>Ongoing monitoring, <u>at least every 30 minutes using telemetry or data logging systems</u>, of the sensitive receptors using turbidity meters shall be carried out during the soft sediment dredging and disposal operations. This shall include daily monitoring of the meters during</p>
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¹¹ Page 31 of the application notes that from the discharge of soft sediment, there is likely to be temporary diminished visual clarity of the receiving waters at the disposal site by more than 20 percent.

Table 4: Conditions of Consent		
		<p>dredging in 'higher risk' sites (Zones B3/4, B5, A4, B7&8, A3) <u>and the reporting to Compliance Manager, Environment Southland to be weekly monitoring</u> during the 'lower risk' zones (Zones B11, E, C and swinging basin).</p> <p>13A [NEW] At least one station of monitoring shall measure the currents during the concurrent dredging and collection of turbidity in condition 13.</p>
	Protection of Marine Mammals	
14	<p>The consent holder shall establish a designated marine mammal observation zone (MMOZ) in the harbour and harbour entrance covering all categories of marine mammal based on the modelled extent of temporary transitional shift (TTS) to protect marine mammals from permanent and temporary hearing injury from blasting. The MMOZ will correspond with a worst case blasting scenario involving 25 kg charges as mapped on Attachment 1.</p>	<p>CROSS REFERNCE Attachment 1.</p> <p>CHANGE CONDITION TO REFLECT THE MMMP, WHERE BLASTING REQUIRES A GREATER OBSERVER RANGE (300-500M) TO COVER THE 800-1000M. THIS WILL REQUIRE MORE THAN ONE MARINE MAMMAL OBSERVER SITUATED AROUND THE SITE. THE DRAFT CONDITION COULD BE DEVELOPED AS:</p> <p>14.The consent holder shall establish a designated marine mammal observation zone (MMOZ) in the harbour and harbour entrance covering all categories of marine mammal based on the modelled extent of <u>permanent threshold shift (PTT) and</u> temporary transitional shift (TTS) to protect marine mammals from <u>permanent and</u> temporary hearing injury from blasting. The MMOZ will correspond with a worst case blasting scenario involving 25 kg charges as mapped on Attachment 1.</p> <p>14A.[NEW] The consent holder shall report on the effectiveness of the approach to condition 14, through weekly reports on sightings, and</p>

Table 4: Conditions of Consent

		<p>corresponding actions of stopping blasting, and when and why recommencement occurred.</p> <p>14B. [NEW] The consent holder shall notify within 4 working days before commencement of when blasting programme/works when the consent authority can undertake an onsite visit (aboard the same vessels) for auditing of the effectiveness of the MMOZ and observers.</p> <p>Advice Note: this audit will not only oversee how observations are undertaken, but also the communication methods between vessels (MMOZ personnel and blasting operators). Environment Southland reserve the right to engage suitably qualified and experienced independent auditors for this.</p>
<p>15</p>	<p>The consent holder shall engage suitably trained and experienced Marine Mammal Observers (MMOs) who will be responsible for observing the MMOZ at least 60 minutes prior to charge detonation and following detonation.</p>	
<p>16</p>	<p>In the event that marine mammal(s) are observed in the MMOZ or are likely to enter the MMOZ, blasting shall cease until the marine mammal(s) have been observed to move out of the MMOZ.</p>	<p>Amendment to condition 16</p> <p>In the event that marine mammal(s) are observed in the MMOZ or are likely to enter the MMOZ, blasting shall cease until the marine mammal(s) have been observed to move out of the MMOZ <u>for either a distance of more than 100m [OR DISTANCE SPECIFIED BY TECHNICAL</u></p>

Table 4: Conditions of Consent			
			<u>EXPETS] or for more than 10 minutes [OR TIME SPECIFIED BY TECHNICAL EXPERTS] with no further observation within the MMOZ.</u>
17	The consent holder shall adhere to the standard operating procedures for the MMOZ set out in the Marine Mammal Management Plan (MMMP) during pre and post blasting monitoring operations.	Amended condition 17	<u>Where not specified elsewhere in conditions of this consent</u> , the consent holder shall adhere to the standard operating procedures for the MMOZ set out in the Marine Mammal Management Plan (MMMP) during pre and post blasting monitoring operations
18	A marine mammal sighting log to record any marine mammal sighted (date and time), and actions taken, shall be prepared, and maintained, as specified in the MMMP. These records and a summary report shall be provided to the Council's Environmental Compliance Manager and the Department of Conservation at the conclusion of the project, and upon request.		A marine mammal sighting log to record any marine mammal sighted (<u>distance from nearest Capital Dredging works</u> , date and time), and actions taken, shall be prepared, and maintained, as specified in the MMMP. These records and a summary report shall be provided to the Council's Environmental Compliance Manager and the Department of Conservation at the end <u>of each calendar month during Capital Dredging</u> , <u>and</u> a summary conclusion of the project, and upon request.
19	The consent holder shall ensure ropes or lines used during towing of the split hopper barges are kept taut at all times to avoid the potential for marine mammals to become entangled in the lines.		
20	The consent holder shall in advance of the work, undertake inductions with vessel staff about appropriate behaviour around marine mammals, and vessel master's responsibilities under the Marine Mammals Protection Act 1992. These include speed		The consent holder shall in advance of the work, undertake inductions with vessel staff about appropriate behaviour around marine mammals, and vessel master's responsibilities under the Marine Mammals Protection Act 1992. These include speed limits to avoid the potential

Table 4: Conditions of Consent	
	limits to avoid the potential for marine mammal injury or mortality.
	for marine mammal injury or mortality, <u>and responsive actions expected to be performed under condition 18.</u>
21	The MMMP shall be updated with the latest set of acoustic monitoring results and submitted to the Council's Environmental Compliance Manager prior to consented activities commencing.
	The MMMP shall be updated with the latest set of acoustic monitoring results and submitted to the Council's Environmental Compliance Manager prior to consented activities commencing. <u>Where those results differ from the consent application the consent holder shall submit a table of the difference and assessment of actions to better mitigate the effects assigned to each of those noted differences.</u>
	Protection of Seabirds and Other Marine Species
22	The consent holder shall establish a designated observation zone for seabirds, including shags and penguins that correlates with the TTS for Otariid pinnipeds and a mortality zone for fish. These areas will correspond with a worst-case blasting scenario involving 25 kg charges where underwater blasts could cause injury or mortality to seabirds and fish.
	Note that this condition differs from the penguin nesting and moulting condition, and only manages the TSS within the waterbody, as TSS as mapped in the application does not extend landward of the CMA.
23	The consent holder shall undertake visual observations of the TTS and fish mortality zones in conjunction with the engaged MMOs.
	Amended condition The consent holder shall undertake visual observations of the TTS <u>immediately after the blasting activity(s) when it is safe to enter for fish mortality zones in conjunction with the engaged MMOs.</u>
24	In the event that any seabirds and sharks are observed in these zones, blasting shall cease until the seabirds and sharks are no longer observed in the zones.
	Confirm if this is the MMOZ or the TTS zone, or all zones? Above clarification, and amended condition needed: In the event that any seabirds and sharks are observed in these zones [TO BE SPECIFIC], blasting shall cease until the seabirds and sharks are

Table 4: Conditions of Consent		
		no longer observed for ### m [DISTANCE] or ## minutes (TIME) in the [SPECIFIED] zones.
25	The consent holder shall prepare and maintain a sighting log recording any non-marine mammal species sighted (date and time), and actions taken. These records and a summary report shall be provided to the Council's Environmental Compliance Manager at the conclusion of the project, and upon request.	Potential to move to new conditions 14 under the MMMP.
26	The consent holder shall activate an initial open water blast of low peak pressure to remove mobile species from the harbour entrance channel and surrounding waters before blasting commences. This open water blast only occurs once the MMOs have assessed that no seabirds and shark species are present in the TTS and fish mortality zone.	The consent holder shall activate an initial open water blast of low peak pressure to remove disturb mobile species <u>further</u> from the harbour entrance channel and surrounding waters before blasting commences. This open water blast shall only occur once the MMOs have assessed that no seabirds and shark species are present in the TTS and fish mortality zone.
27	The consent holder shall ensure a period of 90 seconds passes before blasting commences to enable benthic fish and highly mobile mollusc species (squid and octopus) to exit the TTS and mortality zone.	
28	In the event that the open water blast is causing mortality to small marine fish species and is creating a feeding flock of gulls and terns, the consent holder shall revise this deterrence measure or discard completely.	The challenge with this condition, is what would South Port do to deter fish and birds from the blast zone if this warning blast method did not work?
29	The consent holder shall employ a soft start in which a lower explosive charge is set off prior to the commencement of each	Clarification. A definition of what constitutes a soft start explosive charge (i.e., 2kg drilled into a depth of rock??)

Table 4: Conditions of Consent		
	blast event to further assist in deterring seabirds and fish from the harbour entrance channel and surrounding waters.	<p>Clarification: How long before the main blasts (minimum of 10kg and up to 25kg) should the soft start occur? 10 mins, 30 mins, 90 seconds?</p> <p>Clarification: Does the soft start only commence after 7.30am and before 6pm (and to daylight hours*).</p> <p>*Daylight hours can be defined as 30 minutes after sunrise to 30 minutes before sunset.</p>
30	The consent holder shall operate an acoustic harassment device at all times during drilling and blasting operations to deter seabirds and fish from the harbour entrance channel and surrounding waters.	Clarification: just prior to blasting, and limited to the hours of 7.30am and 6pm (and daylight hours*)?
	Biosecurity	
31	The consent holder shall inspect the dredge, barge, tug and split hopper barges for fouling organisms, including <i>Undaria pinnatifida</i> and other "exclusion species included in the Southland Regional Pest Management Plan (SRPMP), no more than one week prior to the vessels entering Bluff Harbour.	
32	If such organisms are found, the consent holder shall ensure that the organisms are removed and disposed of to a designated refuse site on land, and any "exclusion" species identified in the SRPMP are reported to Biosecurity NZ and Environment Southland.	

Table 4: Conditions of Consent

<p>33</p>	<p>The consent holder shall provide Council's Environmental Compliance Manager with updated biofouling management plans from the dredge operators prior to commencement of the works.</p>	<p>Additional to 33,</p> <p>33A [New]</p> <p>Biosecurity Management Plan (BMP)</p> <p>33A.1 If the consent holder deploys the dredge vessel directly from overseas then a BMP is required to be prepared and implemented in accordance with conditions 33A.2 to 33A.8.</p> <p>33A.2 At least two months prior to the arrival of the dredge vessel in New Zealand, the consent holder shall provide a BMP to the Consent Authority. A copy of the BMP shall be provided at the same time to Tangata Whenua as is provided to the Consent Authority.</p> <p>33A.3 The purpose of the BMP shall be to reduce the risk of a biosecurity incursion to the greatest extent practicable.</p> <p>33A.4 The BMP shall include, but not be limited to, the following:</p> <p>33A.4.1 A description of the dredge vessel and its attributes that affect risk, including key operational attributes (e.g. voyage speed, periods of time idle), maintenance history (including prior inspection and cleaning undertaken), and voyage history since last dry-docking and antifouling (e.g. countries visited and duration of stay);</p> <p>33A.4.2 A description of the key sources of potential marine biosecurity risk from ballast water, sediments and biofouling. This should cover the hull, niche areas, and associated equipment, and consider both submerged and above-water surfaces;</p> <p>33A.4.3 An assessment of the biosecurity risks to Authorised Marine Farming Activities from activities authorised by this</p>
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Table 4: Conditions of Consent

		<p>consent and the methods to be used to minimise those risks to the greatest extent practicable.</p> <p>33A.4.4 Findings from any previous inspections;</p> <p>33A.4.5 A description of the risk mitigation taken prior to arrival in New Zealand, including but not limited to:</p> <p>33A.4.5.1 Routine preventative treatment measures and their efficacy, including the age and condition of the antifouling coating, and marine growth prevention systems for sea chests and internal sea water systems;</p> <p>33A.4.5.2 Specific treatments for submerged and above-water surfaces that will be undertaken to address IHS and CRMS requirements prior to departure for New Zealand. These could include, for example, in-water removal of biofouling, or above-water cleaning to remove sediment;</p> <p>33A.4.5.3 Additional risk mitigation planned during transit to New Zealand, including expected procedures for ballast water management;</p> <p>33A.4.5.4 Expected desiccation period of above-water surfaces on arrival to New Zealand (i.e. period of air exposure since last dredging operations);</p> <p>33A.4.6 The nature and extent of pre-border inspection that will be undertaken (e.g. at the overseas port of departure) to verify compliance with IHS and CRMS requirements; and</p> <p>33A.4.7 Record keeping and documentation of all mitigation undertaken (i.e. prior to and during transit to New Zealand) to enable border verification if requested by Ministry for Primary Industries or its successor, and to facilitate final clearance.</p> <p>33A.5 The BMP shall be prepared by a person who is suitably qualified experienced in managing the risk of biosecurity incursions and shall be appointed by the consent holder following consultation with the ALG.</p>
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Table 4: Conditions of Consent			
			<p>Certification of BMP</p> <p>33.6 The BMP shall be approved in writing by the Consent Authority Manager acting in a technical Certification capacity prior to the first commencement of Dredging authorised by this consent and the consent holder shall undertake all activities authorised by this consent in accordance with the approved BMP.</p> <p>33.7 Any amendment of the BMP shall be approved in writing by the Consent Authority Manager acting in a technical Certification capacity and the consent holder shall undertake all activities authorised by this consent in accordance with the amended BMP.</p> <p>33.8 A copy of the BMP and all amended BMPs shall be provided to Tangata Whenua immediately following Certification.</p>
34	The consent holder shall be use MPI accredited operators to undertake inspections and cleaning of vessels.		The consent <u>holder</u> shall be use MPI accredited operators to undertake inspections and cleaning of vessels
35	An inspection report shall be submitted to Council's Environmental Compliance Manager prior to the dredge equipment entering Bluff Harbour detailing the timing, method, and findings of the inspection.		
36	The consent holder shall monitor the fixed quadrat locations on the seabed within the blast zone (as per proposed Condition 41) at 3 months, 12 months and annually for up to 3 years following completion of the works, for the presence of <i>Undaria pinnatifida</i> , and "exclusion" species identified in the SRPMP. Any pest marine organism detected during this period shall be		Advice Note: The "works" includes all dredging (including rock breaking, blasting).

Table 4: Conditions of Consent			
	removed from the zone and disposed of to a designated refuse site on land. This sighting will be reported to Biosecurity NZ and Environment Southland for management purposes.		
	Noise Control		
37	The consent holder shall ensure that the noise emissions at residential and rural receivers does not exceed 50 dB LAeq during night-time hours (8 pm to 6.30 am).		N.B. Email correspondence from Simon Beale (9/12/2020) has confirmed <i>“Condition 37 is structured according to the project noise standards that apply to specific time bands. In the case of drilling, the noise standards for the operating hours 0730 to 1800 (weekdays and Saturdays) apply while dredging applies across all time bands, 24/7.”</i>
38	The consent holder shall ensure that the noise emissions at residential and rural receivers does not exceed 70 dB LAeq during daytime hours (7.30 am to 6 pm);		
39	The consent holder shall ensure the hopper barge is lined with timber or an alternative material that prevents rocks impacting on any steel surface.		Clarification required – when the hopper is filled and depositing content (disposal sites), what happens to that timber lining? Is the lining fixed so to not drop out?
40	The consent holder shall ensure that all drilling and dredging equipment is regularly maintained, including hydraulic equipment, exhausts, generators, and winches to lessen above and below water surface noise production.		

Table 4: Conditions of Consent

Monitoring and Reporting			
41	<p>The consent holder shall provide to Council's Environmental Compliance Manger a Monitoring and Reporting Management Plan prior to commencing work authorised by this consent. This plan must outline the methodology to be used to achieve compliance with conditions 42-47.</p>		
42	<p>Soft Sediment Benthic Monitoring</p> <p>42. The consent shall monitor the following soft sediment sites (NZTM 2000) within three months of completion of the works for heavy metals, polycyclic aromatic hydrocarbons, phosphorus, tributyltin, sulphate, and sediment particle size analysis.</p> <ul style="list-style-type: none"> • Harbour control site (Easting 1242608.133; Northing 4831600.781); • Motupōhue mātaītai control site (subject to confirmation with Te Runanga a Awarua); • Tiwai control site (Easting 1247131.851; Northing 4829218.48); <p>and</p> <ul style="list-style-type: none"> • Sediment disposal site (Easting 1246000.422; Northing 4829265.766). <p>A report detailing the findings of this sediment monitoring shall be provided to the Council's Environmental Compliance Manager within three months of completion of analysis of the sediment samples.</p>		

Table 4: Conditions of Consent

<p>43</p>	<p>Seagrass Monitoring The consent holder shall undertake health status monitoring of three seagrass beds pre-, during and post- soft sediment dredging works. This health status monitoring shall include particle size analysis, sediment chemistry analysis, percentage cover and water clarity measurements at fixed quadrat locations to allow for comparison. The monitoring sites are (NZTM 2000):</p> <ul style="list-style-type: none"> • Seagrass Control (Easting 1241561.286; Northing 4830051.256); • Rabbit Island (Easting 1242832.631; Northing 4832323.527); <p>and</p> <ul style="list-style-type: none"> • Tiwai Wharf (Easting 1244270.155; Northing 4829583.095). 		
<p>44</p>	<p>Rocky Reef Benthic Monitoring <i>Bluff Harbour Entrance Channel</i> The consent holder shall undertake quantitative benthic monitoring of the seabed at fixed quadrat locations within the blasting zone for epifauna and algal cover. Photo quadrats will be taken of the site and assessed for changes in biomass and species assemblages. Monitoring shall be undertaken prior to the works to establish a baseline, then at 3 months, 12 months and 36 months.</p>		<p>The consent holder shall undertake quantitative benthic monitoring of the seabed at fixed quadrat locations within the blasting zone for epifauna and algal cover. Photo quadrats will be taken of the site and assessed for changes in biomass and species assemblages. Monitoring shall be undertaken <u>12 months</u> prior to the works to establish a baseline, then at 3 months, 12 months, <u>24 months</u> and 36 months.</p> <p>New Condition 44B.</p> <p>The consent holder shall undertake quantitative benthic monitoring of the seabed at fixed quadrat locations within the blasting zone for epifauna and algal cover. Photo quadrats will be taken of the site and assessed for changes in biomass and species assemblages. Monitoring</p>

Table 4: Conditions of Consent

			shall be undertaken at the completion of the Capital Dredging and the findings shall be provided to the Consents Manger, Environment Southland.
45	<p><i>Rock Disposal Site</i></p> <p>The consent holder shall undertake quantitative benthic monitoring of the rock disposal site at fixed quadrat locations for infauna, epifauna and algal cover using transects and quadrats. Visual rock stability assessments shall also be completed. Monitoring shall be undertaken at 3 months, 12 months, 36 months and 60 months following completion of the works.</p>		<p>New Condition 45A.</p> <p>45A. The findings of Condition 45 shall be reported to the Compliance Manager, Environment Southland within 2 months following the monitoring and assessments specified periods in condition 45.</p> <p>Note: It is advisable that each of these reports becomes an addendum to the Monitoring and Reporting Management Plan.</p>
46	<p>A benthic monitoring report covering conditions 41 and 42 will be provided to the Council's Environmental Compliance Manager within three months following each survey, with the exception of the initial 3 month survey results which will be included in the 12 month survey report.</p>		<p>A benthic monitoring report covering conditions 41 and 42 will be provided to the Council's Environmental Compliance Manager, <u>within 1 month of the baseline monitoring</u>, within three <u>two</u> months following each survey, with the exception of the initial 3 month survey results which will be included in the 12 month survey report.</p>
47	<p>Motupōhue Mātaitai Monitoring</p> <p>The consent holder will undertake an Ecological Impact Assessment within the Motupōhue mātaītai. This shall be commenced at least 3 months prior to the works commencing. The methodology and specific site guidance is to be finalised by the consent holder following consultation with Te Rūnanga o Awarua.</p> <p>This assessment will include a baseline assessment, health status monitoring of paua beds and rocky reef habitat within the</p>		

Table 4: Conditions of Consent

	<p>proposed site during dredging and a post-dredging assessment.</p> <p>The final assessment is to be submitted to the Council's Environmental Compliance Manager and Te Rūnanga o Awarua within 3 months of completion of the works.</p>		
	<p>Public Notification</p>		
<p>48</p>	<p>The consent holder shall provide 24-hour advance notice to the public including commercial shipping and fishing companies and water based recreational user groups of scheduled blast events through the following communication channels:</p> <ul style="list-style-type: none"> • UHF Marine Channels 14, 16 and 61; • Meri Leask – Bluff Fisherman’s Radio; • Coastguard Channel 2; • Variable Message (LED) Signs – located at strategic locations in Bluff; • Physical Project Information station on Port and in the Community; • Emails; and • Posters. 		
<p>49</p>	<p>The consent holder shall provide advance notice to the owners and occupiers of properties predominately on Marine Parade as to when night time dredging works is likely to occur. The communication should be designed to let the owners know</p>		<p>Suggest that a wider reach of advanced notice beyond that mentioned in condition 48 and 49 includes any local media, websites and community notice boards, as there maybe owners/occupiers to side streets to Marine Parade who could be affected.</p>

Table 4: Conditions of Consent	
	<p>about the timing and duration of night time works, that it will be audible in some meteorological conditions, and that closing bedroom windows will assist to reduce noise levels, particularly during certain meteorological conditions.</p>
	<p>New Condition</p> <p>49B The consent holder shall provide advance notice more broadly to Bluff residents through condition 48 and 49B through freely available local media, South Port’s website (Communication Centre), and community notice boards as to when night time dredging works is likely to occur. The communication should be designed to let the landowner and occupiers know about the timing and duration of night time works, that it will be audible in some meteorological conditions, and that closing bedroom windows will assist to reduce noise levels, particularly during certain meteorological conditions.</p>
50	<p>The consent holder shall maintain complaints register over the duration of the works and liaise with any complainant as to the means of mitigating any issue(s) raised.</p>
	<p>[Replacement condition 50] Complaints</p> <p>#.1 A record of complaints relating to any activity associated with Dredging, blasting, breaking or the disposal shall be maintained. Each record, where practicable, shall include:</p> <ul style="list-style-type: none"> ##.1 The location of the reported nuisance or effect; ##.2 The date and time of the complaint; ##.3 A description of the weather conditions at the time of complaint, if relevant; ##.4 Any possible cause of the nuisance or effect; and ##.5 Any management actions undertaken to address the cause of the complaint; and the name of complainant, if offered. <p>##.2 The record of complaints shall be provided to the Compliance Manager, Environment Southland every year or on request.</p>

Table 4: Conditions of Consent		
		##.3 An aggregated summary of the complaints shall be incorporated into an annual monitoring report.
	Lapse Date	
51	The lapse date for the purposes of section 125 shall be 31 December 2031.	The lapse date for the purposes of section 125 shall be 31 December 2031 26.

7.5 Bond(s) (s.108A RMA)

Section 108(2)(b) of the RMA enables the consent authority to have a condition of consent for the provision of a bond in accordance with Section 108A RMA. If the Commissioners entertain the need for a bond the terms of the bond will be necessary. The question on bonds arose in the s.92 RMA and Workshop between the Environment Southland auditing team and the applicant. The applicant disputed and questioned what purposes or terms of the bond were necessary, and what scope a bond should cover. s.108A RMA outlines a bond can be required for the performance of any 1 or more conditions of consent, where considered appropriate and can continue after the expiry of the resource consent to secure the ongoing performance relating to long term effects, including

(b) a condition relating to remedial, restoration, or maintenance work:

(c) a condition providing for ongoing monitoring of long-term effects.

[s.108A(a)(b) and (c) RMA]

In this circumstance, my evaluation of Mr White's, Mr Smith's and Mr Todd's technical audits and the nature of the works, found issues raised on matters of uncertainty and lack of performance of mitigating effects. In my opinion, this provides a platform for bonds at an RMA tool to address these issues. Within Table 5, I have drafted the risks (or effects) and what scope of a bond could be developed. I have also tabled some dollar values which are a "strawman" guess, of what values would be necessary. Ideally, these would be costed up for the works or bond scope to incentivise South Port and give certainty of the performance on complying with the conditions of consent.

Table 5: Scope of Bond(s)		
Item	Risk	Scope of Bond
1	Programme delays requiring renewal consents, or new consents to replace the sought consents (greater than 5 years)	<p>The bond is to incentivise the programme to be delivered as planned, and not see repetitive works over multiple years, which causes greater (longer term) effects on the seabed. The bond can start at \$1, and accumulate over the 5 years of progress of physical works against the timeframe. If all the works were completed in the first “dredge and disposal season” then there would be no need for any bond beyond \$1. Therefore, this accumulating bond incentivises the delivery of works against the timeframe/duration of consent. Then if South Port progressively get behind the programme of works the bond value escalates, at a rate proportionate to the work completed, with a total value of \$1,000,000 (potentially \$200,000/year). This also incentivises South Port and its contractors to keep the works progressing to avoid exceeding the term of consent.</p> <p>The \$1,000,000 bond (cap) could be used to assist within remediation of seabed to reinstate crustaceans, kelp and shellfish on the seabed where the loss has not been naturally rejuvenated due to the successive seasons of dredging and disposal.</p>
2	Destabilisation of the bed scour and coastline from hard rock disposal field (placement), requiring replenishment, or remedial work to rectify the mounding. As identified in Section 3.6, if the placement of rock is mounded, this could have reasonably significant effects.	<p>A bond could be obtained for longer term (a term yet to be developed, with annual monitoring) providing that provides certainty that the coastal processes, as a result of the South Port disposal sites, do not accelerate coastal bed scour or erosion, requiring a bond of \$1,000,000 for potential remedial works.</p>

Table 5: Scope of Bond(s)		
Item	Risk	Scope of Bond
3	Nesting penguins being disturbed on the shoulder season of breeding where drilling, blasting, breaking and dredging activities have the potential to impact on birds not returning to their nests, or impacting on the forging areas from, by example high turbidity. It is noted that F&B have raised this matter in their submission.	<p>While a condition of consent could cover the South Port investigations during the breeding season, and any co-incident timing of the proposed works and nesting/breeding, whereby South Port would need a Wildlife Permit and undertake the work (relocation). A bond (and the scope) can assist at the completion of the works to cover the relocation and support (pest control, signage and protection) of penguins along the shoreline where they might have been found breeding/nesting during the works. This bond would be held for up to 5 years after the works are completed, to encourage a similar number of breeding/nesting that exists at the time of the commencement of the works, which if a Wildlife Permit were needed, a survey would be necessary to document the locations and conditions of the penguins, so that those can be replicated.</p> <p>A condition would need to be drafted, which is upon finding penguins and South Port deciding to not stop works, and seek to relocate the penguins, then what bond is posted to ensure the relocation is effective.</p>
4	MMMP – performance of the exhaustive list of matters to be performed.	Potentially a bond could be set aside to incentivise South Port (and its contractors) on performance of the MMMP, which could be audited during the execution of the consents. Those audits would need to gauge the responsive actions and how robust the observers and documented procedures were. The challenge of setting a dollar value, and expectation of what to do with the bond, if poor or lack of performance was audited is a question

Table 5: Scope of Bond(s)		
Item	Risk	Scope of Bond
		that should be posed to those with specialist knowledge in marine mammals, and what desired outcomes to continue protecting the species and habitat in this and surrounding location.

8.0 Conclusion

It is my conclusion, after completing the review of the application, taking into account the feedback of the technical audits, and evaluation of the application and all the information from the applicant and its consultants; I consider there is a **pathway to approve the consents**. This conclusion is tempered with acknowledging the conditions of consent within the application and extent of responses from the s.92 and workshop responses from the applicant and its consultants. This is superficially tested where the development of consent conditions, and efforts necessary to meet s.104(1)(a) of the RMA associated with the actual and potential environmental effects is critical. I am also tempered in the fact that this environment is at least part a working (port) environment, but includes some sensitive receiving environments.

Generally, I concur that the proposal is generally consistent with the relevant objectives and policies, however Section 3.8 of this report raises questions if South Port are being precautionary enough to meet Policy 3 of the NZCPS and also being consistent with Objective 1 (NZCPS). I also consider if the applicant is going so far to avoid direct effects on taxa / ecosystems / habitats and areas in Policy 11(a)(i)-(vi) expected within the NZCPS. The re-occurring theme here, is that I consider greater effort can go into the conditions of consent to avoid, remedy or mitigate actual and potential effects. Ultimately, South Port has chosen to undertake pre-works investigations (trials, monitoring and parameter setting) prior to the works, yet one could have expected this to be before making the application. Possibly South Port want the certainty of obtaining consents before further investment.

One of the key matters that was questioned by Mr Smith, and DoC and F&B as submitters, was the consideration in terms of policy matters in Policy 10.21 of the RCP ("avoid, wherever practicable.....deposition.....into the coastal marine area"). Here, South Port (or others) had no viable use of the dredged rock on land, or coastal works. Obviously, South Port already have consent for dredging and have historically disposed of soft sediment at the disposal site. The alternative statutory test, and that within the application for alternative sites of discharge (s.105 RMA) seemed very dismissive of the alternative sites of disposal due to the impracticable double handling and storage of the hard rock being dredged. That does not dismiss that over a longer term there might be a development where the alternative need for rock results in land-based use (disposal), and South Port seeking to not exercise the disposal at sea.

In respect to the reduced term (to 5 years), it is beneficial to understand why this might be appropriate, which includes:

- ∴ The risk of successive dredging programmes within the channel poses risks to environment, as addressed in Section 3.0 of this report. The longer term (10 years) poses much greater risk and uncertainty and

potential adverse effects, on the marine habitat recolonisation, the potential disruptions of nesting or moulting penguins on the shoulder season during blasting works, and the time periods when marine mammal effects might occur during blasting;

- ∴ The five years bring a consolidated focus for South Port to coordinate and programme the dredging and disposal works. This shortened period should make South Port much more strategic and undertaking the works, with multiple operational constraints (i.e., hours of blasting, soft sediment dredging on outgoing tides and associated disposal of soft sediment, and an understanding of tides, currents, and wind for control of the vessels assisting in complying with the conditions of consent and management plans);
- ∴ The MMMP and adaptive measures is exhaustive, which South Port need to ensure they have suitably trained and experienced observers, and decision making on when to perform warning blasts and all capital dredging blasts, to avoid adverse effects on marine mammals. Another example is the undertaking to potential relocate penguins to other environments, may see that penguins do not return (or for a longer period of time) if the works were to continue over 10 years;
- ∴ The application has hung the discharge of sediment during soft sediment dredging as temporary under s.107 RMA, which if each individual discharge occurrence were not repeated, could be agreed to. However, I have highlighted the longer term cumulative effects as a concern. Reducing the term to 5 years assists with reducing the cumulative water quality, and corresponding aquatic habitat and life effects.

These are all robust reasons why I have recommended reducing the consents to 5 years.

I have attempted to scope or draft some new conditions where necessary, and made amendments to the proposed conditions in order to assist the decision maker. I do consider these conditions a 'work in progress' and understand that South Port has been further developing the conditions, possibly with submitters, which I am able to assist with further development or review of what conditions they are now proposing, or possibly through expert conferencing.

Appendix A: Coastal processes and associated effects

Date:	14 March 2022	<i>[Legal entity]</i>
Project name:	Southport Capital Dredging Consent - Coastal Processes Audit	Level 2, Wynn Williams Building 47 Hereford Street Christchurch Central 8013
Project no:	IS402700	PO Box 1147
Attention:	Hamish Peacock	Christchurch 8140
Company:	Pattle Delamore Partners Ltd:	New Zealand
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		<i>[Website]</i>

1. Introduction

Jacobs have been engaged by Environment Southland (ES) as the consent authority to undertake a technical review of the potential effects on coastal processes from the proposed Bluff Harbour (Awarua) Capital Dredging as part of the resource consent application process for this activity by South Port New Zealand Limited. As such I have read the following sections of the AEE prepared by Beale Consultants for the consent application:

- Section 2 (Description of proposal),
- Relevant parts of section 3 (Description of coastal environment),
- Section 5.2, 5.3, 5.13 & 5.15 (assessment of effects on geology of entrance channel, coastal processes, marine ecosystems, climate change, and summary respectively),
- Section 6 (proposed monitoring and reporting),
- Section 8 (alternative discharge locations),
- Section 10 (conclusions).
- Appendix 1: Proposed consent conditions
- Appendix 2: Hydrodynamic model of Bluff harbour. Report by Oceanum & Calypso Science (OCS, 2020)
- Appendix 3: Bluff Harbour Entrance drilling, blasting and dredging methodology. Report by OCEL
- Appendix 5: Bluff harbour Dredging – coastal processes assessment. Report by OCEL (Rev 4, Nov 2021)
- Appendix 6: Assessment of marine environment effects. Report by E3 Scientific

Of particular relevance for my review is Appendix 5: coastal processes assessment by OCEL

I also contributed questions on coastal processes to the applicant under s92 and attended the site visit and meeting with the applicant to discuss the s92 requests. I have also read the relevant responses from Beale Consultants to the s92 request received following the meeting.

The purpose of this memo is to set out the findings of my assessment of the effect on coastal processes from the proposed capital dredging and disposal activity for inclusion in the s42A Officers Report for the application.

2. Understanding of the Application

From my reading of the above sections of the AEE, it is my understanding that the relevant activities of the application for coastal processes are:

- Deepening the swinging basin from current depths of 8.2 – 9.4 m CD to a target depth of 9.45 m CD, and Island harbour berth basins from 9.5 -10.7 m to target depth of 10.7 m CD by the use of a trailer-suction dredge.
- Deepen the entrance channel from current depths of 8m -9.7 m to target depth of 9.7m CD using blasting and back-hoe dredge to remove high spots, rock outcrops, sea mounts and previously blasted rocks (from 1980's blasting campaign),
- Disposal of 120,000 m³ of sand/silt (15% silt) to an already consented disposal site for maintenance dredging located close to Tiwai Point in water depths of 6-7 m CD.
- Disposal of up to 40,000 m³ of rock removed from the entrance channel to a new disposal site located further east in water depths of 12-15 m CD.

3. Site Characteristics

The key components of the coastal environment in regard to potential effects on physical coastal processes are;

- The characteristics of the sediment that will be mobilised by the dredging,
- The direction and magnitudes of the currents and waves which move the sediment around the site,
- The bathymetry of the entrance channel
- The bathymetry of the seabed in the vicinity of the dredge disposal areas, and
- The distance and direction of the disposal areas to shore

The physical characteristics of the sediment in the dredged berths is adequately described from sampling in Appendix 6 and is estimated from this sampling to be 15% silt by dredge volume with the remainder being sand. Sampling also determined that the sediment in the soft sediment disposal zone to have a mean silt to sand ratio of 2:98, with the assumption that the silt components for the dredging being rapidly and naturally mobilised by tidal currents. The rocks in the entrance channel are dense volcanic rocks, which will be required to be broken up by blasting to be removed by a backhoe dredge. I understand that the size of the rock fragments has not been determined to date, as this will depend on blasting factors, however the calculations in Appendix 5 show that fragments greater than $D_{50}=0.14$ m are stable in the wave climate at the rock disposal site once peaks have been flattened and unstable slopes from the disposal have adjusted to a stable angle of repose.

Tidal currents within the harbour and entrance channel appear to be adequately modelled with appropriate validation to measured currents as set out in OCS report presented as Appendix 2 of the AEE. Although the report in this appendix indicates that there are large areas of the model domain not covered by the bathymetry data resulting in considerable interpolation and recommends that additional bathymetric control should be undertaken, the areas involved are all in the upper harbour and Awarua Bay. The offering of the consent condition limiting dredging of berths with higher silt contents to ebb tide periods overcomes any potential impact on the assessment of effects from this data limitation. Further current and wave modelling of the soft sediment disposal ground undertaken by Oceannum in 2021 is referred to in the Coastal Processes report (Appendix 5), but is not presented with the application. However, I was provided with a copy of modelling report, and can confirm that the modelling is appropriate with high resolution wave conditions being provided by a 10-year (2010-2019) high resolution (100 m) wave hindcast and interannual variability in the wave climate being examined by a 41 year (1979-2019) coarser resolution (5km) wave hindcast model.

The key findings of the current modelling is the asymmetry of the tidal flows in the area of the harbour entrance, with flows in the vicinity of Tiwai Point being stronger during incoming flood tides, and flows in the South channel against Bluff hill being stronger in outgoing ebb tides. Currents velocities are sufficient to mobilise sediment transport in the entrance channel during both phases of the tide, with sediment transported into the harbour on the flood tide settling out around the harbour berths or being transported to the upper harbour and Awarua Bay, and sediment moving out of the harbour entrance on the ebb tide being transported offshore into Foveaux Strait via the south channel. A consent condition is offered that dredging

of the harbour berths with higher silt content only occurs during slack or outgoing (ebb) tides to avoid depositing fine silts in Awarua Bay and the upper harbour.

Tidal currents are smaller at the soft sediment disposal ground, with velocities not sufficient to entrain the sand sized sediment, but capable of transporting it once entrained by wave action. Mean combined tidal and wind current are dominantly to the southwest due to the ebb tide currents in this direction being stronger than the flood tide currents. The modelling indicates that during ebb tides sediment from the disposal ground does not re-enter the harbour due to the dominance of the ebb tidal jet flowing down the south channel resulting in this material being swept offshore into the Foveaux Strait. On this basis the application suggests that sand and silt should only be discharged at the disposal ground on the ebb tide, however this does not appear as a proposed condition on the consent.

The key results of the wave modelling were that the incident wave climate at the soft sediment disposal ground is strongly controlled by the presence of Stewart, Ruapuke and Dog Islands, with wave refraction, diffraction and sheltering occurring from these islands and refraction from the edge of the ebb tide delta. As result the largest and most frequent waves (95%) arrive at the disposal ground from the southerly quarter (160-200 degrees) and a very small secondary mode from the south-east sector. Further wave refraction will occur as the waves approach the shore, however, will be incomplete by the surf zone, which as a result of the orientation of Toetoes Bay will result in net westward littoral transport towards Tiwai Point in the western part of the bay. The hindcast data showed that as a result of the island effects, only 2% of the waves had significant wave heights (H_s) greater than 2 m, but retained long wave periods from ocean swell with only 10% of waves having peak wave periods less than 10 seconds. As noted in the OCEL coastal processes assessment this was a surprising result, with the percentage of long period waves being unexpectedly high. This high frequency of long period waves is important in sediment mobilisation in the disposal ground, promoting on shoreward sand transport under wave crests and allowing the tidal currents to transport the entrained sediment in a predominantly westward direction. Based on these results the OCEL assessment interpreted that long period waves are the primary mechanism of sediment transport away from the disposal ground, which I would agree will.

The OCEL coastal processes assessment presents five cross-sections of the entrance channel showing the locations and depths of rock extraction required to reach the target depth of 9.75 m CD. As pointed out in the report the majority of the lowering is from the eastern flank of the channel or isolated high spots in the middle of the channel. Although maximum lowering of 5 m along the eastern edge of the channel is shown on the cross-sections, the total increase in shipping channel area is calculated as being only 5%, and only 2.5% of the total entrance channel area.

The AEE notes that maintenance dredging has been deposited in the soft sediment disposal ground for around 70 years without any build-up of sediment on the seabed. Evidence of this is presented in the coastal processes report in the form of comparison of the 1984 Marine Chart and a 2020 bathymetric survey (Furgo). Although no records of maintenance dredging disposal volumes over this period are presented other than the AEE noting the placement of 40,000 m³ in 2020, and differences in the resolution of the bathymetric surveys are recognised, I agree that the comparison shows no evidence of sediment buildup and supports the calculation that frequent long-period waves initiate transport of the disposed sediment away from the site.

The proposed rock disposal site has not been used for this purpose in the past. Although no comparative bathymetry is available, it is considered that general seabed elevations are not changing in this area.

4. Assessment of Coastal Processes Effects

The assessment of coastal process effects of the activities applied for under this consent application can be grouped into those associated with the capital dredging, and those associated with the disposal.

Potential dredging effects include greater dispersal of fine silt sized sediments in the dredging operation and potential effects of the greater entrance channel area on current velocities, wave refraction and channel stability. For the first of these, it is noted that dispersal of fine silt sediments with maintenance dredging is already part of the current process environment, and a consent condition has been offered by the applicant that dredging of the harbour berths with higher silt content only occurs during slack or outgoing (ebb) tides to avoid depositing fine silts in Awarua Bay and the upper harbour.

The small increase in entrance channel area (2.5%) of total entrance area is assessed in the coastal processes report (Appendix 5) as having negligible effect on tidal flows, very minor effect on wave refraction within the

channel, and no effect on channel stability. I agree with the assessment carried out and concur with the conclusions that these effects should be minor to negligible.

Potential effects of the soft sediment capital dredging disposal include the transport of discharged material from disposal area both in suspension during discharge and from the bed following discharge, and the potential build-up of sand in the disposal area from increased capital dredge volumes which may result in changed nearshore wave refraction patterns promoting changes in shoreline response.

The coastal processes assessment recognises that fine silts (15% of dredged material) will remain in suspension longer during discharge from the spilt hopper dredge and are therefore likely to be transported by wave induced and tidal currents, which have a net westward direction. As indicated in the assessment, undertaking the disposal activities during ebb tide conditions would restrict transport of this material back into the harbour and suggests that this will be the dredging practice. However, this is not carried through to a consent condition or does not appear to be included in any environmental management plan. I am also unsure how practical this would be able to be implemented with a continuous dredging operation.

The coastal assessment uses the evidence of the high frequency of long period waves and the lack bathymetric change in the disposal area over 70 years of maintenance dredging to argue that the capital dredge sand material will also be rapidly transported away from the disposal site. However, the scale of capital dredge deposition is at an order of magnitude higher volume (120,000 m³) within a concentrated period compared to the maintenance dredging which is restricted to an annual average of 12,000 m³ and annual maximum of 40,000 m³. No modelling of dispersal of this increased volume is presented. While in the longer term, this highly concentrated disposal campaign is most likely to be dispersed naturally by wave action and currents as predicted by the OCEL assessment, I consider it likely that there will be a change in the seabed bathymetry for some unspecified period of time, which may due to the relative closeness to shore and shallow depths result in some alteration in wave patterns that may in turn promote temporary changes in the shoreline response for this period of time. From my experience, it is normal practice for dredge disposal grounds to be surveyed before and an intervals after capital dredging campaigns to ensure that dispersal of sediment is occurring as per the modelling results. Although the use of these bathymetric surveys was discussed with the applicant at the s92 meeting, I note that they are not offered by the applicant in their proposed conditions. I would suggest that they are added to conditions as set out in section 6 below.

The coastal processes assessment indicates that the movement of sand away from the disposal area will act as a source of beach renourishment for the Tiwai beach. While in principle I agree with this process, there is no evidence to show how effective this has been for the disposal of maintenance dredging material, and I have questions to what degree the capital dredging material may provide this benefit. However, given that any transport to shore is a positive effect, I don't consider there is any need to monitor this potential effect by beach surveys.

The potential effects of the rock disposal are instability of the resulting reef form, and again potential effects on wave refraction patterns that may promote changes in shoreline response. I agree with the calculations in the OCEL assessment that rock fragments above $D_{50} = 0.14$ m should be stable under the maximum wave modelled from the hindcast. I assume this is taken to be the design wave characteristics, however, there no indication of the return period of this sized wave event. It is also noted that the OCEL assessment notes that this stability of the reef form is once the wave action has flattened out peaks and bed form roughness, with the resulting rock mound expected to be a maximum of 1 m high and an average of 0.3 m. This average elevation implies that the 40,000 m³ will be deposited evenly across the 13 hectares of the disposal area. However, there does not appear to be any controls on the disposal methodology to ensure that it is evenly spaced across the designated area to avoid unnecessary high and potentially unstable mounds from repeat disposal in the same location. This could be achieved by dividing the disposal area into a pre-determined grid, with conditions on the volume of rock to be deposited in each grid cell, and supply of disposal coordinates of the vessel to ensure compliance to this condition.

The OCEL coastal process assessment uses an average rock reef elevation of 0.5 m across the disposal area to calculate that wave refraction from the rock disposal site will not be significant with less than 1 degree change in approach direction and not result in any discernable effects on wave height and focusing. I agree with this assessment, however, I note that this assessment is dependent on the rock disposal being fairly evenly spread over the disposal area to achieve the 0.5 m elevation used in the calculation. The above suggested condition on rock disposal methodology would ensure that these minimal effects on wave refraction occur.

The OCEL assessment also mentions localized scouring of the seabed around the edges of the reef and the possibility of rocks dropping into these scour surfaces. This is considered to be a less than minor effect on coastal processes.

5. Consideration of Submissions

No submissions raised any concerns around coastal process effects of the proposed dredging and disposal activities. However, it is noted that the submission from the Department of Conservation states that one of their reasons for opposing the application is that "*adequate controls are required for the disposal of rock and sediment*", which implies that they consider that the necessary controls are not present in the proposed conditions of consent.

6. Conditions

I agree with condition 11 that dredging of the harbour berths with higher silt content only occurs during slack or outgoing (ebb) tides to avoid depositing fine silts in Awarua Bay and the upper harbour, and with condition 12, that this material should not be deposited at the soft sediment disposal site during slack tides where little or no wave action is evident. However, I note that the condition does not offer an alternative disposal site in these circumstances, nor does it restrict disposal to ebb tide periods to prevent re-circulation of the deposited material back into the entrance channel. However, I would also question how practical such a condition might be to implement in a highly concentrated continuous dredging operation.

I would recommend that a condition be added that a baseline bathymetric survey of the soft sediment disposal ground be undertaken prior to the commencement of the capital dredging and that post dredging surveys at periods of one year be undertaken until such time as they show that the seabed in the disposal area has returned to the base elevation.

For the disposal of rock, there does not appear to be any controls on the disposal methodology to ensure that it is evenly spaced across the designated area as suggested in the application to avoid unnecessary high and unstable mounding of the rock material from repeat disposal in the same location. To ensure that an even spread of disposal across the designated area occurs, consideration should be given to including a condition that the disposal area is divided into a pre-determined grid, with conditions on the volume of rock to be deposited in each grid cell, and the supply of disposal coordinates of the vessel to ensure compliance to this condition.

7. Summary

My general conclusion is that the potential effects of the proposal capital dredging and disposal are likely to be minor or temporary and can be mitigated or monitored to a large degree by the use of consent conditions.

Potential capital dredging effects of greater dispersal of fine silt sized sediments into the upper harbour and Awarua Bay than for maintenance dredging can be mitigated by the applicants offered consent condition that dredging of the harbour berths with higher silt content only occurs during slack or outgoing (ebb) tides.

I agree with the OCEL coastal processes assessment that the small increase in entrance channel area from the proposed scale of rock removal will have a negligible effect on tidal flows, very minor effect on wave refraction within the channel, and no effect on channel stability.

I also agree with the OCEL assessment that undertaking the soft sediment disposal activities during ebb tide conditions would restrict transport of this material back into the harbour. Although the OCEL assessment suggests that this will be the dredging practice, it is not carried through to a consent condition or does not appear to be included in any environmental management plan. However, I am also unsure how practical this would be able to be implemented with a continuous dredging operation.

The scale of soft capital dredge deposition being at an order of magnitude higher volume within a concentrated period compared to the maintenance dredging, but no modelling of dispersal of this increased volume is presented. While in the longer term, this highly concentrated disposal campaign is most likely to be dispersed naturally by wave action and currents as predicted by the OCEL assessment, I consider it likely that there will be a change in the seabed bathymetry for some unspecified period of time, which may due to the relative closeness to shore and shallow depths result in some alteration in wave patterns that may in turn

promote temporary changes in the shoreline response for this period of time. From my experience, it is normal practice for dredge disposal grounds to be surveyed before and at intervals after capital dredging campaigns to ensure that dispersal of sediment is occurring as per the modelling results and would suggest that these surveys are added to the consent conditions.

The OCEL coastal processes assessment indicates that the movement of sand away from the disposal area will act as a source of beach renourishment for the Tiwai beach. While in principle I agree with this process, there is no evidence to show how effective this has been for the disposal of maintenance dredging material, and I have questions to what degree the capital dredging material may provide this benefit.

The stability of the rock disposal reef and potential effects on wave refraction and patterns are assessed as being minor or not discernable appears to be based on the assumption that the material will be deposited relatively evenly across the disposal area. However, there does not appear to be any controls on the disposal methodology to ensure that this evenly spaced disposal across the designated area occurs. This could be achieved by dividing the disposal area into a pre-determined grid, with conditions on the volume of rock to be deposited in each grid cell, and supply of disposal coordinates of the vessel to ensure compliance to this condition.

Appendix B: Coastal ecology



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MEMORANDUM

Attention: Hamish Peacock, Technical Director – Environmental Planning,
Pattle Delamore Partners Ltd

Date: 22 March 2022

From: Steve White, Principal Ecologist

Project: South Port, Bluff Harbour Dredging – Resource Consent Application Technical
Audit (Coastal Ecology)

1. INTRODUCTION

Ecology New Zealand (ENZL) have been engaged by Environment Southland (ES) as the consent authority to undertake a technical review of the potential effects on coastal ecology from the proposed Bluff Harbour (Awarua) Capital Dredging as part of the resource consent application process for this activity by South Port New Zealand Limited. As such I have read the following sections of the AEE prepared by Beale Consultants for the consent application:

- Section 2 (Description of proposal),
- Section 3 (Description of coastal environment),
- Section 5 (Assessment of effects),
- Section 6 (proposed monitoring and reporting),
- Section 8 (alternative discharge locations),
- Section 10 (conclusions).
- Appendix 1: Proposed consent conditions
- Appendix 4: Effects of underwater explosions, shockwaves, vibration and noise
- Appendix 5: Coastal processes assessment
- Appendix 6: Assessment of marine environmental effects
- Appendix 7: Adaptive marine management plan
- Appendix 8: Marine mammals assessment of environmental effects
- Appendix 9: marine mammal management plan
- Appendix 13: Bird survey report
- Appendix 14: Biofouling management plan – Heron Construction
- Appendix 15: Biofouling management plan – Dutch Dredging
- Submission in opposition by Department of Conservation
- Submission in opposition by Royal Forest and Bird Protection Society of New Zealand

Of particular relevance for my review is Appendix 6: Assessment of marine environmental effects by E3 Scientific Ltd.

I also contributed questions on coastal processes to the applicant under s92 and attended a meeting with the applicant to discuss the s92 requests. I have also read the relevant responses from Beale Consultants to the s92 request received following that meeting.

The purpose of this memo is to set out the findings of my assessment of the effects on coastal ecological values from the proposed capital dredging and disposal activity for inclusion in the s42A Officers Report for the application.

2. UNDERSTANDING OF THE APPLICATION

From my reading of the above sections of the AEE, it is my understanding that the relevant activities of the application in terms of coastal ecological values are:

- Deepening the swinging basin from current depths of 8.2 – 9.4 m CD to a target depth of 9.45 m CD, and Island Harbour berth basins from 9.5 -10.7 m to target depth of 10.7 m CD by the use of a trailer-suction dredge.
- Deepening the entrance channel from current depths of 8m -9.7 m to target depth of 9.7m CD using breaking, drilling, blasting and a back-hoe dredge to remove high spots, rock outcrops, sea mounts and previously blasted rocks (from 1980's blasting campaign),
- Disposal of 120,000 m³ sand/silt (15% silt) to a disposal site already consented for maintenance dredging, which is located close to Tiwai Point in water depths of 6-7 m CD.
- Disposal of up to 40,000 m³ of rock removed from the entrance channel to a new disposal site located further east of the soft sediment disposal site in water depths of 12-15 m CD.

The applicant's position is that South Port hold both maintenance dredging consents and a deemed coastal permit that permit dredging activity. The loss of rocky reef habitat and soft sediment benthic biological communities is permitted by these existing consents and the effects that need to be considered through this consenting process are limited to those that result from the continuation of the dredging activity to reach the target depths for the Harbour channel, swinging basin and Island Harbour berth basins.

3. SITE CHARACTERISTICS

The key components of the coastal ecology within and around Bluff Harbour are:

- Extensive intertidal flats and productive marine habitats in the upper Harbour area utilised by resident and migratory bird species, particularly around Awarua Bay
- Healthy and productive seagrass beds within the Harbour
- Communities of common and resilient Harbour benthic marine species that will be lost as a result of the soft sediment dredging within the swinging basin and Island Harbour berth basins
- Rocky reef habitat areas throughout the Harbour channel entrance and extended out to, and including, the Motupōhue mātaītai area
- Abundant and diverse fish, invertebrate and algal communities supported by rocky reef habitats, along with populations of seabirds that forage and breed in the area as a result, including various penguin, cormorant, petrel, gull and tern species. Key bird

species identified as being at risk of adverse effect is little penguin as they breed within the Harbour and would transit works area to forage.

- Marine mammals known to occasionally visit and utilise the area including various dolphin species, Orca, Hector's dolphins, NZ fur seals, NZ sea lions, Humpback whales and Southern right whales. Marine mammals are classified by Cawthron Institute as not being common and being in the area for short periods of time. Additional information is currently being collected on marine mammals within the Bluff Harbour area to supplement the level of understanding on marine mammals abundance and behaviour in the area.
- Communities of benthic marine species with low diversity and abundance in the proposed disposal areas.

The key ecological effects that may potentially result from the proposed activities are:

- Increased water turbidity in Harbour and nearshore waters as a result of soft sediment dredging or disposal. This may result in decreased light transmission affecting seagrass beds, poor quality foraging conditions for visually operating species (e.g. some fish and bird species), potential for sediment distribution and build-up/smothering of habitat.
- Distribution of contaminants from disturbed sediments to other habitats.
- Loss of Harbour benthic communities in soft sediments to be dredged.
- Disturbance to and or displacement of marine species (fish, octopus, etc), seabirds (penguins, cormorants, etc) and marine mammals as a result of underwater noise, vibration and pressure waves resulting from rock breaking drilling and blasting activities.
- Temporary or permanent injury to fish, birds and/or marine mammals as a result of the rock dredging activity
- Loss of rocky reef habitat as a result of rock breaking, drilling, blasting and dredging, though this is covered by existing maintenance dredging and deemed coastal permits.
- Smothering of benthic communities in the disposal areas.
- The introduction and/or spread of unwanted marine organisms in and around the Harbour and potentially to areas outside the Harbour including the disposal sites and Motupōhue mātaītai area.

The application presents a fair and thorough representation of the ecological values and the environment of Bluff Harbour and the entrance channel and the sensitivities of those values to impacts that are likely to result from the proposed activities.

The application outlines procedures to avoid or minimise ecological effects or to satisfy concerns regarding the potential impacts. These include:

- Dredging soft sediments, particularly those with high silt fractions on outgoing tides to entrain disturbed sediments in tidal currents and facilitate transportation of suspended sediments out of the Harbour into Foveaux Strait.
- Avoiding disposal of high silt fraction sediments at times where there is limited current or wave action to facilitate sediment dispersion.

- An assessment that suggests deposited soft sediments are likely to be rapidly redistributed including being incorporated into the nearby beach and sand dune system.
- Sediment characterisation studies suggest very low levels of sediment contamination.
- Characterisation of Harbour benthic communities suggest these are resilient communities of common species that have a history of disturbance due to dredging, are of limited ecological value and with the ability to rapidly recolonise.
- Restrictions of rock breaking, drilling, blasting and dredging to avoid dawn and dusk times of greatest activity for crepuscular species (including little penguins transiting the works area to and from foraging habitat).
- Timing of the rock dredging works to avoid the peak breeding season for little penguin.
- A Marine Mammal Observation programme to halt or control works if marine mammals, birds or sharks are observed within critical zones that suggest temporary or permanent injury as a result of blasting activity.
- Acoustic harassment devices, warning blasts and 'soft starts' for blasting campaigns.
- Characterisation of rocky reef habitat and communities suggesting that loss of habitat would be a temporary impact as communities would rapidly recolonise bare rock habitat following disturbance.
- Characterisation of the disposal sites as having low quality communities of low diversity and abundance with sufficient resilience to cope with the sedimentation effects from the soft sediment disposal.
- The creation of 8 hectares of new rocky reef habitat in place of low diversity benthic habitat.

These procedures are accepted as generally being practicable measures that would minimise or avoid the adverse effects presented. No remedial processes other than natural remediation through ecological recovery of habitats are being offered by the applicant. No mitigation of adverse effects are offered by the applicant to offset these effects as the magnitude and significance of ecological effects has been evaluated as being minor or less than minor.

In order to determine the effects of the proposed activities, the application proposes monitoring programmes that include:

- Soft sediment benthic monitoring to characterise the quality of sediments within the Harbour within 3 months of the works being completed.
- Monitoring the health of seagrass beds before, during and after the works programme.
- Quantitative benthic monitoring programmes on rocky reef habitats 3 months and 12 months after works are completed and annually thereafter until community recolonisation has been achieved.
- Quantitative benthic monitoring programmes on the rocky reef habitats created by the rock disposal 3 months and 12 months after works are completed and annually thereafter up to 5 years after works are completed.
- Biosecurity monitoring as part of the benthic monitoring programme for rocky reef areas, looking for and removing any *Undaria pinnatifida*.

- An Environmental Impact Assessment study to be undertaken in conjunction with Te Rūnanga o Awarua within the Motupōhue mātaītai area during and after dredging works have been completed.
- A “reef ball” monitoring programme to document rates of rocky reef habitat recolonisation.
- A 12 month marine mammal acoustic monitoring survey (currently occurring) to be completed prior to the commencement of works
- Cawthron Institute recommend monitoring of underwater noise levels during breaking, drilling, blasting and rock dredging activities to verify modelled results.
- Monitoring and recording types and frequency of marine mammal sightings during the works
- Monitoring any incidents or near incidents with marine mammals including fatalities during the works programme.

The monitoring programmes proposed are generally appropriate for the detection of the anticipated impacts and effects of the ecological receptors identified as being most sensitive.

4. PERCEIVED ISSUES

Seagrass beds and the productive intertidal Harbour flats within the upper Harbour are potentially at risk from sedimentation effects as a result of sediments disturbed through the dredging process causing reduced underwater light conditions and smothering of habitats due to unnaturally high sedimentation rates. The applicant has proposed restricting dredging the sediments with the highest silt fractions to periods of outgoing tide to entrain suspended sediments in the tidal currents which will carry them out of the Harbour and disperse them in the Foveaux Strait environment. This is likely to be effective in avoiding sedimentation effects on upper Harbour sensitive habitats, however, it is suggested that it would be more generally protective and precautionary to restrict all soft sediment dredging to periods of outgoing tide to avoid or minimise all sedimentation effects.

The adaptive marine management plan (AMMP) proposes a complex array of triggers based on turbidity readings at sensitive locations, followed by responsive modifications to dredging activity to minimise adverse effects. There is no clarity around what these trigger values will be or even what level of effect they will represent until substantial further information on the specifics of the Bluff Harbour environment are provided. It would be simpler to assume that a reduction of light transmission through the Harbour waters of greater than, say, 20% would constitute an effect outside that reasonably expected to occur under natural conditions. If turbidity monitoring while dredging activity was occurring showed such a decrease in water quality, that might represent an effect that could be considered likely to result in unacceptable or avoidable impacts on seagrass beds and sensitive receptors. Such turbidity monitoring would require a simple programme that included control and impact sampling stations specifically related to proximity to active dredging and sensitive receptors. This would potentially provide greater certainty in terms of unacceptable effects resulting from the soft sediment dredging.

It is currently not possible to fully evaluate the effectiveness of the AMMP as specific trigger levels have not been set and will not be available without further information.

Little consideration appears to have been made for the effects of rock breaking, drilling and blasting on fish fauna. While procedures such as the use of acoustic harassment devices, warning blasts and ‘soft start’ procedures are intended to make mobile fauna, such as fish,

leave the blasting areas, it is inevitable that blasting will result in some stunned and/or killed fish and invertebrates. There is no monitoring proposed for the levels of fish and invertebrate mortality that will result from the blasting works. It is reasonable to assume that while each blast event may only result in a low level of fish and invertebrate mortality, that multiple successive blasting events will result in cumulative effects on fish fauna that may become more significant as the numbers of events increase.

The Marine Mammal observation programme proposed seeks to avoid adverse effects on marine mammals as result of blasting by ensuring that blasting occurs when there are no marine mammals present in the zone of likely effects. There is some uncertainty around the practical effectiveness of an observation programme as described and the ability to reliably and detect all marine mammals. It is suggested that the use of acoustic monitoring devices and/or UAVs (drones) might assist in alerting observers to the possible presence of marine mammals in the vicinity.

Additional marine mammal information is currently being collected for the Bluff Harbour area and it is suggested that while there is currently uncertainty around the likely effects of the proposed works on marine mammals this information is likely to assist. It would be inappropriate to attempt to make final evaluations on these effects without the benefit of all relevant information.

It is proposed that the marine mammal observation programme is also utilised to detect seabird species and significant marine fauna such as sharks within the defined zone of likely effects. There is some concern regarding the ability of observers to reliably detect vulnerable seabirds and sharks within critical blast effect zones, particularly seabirds such as little penguins foraging within the critical effects zone.

Little penguins are identified as being a key seabird species that will potentially be adversely affected by the proposed works. Restrictions of the works to particular times of year are a recognised attempt to generally avoid effects on nesting and breeding birds by avoiding the generally recognised peak breeding seasons. Specific surveys of the Bluff Harbour area to locate and identify active little penguin nests, particularly those with chicks that require feeding or those supporting birds in particularly sensitive life stages (e.g. undergoing a moult), would allow for the avoidance of impacts on the specific little penguin population of Bluff Harbour.

While biosecurity measures appear to be considered by the applicant, however, there are perceived shortcomings in the approach outlined. The issue of the invasive alga *Undaria pinnatifida* is specifically addressed, however, there are a variety of other invasive marine pest species that require management, in particular, organisms such as Mediterranean fan worm (*Sabella spallanzii*), which is known to be present in Lyttleton Harbour and which has caused extensive issues in the North Island. A specific approach to the entirety of biosecurity issues is required to adequately manage and control the risks presented by bringing plant and equipment in from outside areas and in redistributing material within the marine environment from a location that is at high risk from the introduction of invasive marine pests (i.e. a commercial Harbour environment) to areas of lower risk (i.e. the disposal sites identified).

5. PROPOSED CONSENT CONDITIONS

While the works description clearly outlines a single works campaign covering 8 to 10 months, the request for 10 year consent duration (Condition 1) presents uncertainty and the potential for the adverse effects described to extend beyond the single period of disturbance and

potentially into a multiple year duration that could span a decade. This presents a vastly different ecological risk profile where the potential for disturbance over multiple breeding seasons, for instance could result in more permanent displacement effects and population-wide impacts on breeding success for some species. The DoC submission specifically states that consent duration should be appropriate for the activity and the effects. I agree with this statement and, while acknowledging the requirement for flexibility for the consent holder, in my opinion a 10 year duration for consents is excessive.

The restriction of works to the period between 1 February and 30 September (Condition 7) seeks to avoid the peak marine mammal migration season, peak seabird and fish breeding seasons and peak coastal feeding seasons for a variety of species. It is agreed that in general this condition would achieve this aim, except that little penguins, a species identified as being a key environmental receptor, are described in Appendix 13 as breeding from August to February followed by a 2 week post breeding moult event. Works commencing at the start of February may impact on late season breeding activity for little penguins and may impact on critical penguin feeding and foraging immediately after their moult event.

A condition of consent should be drafted which specifically requires monitoring to identify any active little penguin nests, particularly those with dependant chicks and with adults undergoing a moult event. The identification of such nests would then require a delay of any works that may disturb little penguin foraging activity while adults are feeding chicks and recovering from moulting. This delay would potentially avoid adverse effects on penguin breeding and survival.

Limiting soft sediment dredging to the period between 1 April and 31 July to avoid the seagrass flowering and growing season (Condition 8) is supported.

The restriction of some works activity to hours between 7:30am and 6pm (Condition 9) was intended to avoid crepuscular (dawn and dusk) activity of marine species potentially including little penguins transiting the works area to forage. Given that the works would be restricted to autumn, winter and early spring months, the particular hours mentioned within Condition 9 may occur during dawn/dusk transitional periods and the intention of the condition may not be met. It is suggested that this condition be re-drafted to reflect that works should be restricted to daylight conditions within the time period 7:30am to 6pm in order to ensure the avoidance of the dawn and dusk periods.

Condition 11 seeks to avoid sediment impacts on the upper Harbour and Awarua Bay including seagrass beds, by restricting sediment dredging to periods of slack or outgoing tide. It is suggested that this condition be amended to require all soft sediment dredging to be undertaken on outgoing tides to ensure that disturbed sediments are entrained in tidal currents that remove the sediment from the Harbour and carry it out to the Foveaux Strait area for dispersal.

Condition 12 restricts the deposition of sediment during periods of slack tide where there is little or no wave action evident. This condition should be redrafted to reflect that tidal conditions and wave action at the disposal site is intended to control sediment disposal.

Condition 13 describes the adaptive management of soft sediment dredging based upon turbidity measurements taken near sensitive habitats such as seagrass beds and at the eastern end of the Motupōhue mātaītai. The approach of monitoring for effects that may be caused by the dredging activity and using that monitoring to direct changes in the dredging activity is supported in principle, however, Condition 13 is drafted such that it does not have clear, effects-based objectives and performance standards.

Real time, or near-real time monitoring of water quality conditions which has the potential to detect significant impacts in terms of water clarity and suspended sediment loads and to

inform the actions that are likely to have caused that effect has the potential to allow for adaptation in the dredging programme.

Many dredging programmes require specific water quality monitoring events involving the collection of water samples at various depths through the water column at specific distances from an active dredging operation in order to directly measure the real effects on the water column that result from the dredging activity. This approach reflects the acceptance there will be water quality effects close to the dredging activity and it is both simple and could potentially be effective in determining and quantifying any effects from the dredging operation.

Conditions 14 to 21 seek to protect marine mammals through the establishment of a marine mammal observation zone (MMOZ). These conditions, while clearly based upon the marine mammal management plan in their current form do not have clear, effects-based objectives and performance standards. The extent of the worst-case scenario MMOZ needs to be clearly defined within the conditions and the expected locations of a network of trained observers should be indicated.

Conditions 22 to 30 seek to protect seabirds and other marine species through the establishment of observation zones that are appropriate for seabirds, Otariid pinnipeds and fish. Observations within these zones are to be made in conjunction with the marine mammal observations, presumably by the same observers. This would require observers to detect a wide range of different sized fauna with vastly differing behaviour patterns within differing zones at the same time.

It is suggested that this entire raft of conditions (Conditions 14 to 21) require extensive re-drafting in order to simplify the observation requirements and to provide some level of certainty regarding the ability of observers to practically detect the target fauna (e.g. sharks) from a surface observation position over a potentially large area under all sea states. These conditions do not currently have clear, effects-based objectives and performance standards and it is not immediately obvious to me how they could be easily re-drafted to deliver such.

Conditions 31 to 36 refer to biosecurity matters but do not, in my opinion manage to capture the requirements for biosecurity management effectively. The issue of biosecurity, and DoC's concerns regarding the issue outlined in their submission, might best be managed through the preparation of a specific Biosecurity Management Plan (BMP) that incorporates the elements offered by the applicant, but that has an over-arching control on all plant and equipment and that could potentially introduce pest species from elsewhere or could spread or increase the distribution of pest species as a result of its presence or use.

Any BMP should specifically identify the risks presented by the activities, plant and equipment, should clearly outline the steps and processes to be taken to manage those risks and the staff responsible for delivering and maintaining that management. The plan should also incorporate monitoring methods and standards as well as contingency measures and protocols to be undertaken should a biosecurity breach be detected and the actions that will be undertaken in that event. Such a BMP would need to be prepared in advance of works or mobilisation of plant and equipment, possibly in conjunction with submitters, and would need to fully satisfy the concerns of DoC and Environment Southland.

It is possible that all of the management aims of the problematic proposed conditions discussed above (Conditions 14 to 36) may be more easily satisfied by conditions that refer to specific management plans that are prepared to the satisfaction of the consenting authority and that clearly outline effects based standards and objectives.

Condition 44 requires the monitoring of soft sediment for sediment quality and grain size structure within three months of the completion of the works, however, this does not appear to have any clear benefit in measuring biological community recovery or measuring any effect on the Harbour environment in general.

Conditions 45 to 49 set out the monitoring proposed for seagrass, rocky reef and mataitai areas and are generally supported.

6. SUBMISSIONS

6.1. Department of Conservation

The Department of Conservation (DoC) made a submission on this application, dated 27 January 2022. The submission opposes the granting of consents unless appropriate conditions are imposed to adequately protect conservation values and address the matters of concern raised within the submission.

DoC submits that the area of Bluff Harbour and Foveaux Strait in the vicinity of the proposed works contain a number of conservation values including Hector's dolphin, southern right whale, pods of bottlenose dolphin, humpback whales, Orca, beaked whales, sea lions, yellow-eyed and Fiordland crested penguins, Foveaux shags and eelgrass beds. DoC submit that the disturbance and discharges associated with the proposed works have the potential to adversely affect these and other conservation values.

DoC point out that South Port is used by vessels travelling on to other locations, including environmentally sensitive locations such as Fiordland and the Sub-Antarctic Islands and that any failure in biosecurity measures could risk significant adverse effects through the introduction or spread of pest species. Although the information supporting the application concludes that the adverse effects on the identified conservation values are likely to be low, the DoC submission states that there remains risk and uncertainty which needs to be adequately addressed before consents can be granted.

DoC submit that the Marine Mammal Management Plan is generally appropriate, however, the plan needs to be simplified and be based upon the worst-case circumstances in order to be protective for all species and under all circumstances.

The submission argues that there is inconsistency between the blasting scenarios proposed in the application document and within the technical assessment provided by Cawthron Institute and that specific limits and management requirements for blasting are required that cover the trial drilling and blasting programme as well as the main works.

The DoC submission calls for adequate controls for the disposal of rock and sediment without going further into what those controls should be, and the submission calls for significantly more certainty around the environmental management plans and the procedures they outline and the consent conditions which cover these actions.

The DoC submission states that should consents be granted, they should include conditions which adequately protect conservation values. This would include ensuring that:

- The activity and effects are as described in the application,
- There are adequate controls on the disposal of rock and sediment,
- There are adequate controls on blasting,
- Observer zones for marine mammals and avifauna are clearly defined,
- Management plans are effective,

- There is adequate monitoring to detect and respond to any adverse effects which do arise, and
- Consent durations are appropriate for the activity and effects.

DoC also submit that management plans, if included in the consents, should:

- Contain clear, effects-based objectives and performance standards,
- Have ongoing effect through ongoing implementation
- Set intervention thresholds to allow review and intervention if objectives are not being met
- Require ongoing monitoring and reporting
- Provide for adaptive management where appropriate, and
- Are enforceable throughout the duration of the consents.

6.2. Forest and Bird

The Royal Forest and Bird Protection Society of New Zealand (F&B) made a submission on this application, dated 31 January 2022. The submission opposes the granting of consents as a result of a raft of concerns.

F&B submit that the applicant has not adequately established the functional need for the proposed works, nor have they adequately explored alternatives. F&B note the presence of several species with threat classifications (including yellow-eyed penguin, Fiordland crested penguin, little penguin and NZ Dotterel), large numbers of shorebirds and seabirds and submits that the application takes minimal and inadequate steps to avoid effects resulting from the proposed works on these species. F&B appears to consider that the recommended works timing to avoid most, but not all, of the breeding season for little penguin to be inadequate. F&B also submit that while the activity will occur in only a portion of the foraging range of these birds there is no evidence provided on the impacts of the activity on preventing foraging birds from returning to their nests.

F&B note that warning blasts are proposed specifically to disturb wildlife in order to deter them from utilising the proposed works area with no evidence presented of the requisite Wildlife Act permits having been sought for these activities.

F&B submit that the application presents little analysis or evidence regarding contaminants within deposited sediments and the impacts of arsenic and heavy metals and contaminants on the habitats of seabirds and shorebirds and that the effects of these contaminants on marine ecosystems are not properly addressed in the application.

F&B contend that the application provides insufficient demonstration of avoidance or remedying of adverse environmental effects and proposes instead inadequate mitigation methods and actions. F&B do not consider that the application presents sufficient evidence to demonstrate minor or less than minor residual effects on indigenous species after mitigation. The submission suggests that many of the mitigation measures rely upon future studies or on-site monitoring which is not specifically contained within the proposed conditions of consent.

The F&B submission suggests that the application lacks sufficient evidence or certainty regarding the residual effects of the proposed works on the ecological values in the vicinity and that the adoption of a precautionary approach in the presence of uncertainty would require that the application should be denied.

7. EVALUATION

In general there has been a thorough investigation and assessment into the ecological values present in and around Bluff Harbour. These include some potentially sensitive ecological receptors that have been identified during the application process with a thorough attempt to identify and account for reasonably expected effects and impacts as a result of the proposed activities.

Procedures have been proposed to avoid or limit adverse effects as noted above and the applicant and consultants have evaluated the residual ecological effects of the proposed activities following all mitigation procedures as being minor or less than minor.

Monitoring the soft sediments for sediment quality and grain size structure appears to be aimed at documenting the conditions of the sediments that remain following the dredging operation. It is not immediately clear what benefit this monitoring may have other than to document the conditions of the sediments that remain in the Harbour. This monitoring would not relate to biological community recovery or measure any effect on the ecological values of the Harbour environment in general.

Monitoring of water turbidity as described in the AMMP cannot be evaluated for its potential effectiveness as specific triggers have not been set until additional information on Harbour water quality becomes available. The AMMP is described as a draft working document that will be refined once contractors have been appointed, final specifications are set in place and baseline data becomes available. It provides a brief description of how the activities will be managed to avoid, mitigate and remedy adverse effects, sets out baseline, continuous logging and ongoing monitoring requirements to validate predicted levels of impact, and sets out the management practices, protocols and procedures to be undertaken during the works. It also provides for changes in operations where additional measures are identified to avoid and minimise effects on the marine environment. It does not currently provide sufficient certainty that the AMMP will be effective in managing adverse effects on Harbour water quality.

Similarly, the absolute sensitivity of marine mammals to blasting effects cannot be fully evaluated until the latest marine mammal information becomes available. Cawthron Institute have determined that marine mammals are transitional features of the environment and that the Bluff Harbour area represents only a small fraction of the habitat available to them, however, that evaluation may change with additional information.

The Marine Mammal Management Plan attempts to define zones of temporary and permanent impact in terms of hearing impairment in marine mammals by defining a Temporary Threshold Shift (TTS) and Permanent Threshold Shift (PTS) effect as a result of underwater blasting. The PTS zone is potentially being within 800m of the blasting, while the TTS zone is estimated to be up to 2000m from the blasting for baleen whales and up to 1000m from the blasting for other marine mammal species. The plan essentially proposes that trained observers are deployed to look for marine mammal species within the PTS and TTS zones and to halt blasting activity if marine mammals are observed within these areas. The MMMP suggests that observers have a 400m effective monitoring zone, however, the plan suggests that observers would still be able to detect marine mammals at larger distances. It is also proposed that the marine mammal observers will be attempting to detect seabirds, including penguins, shags, gulls and terns which may be within the areas affected by blasting.

The application identifies that underwater blasts could cause injury or mortality to marine birds, particularly little penguin, spotted and Foveaux shags and gulls and terns. Guidelines halting underwater blasts if birds are observed in the water within the cumulative sound

exposure level for a temporary threshold shift (TTS) in Otariid pinnipeds are recommended. Essentially, the assessment recommends that marine birds will be adequately protected by the mitigation measures proposed which halt underwater blasting if these species are observed within defined zones of adverse effect.

In my opinion there is some uncertainty regarding the consistent and reliable detection of both marine mammals and seabirds such as little penguins throughout the full extent of the areas identified as PTS and TTS zones under all weather and sea conditions. The submissions from both DoC and F&B identify uncertainty in the marine mammal management procedures as being key concerns. The consequences of failure to detect marine mammals within the critical zones are potentially serious and the number of blasting days are relatively low. There is perhaps some opportunity to utilise acoustic monitoring devices and unpiloted aerial vehicles (UAVs or drones) to potentially extend the areas being effectively monitored and this may allow for a greater degree of certainty around marine mammal detection.

Given that the DoC submission raises biosecurity issues as a concern, it would appear that neither the applicants assurances during their meetings, nor the application fully satisfies the Department's concerns. I agree that biosecurity is an area that requires meticulous management, particularly when there is potential for the introduction and spread of invasive species to more remote sensitive environments as a result of a failure at Bluff. I feel that the applicant's proposed approach may not provide sufficient certainty around the issue of biosecurity and a more specific, targeted management approach to the wider biosecurity risks associated with the project might be justified.

In my opinion the issue of biosecurity, and DoC's concerns regarding the issue, might best be managed through the preparation of a specific Biosecurity Management Plan (BMP) that incorporates the elements offered by the applicant, but that has an over-arching control on all plant and equipment that could potentially introduce pest species from elsewhere or could spread or increase the distribution of pest species as a result of its presence or use. The plan should specifically identify the risks presented by the activities, plant and equipment, should clearly outline the steps and processes to be taken to manage those risks and the staff responsible for delivering and maintaining that management. The plan should also incorporate monitoring methods and standards as well as contingency measures and protocols to be undertaken should a biosecurity breach be detected and the actions that will be undertaken in that event. Such a BMP would need to be prepared in advance of works or mobilisation of plant and equipment, possibly in conjunction with submitters, and would need to fully satisfy the concerns of DoC and Environment Southland.

There is an assumption that the loss of rocky reef habitats and the sessile and mobile species that are found within those habitats will be remediation through natural processes of colonisation and immigration from nearby habitats. This assumption is not unreasonable, as in the absence of disturbance, marine organisms will colonise available habitat. There is currently uncertainty over the timeframes over which such colonisation will occur. The applicant has suggested a specific monitoring programme to determine the recolonisation rates for rocky reef habitats, however, this information will not be available prior to the decision making process for this application.

The process of natural environmental remediation is gradual and does not necessarily have a defined end point. It is envisaged though that after two to five years of undisturbed recolonisation and natural remediation that there will be stable communities of marine organisms and recognisable habitat values. This is reflected in the applicant's proposal to quantitatively monitoring reef communities for up to 5 years.

Despite the process of pre-application meetings and section 92 requests for further information, there remains elements of uncertainty regarding the ecological effects of the proposed dredging activity.

S White

Principal Ecologist

APPENDIX A

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Appendix C: Coastal/Marine Geology

Geological Technical Report: Hearing of resource consent application by South Port; Bluff Harbour Dredging and Disposal

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• Prepared for

Environment Southland

• March 2022



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1.0 Introduction

1.1 About the Author

My full name is Andrew James Smith. I am a Technical Director (Engineering Geology) at Pattle Delamore Partners Ltd (PDP) where I have worked since 2019.

I have a bachelor's degree in exploration geology and a master's degree in geoenvironmental engineering, both from the University of Wales, Cardiff. I am a Professional Engineering Geologist (PEngGeol) with Engineering New Zealand, and a Chartered Geologist with the Geological Society of London.

I have 22 years' experience in engineering geology and geotechnical engineering, internationally and across New Zealand, with specific international marine investigation and dredging experience.

I have read and agree to abide by the Environment Court's code of conduct for expert witnesses¹.

1.2 About this report

This report is structured where I, as the technical specialist for geology have completed the body of the report. In addition, I have undertaken a technical audit of relevant specialist reports given in appendices 3 and 22 of the resource consent application. I have also read the full resource consent application for context, information pertinent to my technical audit is stated throughout my report where necessary.

1.3 Consent Application

South Port has applied to Environment Southland (reference **APP-20211362**) for resource consents relating to dredging of areas within Bluff Harbour, and disposal of dredged material offshore of Tiwai Peninsula.

1.4 Site visit

To supplement this technical audit a site visit was undertaken on the 15 November 2021 to observe geological outcrops along the channel and assess the general site setting.

1.5 Section 92 Responses

The applicant provided adequate responds to geologically related Section 92 questions (reference 39 to 45 inclusive). Questions and responses are presented in Appendix E of the S.42A Report. A meeting was held between Environment

¹ Environment Court of New Zealand Practice Note 2014, Section 7.1.
<https://environmentcourt.govt.nz/about/practice-note/>

Southland their representatives and South Port and their specialist consultants on 15 November 2021 to discuss the Section 92 issues. No other geological concerns were raised at that meeting.

1.6 Submissions

I have reviewed the submissions on the application, for which I have no comments which directly pertain to the geology of the application area. There are therefore no geology related matters related to submissions to address.

2.0 Background

The following background has been taken from the Beale Consultants – Resource Consent Application Report dated December 2021 and has been provided as context to this technical audit. Additional context is given in the Beale Report regarding dredging volumes which are not provided in the supporting technical reports.

2.1 Summary of proposed works

The proposal is to suction dredge up to 120,000 m³ of soft sediment (silt and sand) from the harbour to attain target depths of 9.76 m Chart Datum (CD) in the entrance channel, between 8 and 9.45 m CD in the swinging basin, and between 9.5 and 10.7 m in the berth basins. Berth 5 & 6 are where most of the sediment is contained.

South Port already holds a coastal permit which allows for maintenance dredging of the harbour channel to a depth of 9.2 m CD which permits the removal of any pre-existing blasted or fragmented rock (probably from blasting in the 1980's).

The proposed channel cut dredging will include approximately 40,000 m³ of blasted rock which is proposed to be dredged using a backhoe dredger (long reach excavator) mounted on a spud legged pontoon. Dredged rock is to be deposited at an offshore disposal area to form an 8-hectare stable rocky reef habitat.

As part of the channel cut works, it is currently proposed to drill up to 5.0 m deep holes to achieve an optimum hole spacing for blasting, 30 holes are currently estimated in a 24-hour period with blasting only during daylight hours. Drill holes will be set out in rows (10-15 per row) with up to 7,000 holes to be drilled across a blast area of approximately 38 hectares. Charge weights of between 10 kg and 25 kg per hole are estimated. This proposal is not consistent with that described in the OCEL Report (Appendix 3 of the application), possibly because of the timing of the delivery of reports, and various updates that occurred from first lodgement to notification of the application.

Blasting is expected to occur on one occasion per day. Each daily blast is expected to produce dredge volumes of 600 m³. The affected area will be re-

surveyed after each blast to ensure the rock hasn't lifted and become a navigational hazard. The frequency of dredging is at the discretion of OCEL during the blasting works.

Fragmented rock will be loaded by the backhoe onto a non-propelled split hopper barge at a rate of 180 m³/hour with hopper capacity reached in 1.5 hours. Final rock cuts are expected to range in height between less than 1 m and to 3.5 m.

The option for hydraulic rock breaking has also been considered based on the GeoSolve geotechnical assessment and will be used at the discretion of the contractor, possibly to remove fractured rock from the 1980's blasting campaign.

Dredged rock fragments are to be placed at water depths of between 13 and 15 m and it is stated that rock fragments are unlikely to be remobilised. It is noted that finer rock fragments will most likely act as fill between the larger rock fragments to form a stable matrix. The maximum height of the placed material above the existing sea floor is noted to be 1 m.

OCEL undertook a cost comparison of disposal of rock fragments to land and sea. The cost to land was estimated to be approximately 3 times greater than disposal to sea and has been discounted by the applicant. Operationally, there are additional complexities with land disposal including the need to unload barges which requires the availability of a cargo wharf. Reuse to form an offshore breakwater reef has been discounted by OCEL as the fragmented rock from blasting will be too small for this purpose. However, no expected rock fragment sizing has been provided.

Two disposal areas offshore of Tiwai Peninsular have been identified. Maintenance dredged spoil is to be placed closer to Tiwai Peninsular with a deeper disposal area located to the east for rock fragments from the capital dredge.

Suction dredged fine sediments when deposited will initially be mounded and are expected to gradually be dispersed by the currents associated with the inshore waters.

2.2 Programme of works

A programme of works has been provided which includes:

- ∴ An initial 4-week period between mid-March and mid-April where historical material will be removed using a back-hoe dredger under the maintenance permit and will span 4 weeks of the work programme. Once the maintenance dredging has been completed, the channel will be surveyed to confirm the extent of the drilling / blasting required to achieve a uniform depth of 9.76 m CD.

- ∴ A 2-week duration trial drill & blast post mobilisation.
- ∴ The overall work programme from mobilisation to demobilisation will span a period of between 6 and 8 months with blasting estimated to take 46 days to complete.
- ∴ Blasting will take place only in the channel area in late autumn, winter and early spring to avoid marine species peak feeding and breeding time.

3.0 Geotechnical Assessment Report – GeoSolve, November 2021

The applicant engaged GeoSolve to complete a Geotechnical Assessment of the Bluff Harbour Deepening Project, the report is dated 12 November 2021.

This report contains a review of the geological setting based on published geological maps and a site visit to map foreshore exposures. In summary, the Bluff Harbour is underlain by basement rocks of the Bluff Intrusive Complex and meta-sedimentary Greenhills Group. Younger Holocene deposits are unconsolidated sand, gravel and mud as well as beach dunes overly these basement rocks.

The entrance channel to Bluff Harbour is split by two separate rock types of the Greenhills Group outcropping on either side of the foreshore. Hornfels facies schists are on the southwest side and quartz-keratophyre bedrock is on the north east side of the channel. The contact between the two rock types was not observed at the ground surface.

Geosolve state that the hornfels facies schists are banded and strike northwest parallel with the beach front. These deposits are steeply dipping between 62° to 85° and foliated bands intersect the channel at low angles of between 14° and 28°. Secondary joint defects which are perpendicular to the primary layering strike north-south, these intersections facilitate blocks to weather in triangular slabs.

The quartz-keratophyre bedrock is heavily dissected with joint defects which are orientated in three dominant planes which intersect each other at right angles forming roughly rectangular blocks.

GeoSolve state that both rock type defect apertures range from closed to open, i.e., 0 mm to >200 mm width. GeoSolve expect that apertures will be tighter with increasing depth into fresher rock which hasn't been eroded by wave action.

GeoSolve note a manuscript from 1951-1952 which details the condition of the rock brought up by divers from the channel and notes that the rock condition is the same on both sides of the channel with no signs of extensive weathering.

No active fault traces are recorded within the vicinity of Bluff Harbour and none were observed during field mapping. However, it is noted that the seismic risk is governed by the Alpine Fault 240 km to the northwest.

The rock in exposures along the foreshore is considered by GeoSolve to comprise strong to very strong rock which is generally unweathered with pervasive defects probable to depths beyond the proposed blasting depth. GeoSolve consider that any slope instability will be governed by the strength and orientation of defects relative to cut faces not the overall rock material strength.

GeoSolve expect rock material strength to be between 50 and 100 MPa for both rock types however there is no information to directly support this. The GeoSolve report provides a single UCS test result for a core sample collected between 10.4 and 11.8 m from a borehole located at South Port Town Wharf. Due to the test sample location, this sample is expected to represent Hornfels facies schist rock. The test report by Central Testing Services (CTS) indicates an unconfined compress strength of 16 MPa with failure occurring along existing shear planes not through the rock material. No test results are available for the Quartz-Keratophre rock type on the north-eastern side of the channel. No supporting evidence has been provided regarding the actual rock material strength (i.e., not influenced by shear planes).

GeoSolve note that due to the extent of observed defects, the blasting and excavation is more likely to break rock out along preferential foliation / joint surfaces rather than through the rock material, what is observed at surface is assumed to be probable at depth.

GeoSolve recommend dredging and cutting progresses top to bottom and from southeast towards northwest to cut on an oblique angle to the banded hornfels rock type to rip out rock slabs (blocks) along (favourably utilise) the primary defect set. thereby utilising no dredging and cutting direction recommendations were provided for the north eastern channel side (Quartz-Keratophre rock type).

GeoSolve recommend undertaking site inspection during the blasting and dredging operation and review pre/post works of underwater video survey footage to confirm bed rock conditions.

4.0 Bluff Harbour Entrance Drilling, Blasting and Dredging Methodology – OCEL, November 2021

The OCEL report provided in Appendix 3 of the application considers the rock blasting and dredging required to form the design channel depths.

This report considers the bulk of the material to be removed to be high strength metamorphic rock with some high quality norite rock (dense and strong) and as such a drill and blast technique has been recommended.

The use of a hydraulic rock breaker mounted as an attachment to the hydraulic excavator was also considered as an alternative to the drill and blast technique. OCEL considered this is best used as a supplementary technique after blasting to scale rock faces and remove loose rock.

Blast holes are stated to be a minimum depth of 2.5 m with a maximum hole spacing of 2.2 m. OCEL recommend a site-specific test blast programme to establish the site-specific vibration attenuation parameters used in the empirical vibration equation.

A three or four spud leg barge with limited jack up potential was recommended to ensure a downward pressure is imparted onto the spuds to keep the barge in position during strong current.

Drilling for the blast holes is proposed to be via a hydraulic arm mounted onto the excavator with blast holes positions (in terms of DGPS coordinates) being as per a drilling plan which has not yet been established.

OCEL propose that diver involvement will be minimised where possible with blast charges being loaded with a bulk emulsion explosive from a tank on the surface and run down the excavator arm to enable the primer and booster charge to be placed into the borehole. Up to 30 holes will be fired per blast with a maximum charge weight being 30 kg. This creates 30 control leads taken to surface. Section 4.2 of OCEL however states explosives would be set by a diver(s).

OCEL state that blasted rock fragment sizes between 450 mm to 600 mm are suitable for an excavator bucket and OCEL note that the higher the fragmentation size that can be handled by the dredging plant the less the explosive charge required.

OCEL state the blast will fragment the rock down to a depth of at least 2 m, however the blasted material doesn't necessarily have to be removed down to that depth. OCEL consider this a positive as the rock is already broken for any future channel deepening that may be required.

OCEL have reviewed the GeoSolve Geotechnical Report (Appendix 22). In addition, OCEL note they have prior experience of this rock which they refer to as Norite Rock from a fragment recovered from the bilge of a bulk carrier after it struck a rock in the channel in 2002. OCEL state the unconfined compressive strength (UCS) of this rock fragment was more than 80 MPa and could be as high as 100 MPa, yet no data to support this has been provided.

OCEL consider that blasting and excavation is likely to break the rock out along preferential failure surfaces (foliation & joints) rather than through the rock mass.

OCEL state that the Geosolve Geotechnical Report will be used to inform the development of the detailed blasting plan by the blasting contractor as this

report is the best representation of the material type to be blasted. Direct observation of the rock is impractical by diver or ROV as the intertidal window when diving is possible is restricted to less than one hour.

OCEL state the fragmentation achieved by each blast and the shape of the resulting rock fragments will be gauged from direct observations of the material reviewed during the post dredging phase. OCEL state that drilling records will be kept, cross reference to the detailed blast plan will be undertaken and photographic records kept of the representative dredge material.

OCEL have considered blast vibration in conjunction with the GeoSolve Geotechnical Report, however the empirical calculation used to determine a Peak Particle Velocity (PPV) is independent of the effect of pervasive fracturing within the bedrock mass which may dissipate vibration during blasting. Again, OCEL place the onus on test blasting trials on site to measure PPV at set distances to confirm/determine the empirical correlations used in the PPV equation.

OCEL has discussed vibration effects from blasting with a likely PPV of 0.53 mm/sec calculated at the nearest house based on a 30 kg charge. It is proposed that all blasts will be monitored by seismographs placed adjacent to the nearest structure to the blast.

OCEL consider that vibration induced seabed instability is considered unlikely and of low consequence as the slopes outside the channel are flat and seabed of the channel is primarily rock. Hydrophones are proposed to measure the peak underwater pressure associated with the underwater blast wave and confirm the percentage reduction in pressure assumed due to the placement of charges in drilled holes.

5.0 Audit - Key Points

Key points from the appendices audited comprise:

- ∴ Published geology and mapping is confined to outcrops above the water line and along the foreshore. This information is a general representation of the geological conditions of the areas to be blasted. The majority of the geological assessment is on the southwestern side of the channel. However, no site-specific data has been collected. I consider this data is best collected during a blasting trial.
- ∴ There is limited site-specific geological data on rock strength and the persistence at depth of defect spacing below the water line. The uncertainties may affect the resultant fragmentation after blasting, this in turn could affect the assumptions made regarding dredging techniques and the long-term environmental assumptions made regarding the rock disposal area. I consider this data is best collected during a blasting trial.

- ∴ Assumptions have been made on the blast charge weights required to achieve the desired fragmentation. Until the blast trials are complete, the vibration attenuation parameters used in the empirical vibration equation are still generic and not site specific, as such the resultant vibration and noise effects are still conceptual.
- ∴ It is proposed that seismographs and hydrophones will be placed and monitored during any blasting trials. No detail was provided on where these will be positioned and by whom.
- ∴ OCEL note that a fragment of rock was removed from a bilge tank of a vessel passing through the channel historically, i.e., rock fragments have previously been a hazard to shipping. It was noted in the application main documents that after each blast (1 daily) the blast area will be re-surveyed to ensure the rock hasn't lifted and become a navigational hazard. No details are provided on how this would be undertaken or the impact this may have on programme.
- ∴ There is no indication when the drilling plan will be finalised, and if there are any alternative solutions to using divers if the charge loading via the excavator arm is problematic. If diver charging is required, then there is limited time available between tides for this scenario in such an active environment and it will likely protract the programme.
- ∴ No assessment of the stability of the material within the disposal sites has been provided.
- ∴ Blasting will take place only in the channel area in late autumn, winter and early spring to avoid marine species peak feeding and breeding time. These winter months are when the least favourable sea conditions would be expected. I consider the programme of works to be optimistic for the scope proposed considering the need for blasting trials and uncertainties in the geology, blasting methodology, tidal currents and sea conditions in the channel.
- ∴ OCEL state that drilling records will be kept with cross reference to the detailed blast plan being undertaken and photographic records kept of the representative dredge material.

6.0 Applicant Proposed Consent Conditions

No conditions have been proposed regarding the geological uncertainties outlined above or about the requirement for a drilling / blasting trial.

7.0 Summary

The applicant has noted and addressed the majority of the Section 92 questions asked throughout the application process to date. I have no significant concerns over the methodology proposed for the works by OCEL. However, as listed in Section 5 there are a number of geological uncertainties which may have notable but manageable knock-on effects to the environment and proposed work programme.

Most of these geological uncertainties will be discovered during the proposed drilling and blasting trials. However, due to the size of the blast area, the inherent variability of geological deposits, and the limited data set collected to date, it is expected this discovery process will be on-going through the work programme.

Southport have not provided procedures which illustrate how vibration, noise and fragmentation data will be efficiently filtered back through to the relevant specialists. This is important to ensure that the reactive management plans provided by others are still fit for purpose and valid. This flow of data should have oversight and authorisation from Environment Southland.

Appendix D: Rejection of Dec 2020 application

Hamish Peacock

From: Hamish Peacock
Sent: Wednesday, 16 June 2021 9:02 AM
To: Simon Beale
Cc: Lacey Bragg (Lacey.Bragg@es.govt.nz); Resource Consents; Bruce Halligan
Subject: South Port Consents (APP-20202492)
Attachments: Appendix to s_88 Email_Decision (01).docx

Tēnā koe Simon

Thank you for applying for resource consent on behalf of South Port for Coastal Permits to undertake capital dredging of the seabed, including to;

- Undertake drilling and blasting of the seabed
- Disturb the seabed
- Discharge water and contaminants (in the water) to coastal waters
- Deposit dredged spoil on the seabed

Regrettably the application does not include all of the information we require. This means the application is incomplete and we cannot progress it any further. Therefore it is returned under Section 88(3A) of the Resource Management Act 1991.

This email outlines the reasons the application is incomplete and what you need to do next if you would like to re-apply. **Please read these reasons carefully or have someone explain them to you.**

All applications for resource consent must meet minimum information requirements stipulated in the Resource Management Act 1991.

In addition, applications are processed more efficiently and effectively if they contain all of the necessary information when they are lodged.

The principal reasons the application is incomplete are:

- Insufficient information and geological review or site specific sampling / assessment of the rock. This was raised in items 5, 27, 30 and has associated implication for item 31 from the pre-application review.
- The introduction of the deemed coastal permit. South Port have not outlined, other than stating the existing permits are to supplement the sought consent, how they will give effect to existing and proposed consents / works. The Deemed Coastal Permit does not have conditions of consent to mitigate effects from dredging, and this requires an assessment of cumulative effects (where undertaken supplementary to the sought consents), and/or a better understanding of the effects on the environment. In part, this consideration also needs to account for the exercise of the coastal permit 201285-V2. Additional to this, the application is sought for a 10 year term, however s.384A RMA, associated with the occupation normally requires the Port Company to draft a coastal permit to authorise the occupation, which the application does not state this has been done, and if it had, s.384A RMA limits this permit to expire on the 30 September 2026 (a term of only 5 years). The application does not provide a programme of works, nor how it would undertake the sought consent works when the Deemed Coastal Permit would expire earlier than the sought consents.
- There are numerous other items insufficiently addressed in the application that are to the satisfaction of passing the s.88 test for receipt of the application, and those associated with risk to the environment (e.g. marine mammals, marine ecology, alternatives, contaminants, deposition, cultural effects), remain reasonably significant matters. Further detail of these are provided in the attached appendix.

It should be noted that a coastal process scientist is still getting engaged, and will be onboard for when South Port re-lodge the consent.

All of this information, and that detailed in a separate paper needs to be included in a new application.

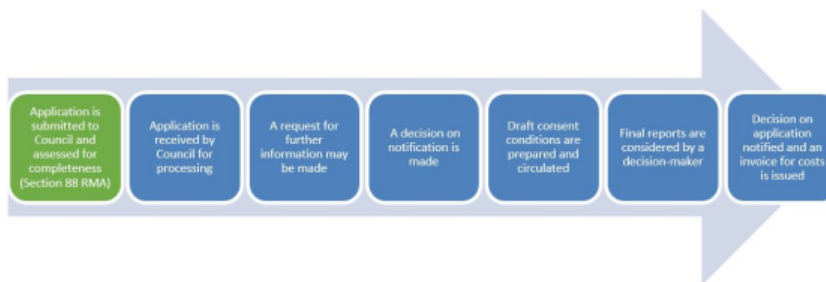
If you need more information about reapplying:

- go to es.govt.nz/environment/consents or
- go to mfe.govt.nz/rma/rma-processes-and-how-get-involved/resource-consent-processes or
- contact the Consents Team at Environment Southland on 0800 76 88 45, 8.00am - 4.30pm, Monday-Friday.

You may find it beneficial to schedule a pre-application meeting with us. You can make an appointment to meet with a Consents Officer. Please contact me or Environment Southland to arrange this.

We will hold the deposit you paid for two weeks and use it towards your re-application, unless you do not reapply or request otherwise.

Ngā mihi



Notes

- Under section 88 of the Resource Management Act 1991 (RMA) an application must be made in the prescribed form and manner and include the information relating to the activity, including an assessment of the activity's effects on the environment, that is required by Schedule 4 of the RMA.
- Environment Southland is a consent authority under the RMA.
- Consent authorities may determine within 10 days of an application being lodged that an application is incomplete if it does not include this information.
- Consent authorities must immediately return incomplete applications to the applicant with reasons for the determination.
- Under section 357 of the RMA you have a right to object to us about this determination.

Hamish Peacock | Technical Director – RMA Planning
PATTLE DELAMORE PARTNERS LTD
 Level 2, 134 Oxford Terrace, Central Christchurch, Christchurch 8011
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Appendix – South Port Bluff Harbour Resource Consents

PDP were engaged to review and engage with South Port and its consultants in a pre-application process raised 59 items from the evaluation of the application. When consent was lodged on 17/5/2021, the applicant provided their response to those 59 items and cross referenced where in the AEE and/or appendices this item was addressed. The s.88 check has involved an evaluation of the revised application and a check on how South Port has addressed the items. PDP also evaluated the revised application lodged on 17/5/2021.

The key items from the s.88 check has noted that the application lodged has not provided sufficient information to receipt the application, including:

Items 5/27/30. *The geological review or site specific sampling / assessment of the rock. The response information and application is deficient, and relying on “refined/confirmed by the initial blasts” which is not satisfactory in terms of s.88 check, nor the consequential effects or risks of the rock being proven to have different (worse) qualities, or the corresponding stability of the harbour bed. The outcomes of this, and South Port’s response may also has implications for the question posed on item #31 (blasting effects on near-by structures, or unstable seabed induced through vibrations.*

Items 6/41. *The acoustic monitoring is proposed, which according to the Applicants Response “is to help confirm the exact species that are present and the frequency of use (re: marine mammals), hence reduces uncertainty around marine mammal presence”. The response, nor the application does not therefore satisfy s.88 in terms of the description of the environment, nor effects on marine mammals, their presence during works or effects of deterrents from marine mammals not utilising these environments in the absence of the consent works. The “stop work” appears to only be proposed when marine mammals come into the TTS exclusion/mitigation zone, but as soon as the marine mammals move out of the MMOZ, the proposal is to commence with works. The “precautionary approach”, and adjustment of mitigation to a level appropriate is not well proven, tested, nor the effects on marine mammals or effectiveness of the adjustments understood from the application.*

Item #8 – in respect to Policies 2 and 4 of the NZCPS (Treaty, taking into account iwi management plans etc. and Policy 4 - esp. 4(c)(ii) - integrated management where public enjoyment of the coastal environment might be affected). *Section 9.1 of the AEE has added some assessments, which detail working collaboratively with parties and communications. This response does not evaluate the policy provisions in so far as whether the proposal is consistent with the provisions,*

rather it is a mitigation/remediation measure. This is inadequate for s.88 receipting an application. Furthermore, Section 5.11 and Table 5-2, suggests that a Harbour use and Communication Plan (Appendix 17) addressed the effects, but those relevant sections do not actually assess the environmental effects.

Item #9 and other matters – The acoustic effects from blasting and dredging and adoption of 50 dBA seems to apply based on the sensitivity of the receptors (residents along Marine Parade). *However, no assessment of acoustic effects on marine life (e.g. bird life) along the shoreline within the 50dBA has been provided. Furthermore, the assessment of Objective 5.3.7 and Policy 5.3.20 has led to drilling NOT occurring at night time, and advanced consultation with the affected residences of possible elevated noise levels that requires bedroom windows to be shut to avoid sleep disruption. The mitigation of third parties requiring to shut bedroom windows to avoid sleep disruption is reliant on third parties, which there is no assessment as to how that is intended to be achieved.*

Item #10 – This matter addressed environmental, health and safety and public risks, which the applicant’s response referenced this is addressed in the management plans (Appendix 7,7,14,15 and 17) and suggested condition consent (Appendix 1). *However, for the consent authority to evaluate risks, a quantitative risk assessment (as much as practicable) would be needed, which there is only qualitative risk assessments.*

Item #13 – Alternative Disposal Site/Environments. The response to Item #13, is reliance on the existing consent and disposal site, and the revised AEE does not assess alternative disposal sites, but does state “The foreshore rock disposal site near Island Harbour has been discounted by South Port as a possible alternative site”, but no justification is provided thereof in Section 8, apart from the limitation of the TSHD and hopper barges and health and safety issues. *This alternative assessment does not go so far as to why the dredging disposal is limited to just these vessels for carrying and disposal of dredged material, and why other types of vessels could not be used. This is considered a deficiency of a s.88 receipt of a consent.*

Items #29/38/47 – tributyltin (TBT). These matters had additional assessment in the lodged AEE, and specifically Appendix 6 (5.1, 7.6), and that TBT has been detected in the sediments in the vicinity of Berth 8a and this will be disposed of. Given that TBT has demonstrable adverse ecological effects at extremely low concentrations, there needs to be greater consideration of TBT contaminated sediments, its potential adverse effects and disposal options/treatment. It is evaluated that dumping 3 times the amount of sediment in a short period of time, in comparison to past disposals will have exactly the same result. There needs to be a robust assessment to support this approach, or at least some strong reasons to have confidence in the expert opinion.

Furthermore, the E3 report lists the disposal of rock as having minimal impacts on the existing biota at the site, and then scores the magnitude of effects as “high”. This disconnect needs to be justified or explained.

Item #43 – Disposal of rock material. The application states “Deposition of up to 40,000 m³ of fragmented rock will lead to the creation of a relatively diverse and stable rocky reef habitat which represents a positive effect arising from this activity.” *The response to Item #43 suggests there are some localised effects, however there’s no evidence in the application to suggest that this is actually a positive effect. This assertion needs to be justified and supported with evidence or modelled outcomes based on experience and/or data.*

Non # Item – but a matter due to the introduction of the Deemed Coastal Permit under s.384 RMA. *South Port have not outlined, other than stating the existing permits are to supplement the sought consent, how they will give effect to existing and proposed consents / works. The Deemed Coastal Permit does not have conditions of consent to mitigate effects from dredging, and this requires an assessment of cumulative effects, and/or a better understanding of the effects on the environment, if South Port were just giving effect to the Deemed Coastal Permit and the coastal permit 201285-V2.*

One option might be for ES to instigate a s.128 RMA review, with South Port agreeing that the review process (where s.88-121 RMA apply) runs in parallel to the sought consents (i.e. notified consent process). Additional to this, the application is sought for a 10 year term, however s.384A RMA, associated with the occupation normally requires the Port Company to draft a coastal permit to authorise the occupation, which the application does not state this has been done, and if it had, s.384A RMA limits this permit to expire on the 30 September 2026 (a term of only 5 years). The application does not provide a programme of works, nor how it would undertake the sought consent works when the Deemed Coastal Permit would expire earlier than the sought consents. While the timing of the works has been outlined between 1 March and 31 October 2022, why/what is the justification for the 10 year consent period being sought? Additionally, while this timing of work is noted, does the AEE account for the Southern Right Whale calving season being June – November and Southern Right Whales being observed with calves outside the Bluff Harbour entrance.

Section 5.13 (Cultural Effects) and Section 7 (Stakeholder Consultation) recognises the potential cultural effects and that a formalised agreement between South Port and Te Runanga o Awarua is to be developed. *However, this future agreement needs to be understood as it could potentially be at odds with Appendix 16 (CIA) where Te Ao Marama /Inc report that “Dredging, blasting of soft and rocky habitat has the potential for significant effects on mana whenua values, rights, and interests.” Without understanding the agreement, or what constitutes “improvement in the health of Bluff Harbour (Awarua) for cultural use, including for mahinga kai and Tauranga waka” to satisfy that cultural effects*

have been assessed, and while a baseline assessment and health status for paua and reef habitat (within the Motupōhue mātaītai) and then what is expected to ensure cultural effects are able to be mitigated, this makes the application deficient in terms of s.88 RMA.

Appendix E: Section 92 Question(s) and Response(s)

Cumulative Q&A of responses received 1/12/2021

South Port Responses to s 92 Requests

No.	Item of request	Response	Section updates in AEE & Tech reports
1	<p>Can you please provide the rationale and scenarios which justify the 10 year term of consent sought? Section 1.4 of the application outlines that this term is to “cover any eventualities that arise beyond the control of South Port that could lead to a delay in the project,” and to “provide a margin of safety to the project in the event that circumstances arise beyond South Port’s control that would require the project to be deferred for a period of time.” We would appreciate if you could provide what scenarios could (hypothetically) occur where a 10-year term might be necessary to give effect to 8 months of programmed works. This information is necessary for our consideration of an appropriate term of consent.</p>	<p>The scenarios that could significantly delay the project are:</p> <ul style="list-style-type: none"> • Contractor availability (longer lead in times for specialist contractors) • Significant downturn in global commodities • Global pandemic • If MSC (Mediterranean Shipping Company) left South Port <p>We are motivated to complete the capital dredging programme within a one 8-month period however we need a contingency to be able to return the following year if the works is delayed for any reason. South Port therefore requests a 24month period to complete the capital dredging project once commenced to accommodate shipping delays, weather delays, restrictive consent conditions, environmental conditions, breakdowns and other unforeseen circumstances.</p>	<p>Exec Summary and Section 1.4, AEE.</p>

		<p>We request a 10-year consent to provide flexibility. It allows us to postpone the work for 8 years if economic conditions don't suit. It will then allow us to do the capital dredging in year 9 and 10.</p> <p>When the contractor establishes; we trigger the 24-month deadline to complete dredging.</p> <p>(Please note under current maintenance consent we can undertake maintenance dredging at any time).</p>	
2	<p>In relation to question 1, please provide an updated risk matrix (Table 5-3) that includes the programme as a risk item, and assess what risk profile you consider the programming of the works to be. This information will help us evaluate the practicable reality of the term of consent.</p>	<p>See attached risk matrix. This indicates that the programme is a low risk item given the allowance provided for delays caused by weather and shipping movements, etc. Additionally, the programme includes a mobilisation period pre-Christmas to ensure a start up date for drilling, rock breaking, blasting and dredging of 1 February and ending 30 September.</p>	<p>Figure 2-9, AEE. Table 5-3, AEE.</p>
3	<p>Please advise if consent is being sought for a one off event of dredging, rock breaking, drilling, blasting and deposition over 8 months, or if you envisage that there will be multiple campaigns (repeats) of these works. This information is requested because while the programme depicts 7 months for all the works, the application could be also construed to be intermittent works, potentially over 10 years.</p>	<p>Consent is being sought for a one-off event, spanning 8 months. This may extend over two years if the works are delayed for the reasons stated above. There will be no multiple capital dredging campaigns.</p>	<p>Exec Summary and Section 1.4, AEE. Section 3.3, Marine Env. Effects Assess. Section 1.1, MM Effects Assess. Addendum 2, Bird Survey report.</p>

<p>4</p>	<p>Figure 2-9 illustrates Project Programme work from mid February to mid September (7 months), yet 8 months or 6-8 months is described elsewhere in the application, which includes 5.5 months for drilling and blasting works. Also, Page 9 of application document states that rock removal will be a 3 step process including 46 days of blasting over a 5 month timeline. Can you please confirm that works, if it is a one off event, can be managed to 7 months (or the specified number of months), and to revise Figure 2-9 to include the rock breaking works. If your programme differs from some of the inconsistencies, please clarify what the programme of works is in light of your answers to questions 1 and 2 (above). Further to this, potentially the rock breaking could be aligned with the drilling and blasting programme, which may simply require that clarification. This information is sought for clarity.</p>	<p>We acknowledge the confusion caused by this inconsistency and will amend the application to be more specific.</p> <p>The programme as attached has been amended. This shows that the drilling, rock breaking, blasting and dredging project programme, including trail drilling and blasting commences at the beginning of February and finishing at the end of September, spanning an 8 month period. This timeframe includes some allowance for delays caused by weather and shipping movements.</p> <p>Please note that rock breaking will occur in tandem with the drilling and blasting phase of the project.</p>	<p>Exec Summary and Section 1.4, AEE. Figure 2-9, AEE. Section 3.3, Marine Env. effects Assess. Section 1.1, MM Effects Assess. Addendum 2, Bird Survey report.</p>
<p>5</p>	<p>Please clarify the proposed timing of the works. The marine ecology assessment of effects report states that little blue penguin breeding occurs from September to March and that seagrass flowering occurs from December to March, however, Condition 7 allows drilling, blasting dredging and deposition to occur from 1 March to 31 October annually.</p>	<p>Drilling, rock breaking and blasting will occur between 1 February and 30 September, as shown on the attached revised programme chart.</p>	<p>Exec Summary and Section 1.4, AEE. Figure 2-9, AEE. Section 3.3, Marine Env. Effects Assess. Section 1.1, MM Effects Assess. Addendum 2, Bird Survey report.</p>

<p>6</p>	<p>Condition 9 restricts drilling and blasting and soft sediment dredging activities to daylight hours from 7:30am to 6 pm in order to avoid the dawn and dusk periods where many marine organisms are most active. This timing, however, over the autumn, winter and early spring periods would potentially allow drilling, blasting and dredging activities to occur during the dawn and dusk periods due to the reduced daylight hours. Please clarify that drilling, blasting and rock breaking activity will be restricted to daylight hours that avoid the dawn and dusk periods by using timing related to sunrise and sunset, e.g. from one hour after sunrise until one hour before sunset.</p>	<p>Drilling, rock breaking, blasting and dredging will take place between the hours of 7.30 am to 6 pm during the period 1 February to 30 September.</p> <p>This timeframe attempts to reduce the effects on marine species during periods where they are more active (i.e. autumn and spring) without compromising the ability of the activity to be completed within the proposed timeframe.</p> <p>The assessed effects of this timeframe on birds is provided in our response to Q 45.</p>	<p>Exec Summary and Section 1.4, AEE. Figure 2-9, AEE. Section 3.3, Marine Env. Effects Assess. Section 1.1, MM Effects Assess. Addendum 2, Bird Survey report.</p>
<p>7</p>	<p>In association with question 4 (above), the marine considerations on project programme indicate 5.5 months for drilling and blasting, and Appendix 8 references 6-8 months. Can you advise that Appendix 8 marine mammal assessment is based on one-off event of works, rather than intermittent works over a longer period, or in campaigns over the course of 10 years. If the assessment is not restricted to the 6-8 months of works, we would like to understand the longer term effects on marine mammals. I am requesting this information because it is not clear if the assessment considers the potential to exercise the consents on multiple occasions over 10 years.</p>	<p>We can confirm that the marine mammal assessment (Appendix 8) is based on a one-off 8 month drilling, blasting and dredging programme, commencing 1 February and finishing 30 September.</p>	<p>Section 4, MM Effects Assessment.</p>

8	<p>Deemed Coastal Permit. s.384A(2) RMA sets an expiry of exercising the Deemed Coastal Permit on 30 September 2026. Can you please advise that you will not have any need to exercise the Deemed Coastal Permit after 30 September 2026, in the event that you are granted consent beyond 2026. The reason this information is sought, is to understand what additional consents you might need if you can no longer rely on the deemed coastal permit.</p>	<p>Dredging in reliance on the deemed coastal permit would occur and be concluded prior to its expiry of September 2026.</p> <p>South Port is seeking a term of 10 years as discussed above. Assuming consent is granted for this period, South Port can rely on this consent to undertake dredging of the channel if this was to occur beyond the expiry date of the deemed coastal permit of September 2026.</p>	<p>Exec Summary and Section 1.1, AEE.</p>
9	<p>The maximum volume of 120,000 m3 of sediment and 40,000 m3 of rock is proposed to be dredged from the harbour and deposited offshore from Tiwai Peninsula. Is this maximum volume over the 10 years or for the 7 (or 8) months. Or, is this the maximum for any campaign of dredging?</p>	<p>These are the maximum volumes for the one-off capital dredging campaign that will span one year or possibly two years as noted above.</p> <p>These volumes exceed the permitted maintenance dredging volumes.</p>	<p>Section 1.4, AEE.</p>
<p>Ecological Effects</p>			
10	<p>In section 5.4.6 of the application; states that disposal of rock on a sandy seabed will create stable rocky reef habitat which will be colonized by algae, will become a nursery area for fish and other marine organisms and will be an ecological benefit to the location over the existing habitat. Can you please provide evidence to support the assertion and show that such ecological benefit is likely to accrue as a result of rock deposition, e.g. documented studies that show ecological benefit as a result of the placement of rocky reef structures in similar sandy seabed environments?</p>	<p>Reference to ecological benefit deleted.</p>	<p>Section 5.4.6, AEE.</p>

	Noise Effects		
11	<p>With reference to the noise Assessments, through AEE and Styles Reports (Appendices 24 and 25). Additional to this information in the application please provide an assessment of s.16 RMA (duty to avoid unreasonable noise). Section 16 seeks that the applicant <i>shall adopt the best practicable option to ensure that the emission of noise from that land or water does not exceed a reasonable level.</i> Please clarify if this assessment is in the application, and if not, to provide an assessment, such as to what noise effects could be inferred on aquatic, bird and human life. What could be referred from this on aquatic life and human life? And, what measures are proposed to minimize noise effects of drilling, rock breaking and blasting?</p>	<p>The Styles Group report addresses this request in considerable detail. Styles Group have worked with the project team to design the works, refine the methods, timings and mitigation measures to minimise the noise effects are far as practicable. Styles Group considers that the methodology described in the application represents the best practicable option (BPO) as defined in s2 and required by 16 of the Resource Management Act insofar as acoustics is concerned.</p> <p>The measures proposed to minimise the noise effects arising from the project works are set out in detail in the Styles Group report.</p> <p>The final paragraph of the Styles Group report (p38) states that: <i>“We consider that the project noise levels will be reasonable, taking into account the duration of the project, the range of noise mitigation and management measures proposed by the applicant, and the predicted noise levels at the receivers.”</i></p> <p>This conclusion relates specifically to ‘reasonable noise’ as required by s16 of the RMA, and insofar as acoustics is concerned.</p>	<p>Airborne acoustic assessment: Executive summary, Sections 12.3.4 Indoor noise effects, 12.4 Bluff Campground, 14.1 Mitigation Options and Conclusion.</p>

<p>12</p>	<p>With reference noise Assessments - Styles Report (Appendix 24 and 15). It appears there is a reliance on construction noise in accordance with NZS 6803, but there does not appear to be an assessment under s.326 (326 Meaning of excessive noise). Please provide an assessment under s.326 RMA, and how South Port would respond to complaints about “excessive noise”.</p>	<p>The provisions of s326, 327 and 328 of the RMA are not relevant to the management of effects for a project of this nature. Mr Styles has significant experience in advising on large construction projects, as well as assisting Councils to carry out their functions under the excessive noise provisions in sections 326 to 328. These provisions are known as the ‘party noise’ provisions. Mr Styles is not aware of any project of this nature where these sections of the Act are mentioned or referred to. Large projects have resource consents or designations in place with conditions specifying noise limits, noise management plans and communication with the complainant and any other affected receivers. These are the appropriate devices for managing noise levels and complaints.</p> <p>The consent holder is proposing to respond to complaints about noise from the project. The response will be dealt with by the procedures and noise limits set out in the draft volunteered resource consent conditions. The Council would respond in the same way if it was required to. These conditions propose clear procedures and noise limits that must be met.</p> <p>This approach is strongly preferred over the relatively ill-defined procedures and assessments required by sections 326 to 328 of the RMA.</p>	<p>Airborne acoustic assessment: Executive summary, Sections 12.3.4 Indoor noise effects, 12.4 Bluff Campground, 14.1 Mitigation Options and Conclusion.</p>
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<p>13</p>	<p>Appendix 1 provides the proposed conditions of consent, including conditions 34-37 which sets noise levels limits, at residential and rural receivers. Can you clarify if you mean residential and rural zones? Also, can you outline why the Business 2 zone has been omitted, or if that is to be included what the likely effects are also on that Business 2 zone? Additional to conditions 34-37, we note there is no noise limits set as conditions between 6pm and 8pm, and between 6.30am and 7.30am which we would like to understand what the likely effects are during those hours omitted in the conditions 34-35? Can you please provide answers to assist our evaluation of the effects and your answers will provide clarity as to what is intended by the current proposed conditions.</p>	<p>This question has three components:</p> <p>Residential and Rural receivers Where the Styles Group report mentions residential and rural ‘receivers’, it is referring to the individual buildings and activities within those zones. It is best practice to refer to ‘receivers’ rather than zones, as there may not be any receiver of noise at the edge of the zone boundary. NZS6803:1999 is clear that the effects are only to be assessed at buildings that are occupied when the works are underway. If a building is not occupied, there is no noise limit to comply with.</p> <p>The Styles Group report deliberately refers to receivers rather than zones for the reasons set out above.</p> <p>Business 2 Effects on Business 2 receivers are addressed in Section 5.2.3 of our Assessment. The Business 2 receivers are located inside the OCB (refer Figure 4 of the Styles Group report). Section 5.2.3 of the Styles Group report states: <i>“We recommend that the project noise levels comply with the recommended upper limits for long term construction noise set out in Table 2 of NZS 6803:1999 for noise received by industrial and business receivers.”</i></p> <p>The proposed project noise standards for receivers inside the OCB are set out in Section 6.1.1 of the Styles Group report. This states:</p>	<p>Airborne acoustic assessment: Executive summary, Sections 12.3.4 Indoor noise effects, 12.4 Bluff Campground, 14.1 Mitigation Options and Conclusion.</p>
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14	<p>On page 942 (Noise Level Predictions) we would like some clarification; Will this rock breaker operate for 12 hours per day? Or, what specified hours? This clarification is sought because, it can only be assumed that Styles Group has modelled this noise attenuation from rock breaking, noting the noise level predictions are greatest of 58 dB LAeq at any residential receiver.</p>	<p>The noise level predictions in the Styles Group report are based on the continuous operation of the rock breaker over an assessment period of 15 to 60 minutes in accordance with NZS6803:1999. In other words, the noise level predictions are based on 100% of the time for the rock breaker operating.</p>	<p>Airborne acoustic assessment: Executive summary, Sections 12.3.4 Indoor noise effects, 12.4 Bluff Campground, 14.1 Mitigation Options and</p>

			Conclusion.
15	<p>On page 671 (Appendix 12 - Airborne Noise Assessment); we would like some clarification or justification about what noise is generated from the backhoe operations. Why, or what justification does Styles Group have given they have decided to deviate further from the NZS 6803 Standards that the night-time noise limit for harbour channel dredging works is proposed to be increased by 5dB, from 45dB LAeq to 50dB LAeq?</p>	<p>This request appears to comprise two questions. The Styles Group report addresses both components of the request.</p> <p>The noise level predictions for backhoe dredging activities are set out in Section 10 of the Styles Group report. Noise level predictions are provided taking into account a variety of meteorological conditions. The predictions demonstrate that:</p> <p><i>“Noise levels will always be less than 45dB LAeq when meteorological conditions impede propagation towards Bluff. These noise levels may be experienced on at least 41% of the nights dredging may take place.</i></p> <p><i>When meteorological conditions assist propagation towards Bluff, 23 dwellings will receive noise levels between 46dB LAeq and 50dB LAeq for various dredging positions. All other dwellings will experience noise levels no greater than 45dB LAeq. These noise levels may be experienced no more than approximately 59% of the total number of nights that dredging may take place.”</i></p>	<p>Airborne acoustic assessment: Executive summary, Sections 12.3.4 Indoor noise effects, 12.4 Bluff Campground, 14.1 Mitigation Options and Conclusion.</p>

		<p>Section 12.3 of the Styles Group report provides a detailed assessment of the effects of adopting a night-time Project Noise Standard that is 5dB higher than the recommended noise limits in NZS 6803 (i.e. 50 dB L_{Aeq}). As the night-time noise levels will be experienced when they are indoors, the focus of our assessment is the noise levels that will be experienced by the Bluff receivers inside their dwellings, including potential sleep disturbance effects.</p> <p>Our Assessment sets out that if the dwellings are exposed to noise levels of up to 50 dB L_{Aeq} then:</p> <ul style="list-style-type: none"> • The noise levels inside the homes will be approximately 35 dB L_{Aeq} if the occupants' windows are slightly open, • The noise levels inside the homes will be approximately 20- 25 dB L_{Aeq} if the occupants' windows are closed. <p>Section 12.3.1 of the Styles Group notes that <i>“a level of 35dB L_{Aeq} is commonly regarded as providing an adequate level of amenity for bedrooms overnight. Many District Plans specify 35dB L_{Aeq} as a noise limit for inside bedrooms where dwellings are located in noisy areas, such as in town centres, mixed use</i></p>	
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		<i>zones, next to roads, airports, ports or other noisy infrastructure”.</i>	
	Proposed Conditions of Consent		
16	<p>Condition 38 sets a three month reporting period on the Soft Sediment Benthic Monitoring condition, which requires some rewording of the condition to make it clear it is sampling, sending to labs and then reporting. Please provide additional information so that we can evaluate why three months is appropriate for the sampling after the works is complete, because to understand the actual and potential effects of heavy metals, polycyclic aromatic hydrocarbons, phosphorus, tributyltin, sulphate, and sediment particle size, it would be prudent to monitor much more quickly after the dredging and then a stipulated period when the seabed has settled (i.e., when effects are stabilised to more of a natural environment).</p>	<p>“Sediment should be sampled at the Harbour Control Site within 3 months of dredging completion and tested for sediment chemistry and particle size analysis. Results should be compared to historic results compiled in Appendix C.” – Marine Assessment of Effects (Miller & Davis, 2021).</p> <p>The condition proposed that the sampling and reporting will be completed <u>within 3</u> months. This is a reasonable timeframe for sampling, laboratory analysis and reporting to occur within given that the laboratory testing can take between 10 days and 3 weeks (for particle size and TOC) and in general a report takes between 3-4 weeks to turn around. Further to this, given the location of the site, weather, tides and the ongoing capital dredging works will have a significant impact on when the field sampling can be completed therefore to further restrict this component may create inadvertent non-compliance.</p>	No amendments required.
17	<p>Condition 43 (Appendix 1) is an ultra vires condition, as it relies on a third party. Please remove this condition, or if it is volunteered then state this, and it could only be assumed that Te Rūnanga o Awarua will need to submit in the notified process outlining what</p>	<p>It is a volunteered condition of consent. This condition aligns with the CIA requirements that Te Rūnanga o Awarua have involvement with the proposed methodology and site selection. See point 16 above regarding the proposed 3 months</p>	No amendments required.

	<p>they wish to achieve from condition 43. Furthermore, that condition is restricted to <i>within the proposed site during dredging and a post-dredging assessment</i>, but that may not report on the wider impact on Motupōhue Mātaitai. Can you provide an assessment as to why three months is appropriate as the final assessment of the impacts, when we need to assess the actual and potential effects, including those within three months of the works. Can you please remove or revise condition 43, and provide a supporting assessment to what the effects are in the absence of a condition that gives certainty to measure compliance by Environment Southland.</p>	<p>timeframe for the sampling and reporting to be completed within.</p> <p>The rūnanga are kaitiaki for the mātatitai and have mahinga kai locations that are of special importance to locals and iwi, therefore it is appropriate that they are included within the methodology process and site selection. This monitoring is to validate the predicted low likelihood of any adverse effects and provide assurance to kaitiaki of this location that their mahinga kai will not be adversely affected by the short duration of the proposed soft sediment dredging. It is also important to liaise with the local kaitiaki as a temporary rāhui on the assessment location may be required to reduce error in the assessment caused by recreational harvesting of pāua.</p>	
18	<p>Further to the questions under point 16 and 17 (above), please advise why you have not recommended monitoring during the works, as this is when actual impacts occur? In relation to this question and also in the case of condition 43, it would be beneficial for us to understand what you consider as “health status monitoring” over time from when the works commence to a specified period after works cease. We would like to know what it is that South Port are proposing to measure or how it might be of benefit to managing the actual and potential effects of the proposed works?</p>	<p>Monitoring is recommended during the works, as you have quoted in Point 17. Monitoring of the soft sediment in the inner harbour will be captured within the seagrass monitoring which includes soft sediment sampling.</p> <p>Health status monitoring is assessing the health of the biota in question such as for seagrass this can be assessed via blade length and above ground biomass. Health status monitoring of pāua beds refers to the cultural health index (CHI) alongside ecological indicators of rocky reef species health</p>	<p>No amendments required.</p>

		<p>such presence of sensitive filter feeders. More detail is provided in Point 27 below.</p>	
<p>19</p>	<p>Condition 45 (Appendix 1). Please advise why you have omitted occupiers of properties, and why notification shall only occur <i>“predominately on Marine Parade”</i>. Acoustic modelling may prove that noise lifts and owners or occupiers could be effected by noise levels beyond Marine Parade. This information is required for us to evaluate the noise effects on all potential receiving environments.</p>	<p>Acoustic modelling by Styles Group shows that noise levels generated by the dredge will slightly exceed the NZS 6803 nighttime standard of 45 dB L_{Aeq} under certain meteorological conditions, at certain residences along Marine Parade.</p> <p>Proposed Condition 34 also limits the noise emissions at the most exposed dwellings along Marine Parade to no more than 50dB L_{Aeq} at night time. The proposed conditions do not therefore allow for a situation where <i>“Acoustic modelling may prove that noise lifts and owners or occupiers could be effected by noise levels beyond Marine Parade”</i>.</p> <p>The acoustic modelling carried out by Styles Group clearly shows that residences beyond these properties will be subject to noise levels less than the NZS 6803 1999 nighttime noise standard.</p> <p>Please also refer to the response provided by the Styles Group to Q15.</p>	<p>Proposed condition 45 amended.</p>

<p>20</p>	<p>In respect to Condition 12 (Appendix 1) which states "The Final placement of the turbidity meters shall be subject to consultation and confirmation from Te Runanga o Awarua. Condition 12 is ultra vires (reliant on a third party), and it should be ES that determine where the turbidity meters should be placed. Should South Port chose to also have additional turbidity metres placed to satisfy Runanga, then that could be done as a side agreement. However, in stating that we would appreciate your advice on where you propose to install turbidity meters in your response to this s.92 letter.</p>	<p>Condition 12 has been volunteered as a condition of consent by South Port.</p> <p>The proposed placement of the turbidity meters is stated in Condition 12. However, it is also stated that final placement will be in consultation with Te Rūnanga o Awarua as one of the proposed locations sits within the mātaītai and it would be appropriate to ensure we have it located in a sensitive mahinga kai area or in an area where local iwi have historic data.</p>	<p>No amendments required.</p>
<p>21</p>	<p>In respect to Condition 14 (Appendix 1); How long after the blasting will marine mammal observation be in place? 60min before and how long afterwards? After the blasting some marine mammals may be "drawn into the zone" or attracted to the zone due to the noise, and we would like to know how those marine mammal effects will be mitigated.</p>	<p>The Marine Mammal Management Plan (Section 3.1.1; p. 13) states: <i>"Post-blast observations – The Marine Mammal Observer(s) should maintain a watch of the MMOZ (and beyond) for at least 1 hour after blasting activity has ceased (or as long as daylight allows). In particular, observers are looking for any indication of marine mammal presence in the wider vicinity to evaluate the duration of effect that blasting activities might be having on species or any direct impact"</i>.</p>	<p>No amendments required.</p>

<p>22</p>	<p>In respect to Condition 17 (Appendix 1), Condition 17 Recording marine mammal sightings (date and time) without a reference of the blasting and GPS of the marine mammal. How will that information be collected, and how do you propose Environment Southland to evaluate the effectiveness of marine monitoring in the absence of GPS or other references?</p>	<p>A couple of different methods will be used by the Marine Mammal Observers (MMO) to estimate distance to a marine mammal sighting and therefore its location in the absence of GPS data. The main method will be using reticule binoculars and inclinometers. These allow the MMO to accurately measure the distance to a sighting from the centre of the blast by taking a compass bearing and vertical angle from a location of known height (i.e., observation platform) and knowing the location of observation platform in relation to the centre of the blast. Also given the shape of the harbour channel, it will be possible for MMOs to estimate the distance from the blast to the edge of the Marine Mammal Observation Zone (MMOZ), and therefore use landmarks to quickly assess marine mammal locations. For example, the edge of MMOZ is 500m from centre of blast and a channel marker is also 500m from centre of blast, therefore any marine mammals inside of the channel marker are inside the MMOZ and action taken immediately. These methods are included in the MMO Training course so all MMOs will be familiar with them. Evaluating the effectiveness of monitoring can take several forms: (i) MMOs will practice regularly taking distance measurements to objects of known distance such as channel markers and vessels. This normally happens first thing in the day and at</p>	<p>No amendments required.</p>
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		<p>regular intervals throughout the day. These results are recorded and will be available for review by Environment Southland and can be available to assess the accuracy of distance measurements; (ii) all other members of the project team and the public will be encouraged to look out for marine mammals and report any sightings directly to the MMO. Records will be kept of who first sights a marine mammal; (iii) records will be kept of all marine mammal sightings including as they move towards, into and out again of the MMOZ. All records and data sheets will be made available to Environment Southland. Depending on the number of marine mammal sightings and shutdowns, a separate report may be provided by South Port.</p>	
23	<p>In the conditions (Appendix 1) where there is references to 25kg charges, what conditions would you recommend where the charge is less than 25kg, or no condition is required what the environmental effects are?</p>	<p>The MMOZ as stated in Condition 13 correlates with the modelled extent of the TTS arising from the detonation of a maximum charge of 25 kg. Effects on marine mammals when charges of a lesser weight are detonated will result in a smaller TTS, being less in area than the designated MMOZ. This condition represents a conservative approach to ensure protection of marine mammals under all blast scenarios by applying a fixed MMOZ based on the 25kg charge size even when the charge size is smaller than this.</p>	<p>No amendments required.</p>

<p>24</p>	<p>In respect to Condition 39 (Appendix 1), Seagrass monitoring; the condition states there will be fixed quadrats with monitoring for percentage cover, water clarity, sediment grain size, sediment quality. Can you advise how many quadrats will there be? What is the sampling design? What kind of statistical analyses will be undertaken to demonstrate effects and at what level of significance?</p>	<p>The methodology outlined in response 24, 26 and 27 will be refined following consultation with iwi and incorporated into the adaptive marine management plan (AMMP) which will be submitted to ES for approval prior to work commencing.</p> <p>Monitoring of seagrass beds is to validate the assessment of predicted effects of the soft sediment dredging. It is anticipated that the avoidance and mitigation procedures in place will reduce the risk of adverse effects regarding the suspension and deposition of fine sediment on the marine ecology of the area. However, as there are sensitive species identified in the vicinity, such as seagrass, it is deemed appropriate to provide further assurance via monitoring. The avoidance measure is to dredge outside of seagrass flowering and growth periods. The mitigation measures include dredging areas with fine silts identified on the outgoing tide only and the use of a green valve when dredging sediment with a fine particle size. Given the measures in place, it would be difficult to discern an effect of this activity due to the low likelihood of an effect occurring and the high flow and naturally turbid nature of the environment. Monitoring of seagrass beds is a precautionary condition as the risk and magnitude of effect from this activity is low</p>	<p>Section 4, Adaptive marine management plan (AMMP).</p>
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		<p>when considering the short time frame of the activity and timing during a period of low growth.</p> <p>To capture expected seasonal variability in seagrass condition and discern between temporal change and natural site variability, baseline monitoring of ecological bed health is proposed to occur approximately 12, 9 and 1 months prior to the activity commencing to capture seasonal variability. Seagrass monitoring will occur twice during the activity, and post work monitoring will be completed within one month of the activity's completion. A report will be provided within three months of the final sampling. Two sites will be monitored in seagrass beds with higher likelihood of deposition, as indicated by hydrodynamic modelling i.e. Rabbit Island (Easting 1242832.631; Northing 4832323.527) and Tiwai Wharf (Easting 1244270.155; Northing 4829583.095). A control site is proposed to be located further from the activity (Easting 1241561.286; Northing 4830051.256). These are the proposed sites however, final site selection will occur with input from Environment Southland and rūnanga, in alignment with the MOU between Te Rūnanga o Awarua and South Port. At each site, three 30 m transects will be set up with a 1 m² quadrat every 10 m. These quadrats will be assessed for seagrass percentage cover, and cores will be collected to assess change in blade length and above</p>	
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		<p>ground biomass. These indicators allow an assessment of bed health despite seasonal variability (Wood & Lavery, 2000)¹². Water clarity and sediment parameters will also be assessed alongside each monitoring event and include analysis of sediment particle size and heavy metal analysis to further ascertain any changes which may be attributable to dredging activity. A two factor-nested ANOVA will be used to test between sites. Posthoc tukey tests will be used to calculate pair-wise comparison of measures between sites. Principal component analysis will be carried out based on Bray-Curtis dissimilarities, to visualise the variation in community patterns among locations and sites, and how the patterns relate to explanatory variables. Significant reduction in seagrass bed health or change to sediment parameters beyond the natural variability captured in baseline monitoring and at the control site may be attributed to the activity and would require further investigation.</p>	
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¹² Wood, N., & Lavery, P. (2000). Monitoring seagrass ecosystem health-The role of perception in defining health and indicators. *Ecosystem Health*, 6(2), 134–148. <https://doi.org/10.1046/j.1526-0992.2000.00015.x>

<p>25</p>	<p>In respect to Condition 40 (Appendix 1); Bluff Harbour Entrance Channel Monitoring; the condition requires quantitative benthic monitoring using fixed quadrats for epifauna and algal cover. Includes photographic quadrats. Following completion monitoring will include baseline, 3 months, 12 months and 36 months, how many quadrats will there be? How many photographic quadrats and how will they be analysed? What is the sampling design? What kind of statistical analyses will be undertaken to demonstrate effects and at what level of significance?</p>	<p>This is a volunteered condition as the removal of biota in the channel entrance is an allowable activity under the deemed coastal permit. The purpose of monitoring this location is to provide South Port with rocky reef recolonisation information for any future works.</p> <p>The effects on the channel entrance benthic habitats via dredging is not required to be assessed as part of this application because it can be removed under the current terms of the deemed coastal permit.</p> <p>Under the existing maintenance dredging Coastal Permit 201282-V2 the port is permitted to dredge, dump and deposit on average 12,000 m³ per annum over the term of the consent (maximum 20,000 m³ in one year). This maintenance dredging will be done on an 'as-required' basis. The harbour is a highly modified area.</p> <p>Therefore, natural recolonisation of the affected area is not required to be considered as part of this application.</p>	<p>Section 4, Adaptive marine management plan (AMMP).</p>
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<p>26</p>	<p>In respect to Condition 41 (Appendix 1) Rock Disposal Site; the condition expects quantitative benthic monitoring using fixed quadrats testing for infauna, epifauna and algal cover using transects and quadrats. Following completion monitoring will include 3 months, 12 months 36 months and 60 months, how many transects and quadrats will there be? What is the sampling design? What kind of statistical analyses will be undertaken to demonstrate effects and at what level of significance?</p>	<p>The proposed rock deposition area is predominantly shell hash and has low diversity and abundance of infauna and epifauna. The prediction of a low and probably negligible impact of rock disposal at this site can be verified via a monitoring regime. Two 50 m transects will bisect the site from a fixed point (buoy) on an underwater directional bearing to enable replication. Quadrats will be positioned haphazardly within c. 5 m of the transect and the distance along the transect recorded to enable subsequent re-sampling in the same general area. A swim video recording will also be taken for each 50 m transect. Epifauna and dominant macroalgae will be recorded within each quadrat allowing for calculation of abundance, diversity, and richness metrics. Principal component analysis will be carried out based on Bray-Curtis dissimilarities, to visualise the variation in community patterns among locations and sites, and how the patterns relate to explanatory variables.</p>	<p>Section 4, Adaptive marine management plan (AMMP).</p>
<p>27</p>	<p>In respect to Condition 43 (Appendix 1) Mātaitai Monitoring; the condition seeks baseline monitoring of the health of paua beds and rocky reef habitat, and monitoring will occur 3 months prior to works. The methods and sites to be sampled by Te Runanga o Awarua. We would like to know what this means and what it is likely to produce, so would appreciate your advice. The health of paua bed and rock reef habitat</p>	<p>Motupōhue Mātaitai spans a stretch of high energy rocky coastline with subtidal rocky reef structures. Sponge and ascidian species are abundant along the coastline and growth of macroalgae is depth restricted due to high turbidity resulting from sediment input from nearby rivers and high levels of resuspension. Key epifauna species within southern rocky reefs may also be susceptible to fine</p>	<p>Section 4, Adaptive marine management plan (AMMP).</p>

	<p>doesn't really mean anything specific and we would like to know if it is contaminant loads in paua? Numbers of paua present? Size frequencies? Numbers of harvestable paua? What exactly is to be measured regarding rocky reef habitat? Where? What will this information do in terms of managing the effects of the proposed works?</p>	<p>suspended sediment as filter feeders (bivalves, sponges, ascidians etc.) by reducing filtration capacity. Pāua are a taonga species important for mahinga kai. Juvenile pāua seek refuge from predators by inhabiting beneath cobbles. Sedimentation may reduce the availability of this key habitat and modify juvenile pāua behaviour (Chew et al., 2013)¹³. Previous studies observed rocky reef around Bluff to have sedimentation ranging from 2.6 - 16% (Kettles et al., 2017)¹⁴. Fine suspended sediment from dredging activities is not anticipated to settle onto the nearshore reef environment within the mātaimai due to the high currents and wave energy in this area. In addition, due to the transient nature of this activity the ability to capture an ecological effect in this period is anticipated to be challenging. Monitoring the reef community and sediment parameters within the mātaimai will assist in verifying the assessment that the effects on the ecology of the rocky reef will be less than minor. Monitoring within the mātaimai will be co-developed with local rūnanga, in alignment with the MOU between Te Rūnanga o Awarua and South Port. Co-development of methodology is</p>	
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¹³ Chew, C. A., Hepburn, C. D., & Stephenson, W. (2013). Low-level sedimentation modifies behaviour in juvenile *Haliotis iris* and may affect their vulnerability to predation. *Marine Biology*, 160(5), 1213–1221. <https://doi.org/10.1007/s00227-013-2173-0>

¹⁴ Kettles, H., Smith, F., & Shears, N. (2017). Subtidal reef and rockwall communities of the greater Foveaux Strait region, Southland, New Zealand. *Science for Conservation*, 329.

		<p>essential as rūnanga may already carry out monitoring within the mātaimai which is likely to guide site selection. The “health status monitoring” of pāua in this context refers to mahinga kai and may be guided by the Ngāi Tahu Marine Cultural Health Index toolkit (Schweikert et al., 2012)¹⁵.</p> <p>Alongside cultural health monitoring, scientific surveys will be used to assess any changes to the ecology of the rocky reef community based on the deposition of fines (Shears, 2007)¹⁶. At each site, 50 m transects will be swum at 3 m and 5 m depth bands and quantitative data will be recorded from five 1 m² quadrats along each transect. Quadrats will be positioned haphazardly within c. 5 m of the transect in the desired depth range and the distance along the transect recorded to enable subsequent re-sampling in the same general area. Epifauna and dominant macroalgae will be recorded within each quadrat allowing for calculation of abundance, diversity, and richness metrics. Principal component analysis will be carried out based on Bray-Curtis dissimilarities, to visualise the variation in community patterns among locations and sites, and how the patterns relate to explanatory variables.</p>	
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¹⁵ Schweikert, K., McCarthy, A., Akins, A., Scott, N., Moller, H., Hepburn, C., & Landesberger, F. (2012). A Marine Cultural Health Index for the sustainable management of mahinga kai in Aotearoa – New Zealand. A report for Te Rūnanga o Ngāi Tahu. February 2015, 112.

¹⁶ Shears, N. T. (2007). Biogeography, community structure and biological habitat types of subtidal reefs on the South Island West Coast, New Zealand. *Science for Conservation*, 281, 1–53.

		<p>Percentage cover of sediment will also be recorded within each quadrat. Sediment parameters will be assessed alongside each monitoring event and include analysis of sediment particle size and heavy metal analysis to further ascertain any changes which may be attributable to dredging activity. Composite samples of sediment properties will be collected from each transect to record grain size, trace elements and organic matter. Significant ($p < 0.05$) change in sedimentation and the presence/absence and abundance of species sensitive to finer silts (i.e. filter feeders and grazers) (based on baseline assessment) will be an indicative measure for ecological health. Significant accumulation of fine sediment with trace elements indicative of port origin will require further investigation. Sampling will occur approximately one month prior to the activity, twice during the activity, and follow up monitoring will occur within one month of the activity's completion with a report prepared within 3 months of the final monitoring.</p>	
	Cultural Effects		
28	<p>Appendix 23 provides a letter from Letter from Te Ao Marama Inc for Awarua Rūnanga with a statement with "their unconditional approval to the application " to the Capital Dredging Works". However, under s.95E and consideration of cultural effects this letter is not accepted as formal written approval, and as such</p>	<p>South Port has recently met the Runanga. A response from the Runanga will be forthcoming shortly which will include a summary table setting out the cultural effects and mitigation measures sought by the Runanga.</p>	<p>Pending.</p>

	<p>we need to rely heavily on our evaluation of the CIA. Page 816 (CIA Appendix 16) still outlines that “Dredging, blasting of soft and rocky habitat has the potential for significant effects on mana whenua values, rights, and interests”. To evaluate the cultural effects can you please provide an updated CIA that reflects the rock breaking activity? Additionally, the CIA outlines the cultural concepts, activities, places, items (such as archaeology), and landscape, and within the assessment (page 843) but does not actually assess cultural effects (or impacts) but provides recommendations as to what Te Rūnanga o Awarua wants to achieve, or want to achieve in partnership or agreement with South Port Limited. While the Appendix 23 is helpful to appreciate concepts, it does not actually assess the cultural effects. Please provide and updated CIA with the cultural effects from Te Ao Marama Inc on behalf of Te Runanga o Awarua? This information is necessary to evaluate what the actual and potential significant cultural effects are.</p>		
	<p>Ecology</p>		
<p>29</p>	<p>On page 42, Table 4-1 [Disturbance of the seabed or foreshore] it states “<i>natural recolonisation of the affected area is expected to be rapid</i>”. Also, on page 104 under Objective 10.1.1 (Disturbance to the seabed or foreshore) it states “the affected area of the entrance channel will, over time, be recolonised</p>	<p>Within the 12 month timeframe we would expect full recolonisation and a return to baseline conditions, however for robustness we have also recommended a 36 month follow-up survey.</p>	<p>Table 4-1, AEE.</p>

	<p>by seaweed and sessile and mobile species such as sea tulips and anemones, invertebrates and fish species such as greenbone and blue cod". E3S Appendix has identified that they really don't know what timeframe recolonization will occur, and have suggested a colonisation study as part of the proposed works - a so-called "reef ball" study. E3S have packaged this as a "community science" project and say that it will indicate the rate of colonisation of fresh rock faces. They have also proposed monitoring of the new rocky reef at various intervals (baseline, 3 month, 12 month and 36 month) to document recolonisation. Can you respond with confirmation that "repaid" and "over time", worse case is connected to the 36 months period of monitoring, and if so, how you constitute that 36 months is "rapid". Additional to this, please advise if you have considered any offset mitigation in the form of habitat remediation or improvement elsewhere?</p>	<p>Seabed disturbance being 'rectified' does not mean a full return to baseline conditions. We expect the benthic recolonisation to begin almost immediately following the conclusion of the works and as is evidenced by the marine mammal acoustic devices within the channel entrance, can expect algae and grazers to be present within 3 months.</p> <p>Reef balls are 'packaged' as a community science project and also provide habitat offset providing additional rocky reef habitat. The reef ball programme also provides educational benefits and SIT are currently utilising this study to further their students education regarding subtidal rocky reef studies.</p>	
30	<p>In relation/ extension to question 29, can South Port offer a timeline for rehabilitation and / or potential offset measures if they are forthcoming from Question 29. This information is required for us to understand the environmental effects.</p>	<p>The timeline is stated in the Q 29 response. Algal growth is expected to be apparent after the first 3 months post-works and grazers will recolonise. Given that the affected areas are only discrete rock pinnacles within the surrounding bedrock we would expect to see an almost return to baseline after 12 months however for robustness we have also recommended a 36 month follow up survey.</p>	<p>No amendments required.</p>

	Policy		
31	On the same topic as points 21-22, Objective 10.1.1 under the Regional Coastal Plan seeks to avoid, remedy or mitigate, which the natural recolonization approach in the AEE does not actively seek the requirements of “avoid, remedy or mitigate”. Please revisit and amend your assessment of Objective 10.1.1 to demonstrate your conclusion?	The commentary to this policy will be amended to remove reference to natural recolonisation given the maintenance dredging and deemed coastal permits allows for ongoing dredging and disturbance of the seabed within the harbour.	Section 9.3, AEE.
32	Further to question 23, Policy 10.1.3 of the Regional Coastal Plan has your assessment which also states “over time” recolonization by seaweed, sessile and mobile species. In light of your answer to questions 21 to 23, please revisit and amend your assessment of Policy 10.1.3 to demonstrate your conclusion?	Same as response to Q 31.	Section 9.3, AEE.
33	On page 107 regarding Policy 10.2.4, there is a statement about deposit/dispose dredging material from the coastal marine area onto similar materials. A revisit of your assessment needs to recognize the rock disposal onto shell hash seabed is not aligned with this Policy 10.2.4; please provide a revised assessment? Also, the application asserts that depositing rock on a sandy seabed environment is ecological improvement. Evidence as to the rationale of this assessment is needed; please provide that evidence. The reason for this information being sought is because by extension, this argument would suggest that dumping rock over all sandy seabed habitat to improve it. We would appreciate evidential	This policy has been removed from the statutory assessment as the commentary mistakenly referred to a sandy seabed environment. South Port has specifically targeted an area of thick waves of shell hash that via infaunal assessments and video transects has been established that there are no attached epifaunal species present and that the infaunal communities are very limited. This is largely due to the current unstable benthic substrate.	Section 9.3, AEE.

	<p>and defensible data to suggest/support that there is likely to be an improvement in biodiversity, productivity, etc. in order to justify the claim that this represents an improvement.</p>		
<p>34</p>	<p>Please provide comment, further to your assessment on page 105; which under Policy 10.1.1 (dredging and excavation) the policy is enabling, and recognizes that the deposition effects includes “the continuance of current uses and activities”. It could be assumed from this that the draught of ships will remain constant. Can you please provide an assessment as to whether you consider the draught of ships will remain constant, or that South Port is likely going to need further dredging over time (the course of 10 years being sought)?</p>	<p>To clarify, the entrance channel currently has a draught of 9.7m. South Port are attempting to get to 10.7m draught (additional 1m) with the <u>capital</u> dredging as applied for under this consent. Once the contractor establishes on site, South Port may require 24 months to complete the work (contract split into 2 x 8-month periods across consecutive years (February to September). However our preference is to complete in one 8-month period.</p> <p>If we haven’t reached 10.7m at the end of the consented capital dredging campaign, we will not be able to dredge to a greater depth owing to the consent limit proposed of 160,000m³ for removal of dredged material.</p> <p>However, South Port may need to undertake <u>maintenance</u> dredging in order to maintain navigation channels at this depth. Silt begins to build up immediately and depending on the rate of build-up, South Port may need to undertake maintenance dredging within a few years of</p>	<p>Section 1.1, AEE.</p>

		<p>completing the capital dredging. Please note – this will be <u>maintenance</u> dredging not <u>capital</u> dredging (South Port has an existing maintenance dredging permit).</p>	
	RMA		
35	<p>On page 112 - Section 9.5.2, and in relation to Section 105 RMA; The assessment states “<i>Monitoring of the sediment disposal site by South Port has not demonstrated any significant adverse effect on infaunal...</i>”. The key to this paragraph is there has been limited monitoring from previous blasting and dredging operations. The monitoring (E3) has focused on the disposal site, rather than the discharges that occur from blasting, breaking and dredging, yet s.107 of the RMA (Section 9.5.3) assessment only addresses the discharges from dredging and disposal. Can you add to your assessment to include all the activities (breaking, blasting and all discharges, and disposal)?</p>	<p>The commentary provided on s 107 RMA will be expanded to include discharges from blasting, rock breaking and dredging, drawing on the underwater blast and noise assessments provided by OCEL and the Styles Group.</p>	<p>Section 9.5.3, AEE.</p>
36	<p>Regarding the risk matrix. The effects of drilling and blasting on seabirds recognises the risks to bird life, and describes the risk by timing the works between mid April to late August is mostly outside of the breeding season for little penguin, shore birds, gulls and cormorants/shags. Given the policy 6 of the NZCPS direction is to “maintain and enhance ecology”, what level of mortality is acceptable from the drilling and blasting that aligns to the conclusions you have drawn in the AEE? How will Environment Southland</p>	<p>The question about mortality and direct impacts on birds here should not include shorebirds. These species are not going to be in the water, close to the drilling and blasting, so will not be directly impacted, nor have increased potential for mortality.</p> <p>Little penguins, shags/cormorants, and gulls/terns could potentially be directly impacted (be killed or</p>	<p>No amendments required.</p>

	<p>know those effects when birds may exit the environment (head out to sea) early and die prematurely? This information is necessary for us to evaluate the effects of the proposal on bird life.</p>	<p>injured) by the drilling and blasting regime. However, the observer scheme that is set up to monitor for the presence of marine mammals, will also be monitoring for the presence of these bird species. Any level of mortality is not acceptable to South Port with the aim of achieving a zero level of mortality of all of these species. The presence of any birds within the 'exclusion zone' would require a halt to blasting, and the soft start blasting process should deter any birds not detected by observers, to move away from the blasting area.</p> <p>The timing of the works referred to in this question, of being 'mostly outside of the breeding season' mainly relates to little penguins. Gulls/terns and cormorants/shags are going to be present in the area at all times of the year, and will be part of the observation scheme above. However, penguins are most vulnerable as they are restricted to the water, and cannot fly, and it is the timing of the works to a period when penguins are less likely to be in the area (outside of the breeding season), which is important here. The daily timing of works to not be during the key crepuscular periods (i.e.; before 7.30 am and after 6 pm) when penguins are coming and going from burrows, is also a key limiting strategy.</p>	
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	Bond		
37	Can you please provide an assessment of what potential bond for this work might be appropriate given the ability to reverse effects on the environment is very complex and requiring some certainty? This information is sought to assist what might be appropriate as a safeguard to managing environmental effects that might not be envisaged by the current AEE.	<p>In terms of a possible bond, it is important to be clear what work would be subject to the provisions of a bond. The context of this proposal is that the channel is currently authorised to be dredged for maintenance purposes to a draught of 9.7m. The proposed increase to 10.7 is a capital dredging campaign. Assuming that target depth can be reached then the maintenance dredging will be able to be resumed where necessary to maintain this depth. In the event that capital dredging ceases part way through for any reason, then the finished capital campaign will not have reached the target depth, but work will cease and environmental effects will not be on-going. In this sense there would be nothing to "remediate". The channel would be maintained at the eventual capital depth.</p> <p>It is therefore not clear what type of "remediation" could be costed and made subject to a bond, hence none is volunteered. If there is to be a bond, it is assumed any condition would need to be clear what work it is to cover, be costed, and the form of a bond prepared by the consent holder, and submitted for certification by the Compliance Manager of Environment Southland that it achieves the consented condition parameters.</p>	
	Geotechnical/Geology		
38	Please provide evidence from OCEL that the geological findings, notably the unconfined compressive strength, fracture persistence, spacings and orientations given in the Geosolve Geotechnical Assessment Report dated 21 July 2021 have been considered by updating their original assessments including the Drilling, Blasting and Dredging Methodology (Rev3) and Effects of Underwater Explosions, Shockwaves, Vibration & Noise both provided by OCEL. Any changes in the OCEL reports	The Geosolve Geotechnical Assessment Report will be used to inform the development of the detailed blasting plan by the blasting contractor. The report represents the best available extrapolation of the rock properties evident above water on the sides of the channel out underwater into the channel. The rock to be blasted is underwater out of sight and subject to strong tidal currents. The intertidal window when diving is possible is restricted to less than one hour so the possibility of direct	Proposed condition 10 added.

	<p>must be carried through to relevant assessment of effect reports.</p>	<p>observation of the rock over a wide area by diver or ROV is limited. The fragmentation achieved by each blast and the shape of the resulting rock fragments will be gauged from direct observation of the material recovered during the post blast dredging phase. Drilling records will be kept, cross referenced to the detailed blast plan and photographic records kept of representative dredged material. The blast plan will be tuned by the blast superintendent based on these observations and feel for the work.</p> <p>The Geotechnical Assessment report is general in nature which is unavoidable because it is attempting to characterise the properties of the submerged rock. The presence of the predicted pervasive fracturing within the bedrock mass may help dissipate the effects of vibration during blasting but this cannot be accurately calculated in advance. It will however be picked up/reflected by the proposed test blasting on site using small test charges and measuring PPVs at set distances to determine the empirical constants K and n in the PPV equation –</p> $V = K \cdot (R/W^{0.5})^{-n}.$	
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<p>39</p>	<p>The Styles Group Report dated 27 August 2021 recommends the use of hydro-hammer rock breaker as an alternative method, or supplementary to the proposed drill and blast method. Please provide confirmation from OCEL that they have reviewed the suitability of using a hydro-hammer rock breaker for the proposed works whilst considering additional information in the Geosolve Geotechnical Assessment report, confirmation should be provided in updated revisions of their original reports. If hydro-hammer rock breaking methods are adopted then all relevant supporting reports must be updated with associated assessments to accommodate these changes. Also for clarification of our understanding of the hydro hammer (rock breaking), we understand spuds are to be used for the pontoon to position itself, but how is the actual hydro hammer positioned on the targeted rock?</p>	<p>The use of a hydro-hammer rock breaker either as an alternative method or supplementary to the proposed drill and blast method is a viable alternative. OCEL has reviewed the suitability of the rock breaker for the proposed works and note that while it is quieter in terms of generated noise subsea than the blasting operation it will go on for much longer, based on OCEL’s experience with rock excavations above ground using rock breakers and explosives. Instead of the sudden explosive release of energy in an instant the rock breaker will take much longer to achieve the required depths. The operator will be remote from the rock break location and not able to directly observe the rock breaker in action and exploit rock weaknesses or fractures. An underwater video camera fixed to the excavator boom will be limited by underwater visibility conditions. A rock breaker could however be useful in ensuring that the final slopes in the channel are stable. The slopes can be tested using the excavator bucket to scrape slopes, the rock breaker provides a tougher test of rock stability.</p>	<p>The OCEL Drilling, Blasting and Dredging Methodology report has been updated as Rev 4.</p>
<p>40</p>	<p>Please confirm that an engineering geologist will be engaged to monitor the drilling, blasting and breaking operations to ensure that the actual ground conditions and geological properties encountered during the works are as outlined in the Geosolve Report. This provision is required to ensure any</p>	<p>There is no intention to engage an engineering geologist full time to continuously monitor drilling, blasting and breaking operations, they would be under employed. The bulk of the work is repetitive and routine, underwater out of view, punctuated by blasts once a day. The drilling data and drill</p>	<p>No amendments required.</p>

	<p>significant deviations in expected geology and the resultant changes to the final drilling and blasting methodology are recorded.</p>	<p>positions set by the blast plan will be recorded and the results of the blasting checked by hydrographic survey, after the fragmented rock has been dredged up. The fragmentation achieved and the rock fragment shapes will be assessed by the blast superintendent. Some initial tuning of the blast pattern may occur in an iterative process to get the most efficient pattern. This will be done by the blast superintendent based on experience and practical feel for the work. Videos will be taken of the final rock slopes, by diver or ROV, and used to assess stability. It would be useful for an engineering geologist to be part of this assessment if relatively steep faces need to be assessed.</p>	
<p>41</p>	<p>Borehole logs contained within the Geosolve report note anthropogenic materials such as metal, timber and rope in shallow sediments around the wharf. As anthropogenic materials are likely within the proposed dredge area please provide further information on the methodology to extract, and or dump these anthropogenic materials and any environmental impacts these materials may have on the marine disposal site.</p>	<p>The Geosolve borehole logs are from previous investigation holes which Geosolve drilled on the landward side of Town Wharf outside of the proposed dredge area. Geosolve report that it is likely that the shallow rubbish observed in these boreholes is largely confined to the immediate vicinity of the wharf as would naturally be expected in this working environment.</p> <p>As noted in the response below to Q 42, the proposed dredge areas are well beyond the town wharf and no anthropogenic waste material is expected to be encountered.</p>	<p>No amendments required.</p>

42	<p>Figure 1a given in the Geosolve Report indicates 3 m rock cut in close proximity to the existing wharf structure, please provide a structural assessment showing that a 3 m cut will not destabilize the existing structure through loss of passive ground support to the wharf piles.</p>	<p>Figure 1a incorrectly portrays the extent of the channel deepening works. The actual extent of the channel rock drilling and blasting works are illustrated on Figure 2-2 in the application, well beyond the town wharf.</p>	<p>An updated updated GeoSolve report has been issued. Refer Appendix 22.</p>
	<p>Birds</p>		
43	<p>In respect to noise impacts from drilling and blasting (and we assume rock breaking) on birdlife and penguins that swim, addressed in Appendix 13 (Bird Survey Report), Page 772 has an addendum to Appendix 13, which address the acoustic effects on birds during construction. Penguin effects is addressed in terms of breeding birds, but please provide an assessment of effects on birds feeding (in the water). This information is necessary for us to evaluate the effects of the proposal on bird life.</p>	<p>The impacts of these works on little penguins is mainly restricted to the birds as they come and go to their nests, through increased noise and the impacts of the blasting, drilling, and possible use of rock breaking equipment. However, with regards to possible foraging interactions the following may apply.</p> <p>The channel area where the works are located, is unlikely to be an important feeding location for this species, although it is an area where penguins could forage. Drilling, blasting and rock-breaking are likely to interfere with foraging of penguins in this area, to differing degrees. As per discussion by the Styles Group, drilling is likely to create noise at levels that would interfere with foraging at a range of 0-250m. Blasting is likely to interfere with foraging at much greater distances (as per effects on Otariids which are being used in lieu of data for penguins), and at</p>	<p>No amendments required.</p>

		<p>close range could impact survival of the birds. Thus a soft start prior to blasting is important to deter penguins from being too close, and the observer scheme should be monitoring for any penguins within the blast zone as per those guidelines. The noise produced by rock-breaking could well interfere with foraging from 0-2020m (as assessed by the Styles Group).</p> <p>It is likely that penguins will learn to avoid feeding in this area with the increased noise and traffic associated with the drilling, blasting, and rock-breaking. However, this is not seen as being of major significance, due to the fact that these birds feed over considerable distances during the course of a day (mainly within 10km of their breeding site), and that the area in which these works will impact is a relatively small proportion of their possible foraging area. If 2000m from the rock-breaking is taken as the area in which foraging by penguins might be compromised, this does still leave considerable area outside of this for birds to forage successfully, as the main foraging area for these penguins is likely outside of the Bluff Harbour completely. It should be noted that the 10km range is from the breeding site, so if penguins are not actually breeding, then this foraging range is not restricted within 10km of the breeding site, meaning</p>	
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		a much larger distance from Bluff Harbour is possible.	
44	There is discussion in the bird report about requiring observers during blasting operations and a halt to the works if little blue penguins or shag species are in the defined area of potential harm - measures to avoid adverse effects on penguins and shags. This should be included in conditions of consent.	These measures are contained in the Adaptive Marine Management Plan under Section 3.3, i.e.; real-time monitoring of the MMOZ will occur specifically for seabirds.	No amendments required.
45	Cond 7 says that drilling, blasting, dredging and deposition will be limited annually (which suggests multiple years) to a period from 1 March to 31 October. Cond 8 says that soft sediment dredging will occur from 1 April to 31 July to avoid little blue penguin breeding period and seagrass flowering season. While condition 7 states that drilling, blasting, dredging and deposition will be limited annually (which suggests multiple years) to a period from 1 March to 31 October, and condition states that soft sediment dredging will occur from 1 April to 31 July to avoid little blue penguin breeding period and seagrass flowering season; what is the effects of drilling and blasting (and rock breaking) straying into each end of the little blue penguin breeding season as defined by their bird expert (report says breeding is September to March)?	The effect of the works on moulting penguins (late summer through to March) is of a low risk. Any birds that are moulting in burrows near the port are going to be fairly used to noise, traffic, etc and although the increased noise levels through drilling and blasting may be present, it is unlikely to cause significant harm to penguins. Once penguins have finished moulting, they are likely to head back out to sea, and therefore not be coming and going to their burrows. Moulting penguins are restricted to their burrows – they do not come and go when moulting – this is an important point to communicate. The number of penguins nesting/moulting close to works zone is likely to be low, and as the birds finish moulting this number will decrease until all birds have finished their moult.	No amendments required.

		<p>As penguins return to their breeding burrows at the start of the breeding season in August/Sept, they will be coming and going from the area. This is why the observation program, soft start to the blasting operations and imposed working hours have been put in place to limit any impacts on these birds. If penguins do find the level of disturbance higher than what they are prepared to put up with, it is likely they will avoid breeding in the vicinity of the port and works, and find another location nearby where disturbance is not an issue. Although moving to another breeding burrow due to this man-made disturbance is not natural, penguins almost certainly encounter natural events that require a new burrow to be found and used on occasion. As there is unlikely to be a large breeding population of penguins within close proximity to the works, it is not considered that a few displaced pairs would be negatively impacted in any great way, or the population. Of note is the fact that it would be good to avoid large gaps in the works program during the early part of the breeding season (Aug-Sept). That is a constant drilling and blasting program will have less impact, than one in which there are large gaps of several days or more. These gaps may allow penguins to start breeding, only to be driven away when works resume. Impacts on an already breeding pair would be greater than forcing a pair to establish</p>	
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		<p>a burrow elsewhere, whereby they can still have a productive breeding season.</p> <p>As mentioned previously, travel to and from their burrows is mainly restricted to sunrise/sunset as per their crepuscular habits. So during these travel times when they are in the water, limits imposed on work hours for drilling and blasting should lower any risk to penguins.</p> <p>On the whole, with the above mitigation measures in place it is assessed there will be very little impact on little penguins, even though the works could (if they runover due to weather and shipping impacts) overlap slightly with the suspected chick provisioning period (Oct-Dec).</p>	
46	<p>Drilling and blasting will stray into each end of the little penguin breeding season as defined by their bird expert (report says breeding is September to March). Please provide an assessment of the effects that occurs as a result of those works occurring at each end of the breeding season, so that we can evaluate the effects?</p>	<p>The same answer as above applies to this question.</p>	<p>No amendments required.</p>

	Biofouling		
47	In respect to the Biofouling Management Plan, associated assessments (Appendices 14 and 15) and conditions (Appendix 1); Condition 30 states that there will be inspection of vessels, but we would like to know if this is from somebody who is suitably trained or qualified inspectors who could actually recognize unwanted species? Also, how long prior to vessels arrival do these inspections occur? To assist our evaluation, we would appreciate a statement about vessels and equipment having no more than light fouling - defined as small patches (up to 100mm diameter) of visible fouling totalling <5% of the hull and niche areas. A slime layer and/or any species of barnacles are allowable fouling?	<p>South Port will make it a requirement that dredging companies will use MPI accredited contractors to undertake inspections and hull cleaning.</p> <p>MPI require that vessels intending to stay > 21 days in NZ must have a hull clean within 30 days of arrival in NZ. For example, Bay Underwater Services NZ who are MPI accredited is doing an inspection/ hull clean on the Albatros to comply with the long stay requirements in NZ waters as the dredge just returned from her annual dredging campaign at Tweed Heads, Australia.</p>	Proposed condition 34 added.
48	My preference would be for a dedicated Biosecurity Management Plan to be submitted and approved by ES prior to ships and equipment being brought in from overseas or any other area that could facilitate the spread of unwanted organisms (e.g. Lyttleton has Mediterranean fan worm).	South Port does not consider a dedicated biosecurity management plan is necessary as South Port does not expect to be using an overseas dredging company. In the unlikely event an overseas vessel is utilised, the selected Contractor will liaise with MPI to ensure any imported equipment complies with biosecurity legislation (as is the current practice with all international vessels operating in NZ waters).	Section 2.4, AEE.

		<p>Heron Construction and Dutch Dredging have provided South Port with their Bio-Fouling Management Plans and copies of a vessel specific record books and vessel details. All vessels operate under these management plans prepared in consultation with MPI and MNZ.</p> <p>Please note that South Port has satisfied ES bio security requirements in 2020 when the Dutch Dredging suction dredge completed maintenance dredging at the port. This is specified in the maintenance dredging consent – Condition 9 which states:</p> <p><i>“The consent holder shall inspect the dredge for fouling organisms, in particular Undaria, no more than one week prior to the dredge entering Bluff Harbour, on each period of “catch up” maintenance dredging. If such organisms are found, the consent holder shall ensure that the</i></p> <p><i>organisms are removed and disposed of to a designated refuse site on land. An inspection report shall be submitted to Council’s Environmental Compliance Manager prior to the dredge entering Bluff Harbour detailing the timing, method and findings of the inspection.”</i></p>	
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	Coastal Processes		
49	<p>Appendix 5 (OCEL -coastal processes assessment) and application section 5.4.5 states that <i>“The seabed levels at the disposal location have remained stable and have not changed significantly over time - as is evident from a comparison of the bathymetry between the initial RWMA/OCEL survey in 1984 and the most recent marine chart - so the sediment dropped on the location has been completely dispersed in the period between hydrographic surveys and the seabed has returned to a state of equilibrium”</i>. However, my reading of the Marine Charts (6721 & 6821) is that the survey for the chart is dated 1983 / 1984, so is the same time as the RWMA/OCEL survey, and hence not evidence of transport away from deposition site. Therefore, further information, such as a recent bathymetric survey is required to confirm that <i>“the seabed levels at the disposal location have remained stable and have not changed significantly over time”</i>.</p>	<p>The results of the Fugro survey in 2020 provide a comparison with the 1984 Marine chart that indicates on visual inspection no major changes in the depths. The bathymetry appears to be stable. The depths shown on the latter are at up to 200 m spacings with only two depth contours. The Fugro results are much more detailed and serve as a good base for future comparisons using bathymetric surveys of similar quality.</p>	<p>OCEL coastal processes assessment updated as Rev 4.</p>
50	<p>Further information is required to confirm the statement in Section 5.3.2 of the application that <i>“The heavier components of the sediment deposited at the disposal site will be easily mobilised due to the shallowness of the site allowing for sediment to be easily mobilised by wave action and currents”</i>, and the statement from the executive summary Appendix 5 (OCEL - coastal processes assessment) that <i>“The</i></p>	<p>It is the combination of wave period and wave height that determines sediment mobility. The wave induced water particle velocity varies close to linearly with wave height – at least in simple linear theory. The influence of the wave period is more complicated. The period determines the speed with which the water particle velocity decreases with</p>	<p>OCEL coastal processes assessment updated as Rev 4.</p>

	<p><i>existing coastal processes will deal with the higher volumes to be dumped, the mobilisation of the sand by waves will increase because of temporary shallowing and the rate of sand movement away from the disposal site will increase because of the greater volumes of sand mobilised and available to be moved.</i>" This additional information is required as the information presented in Section 3.3 does not address the fact that it is wave period (rather than wave height) which is critical for the movement of seabed sediment under wave action. The information required is the critical wave period to initiate mobilisation at the water depth of the deposition zone, and from the wave hindcast data the frequency that this critical wave period is exceeded and the wave heights associated with these periods.</p>	<p>depth, slowly for long period waves and rapidly, exponentially, for short period waves. The depth to which the wave disturbs the seabed can be simply approximated as half the wave length which is determined by the wave period and the depth. Oceanum are currently developing wave statistics for the harbour entrance using hindcast data that will identify periods and heights and the percentage of time nominated heights and periods are exceeded. This data to be provided once received from Oceanum. As the water depth decreases the wave particle velocity and the potential for mobilisation of sediment increases. Local high spots are subject to increased velocities and are levelled.</p>	
51	<p>In relation to question 45, it is unclear from the proposed monitoring conditions how ES would have certainty that <i>"the existing coastal processes will deal with the higher volumes (of sand) to be dumped."</i> Can you address this via a pre and post dredging campaign bathymetric survey being added to the monitoring conditions in your response? This will enable us to understand how and what commitment the proposal has to monitor and report the coastal processes.</p>	<p>Pre and post dredging bathymetric survey including the disposal site will be undertaken. This is standard for the channel and harbour entrance to prove that the required design depth has been achieved and there are no risks to navigation following the dredging campaign.</p>	<p>OCEL coastal processes assessment updated as Rev 4</p>
52	<p>Discussions in Appendix 5 (OCEL -coastal processes assessment) on littoral drift directions in different wave approach directions (section 2.2) and the potential positive effect of the sand deposition as a</p>	<p>Oceanum are currently developing wave statistics for the harbour entrance and Toetoes Bay using</p>	<p>OCEL coastal processes assessment updated as Rev 4.</p>

	source of beach renourishment material (section 4.1) requires further information on the frequency of wave approach direction to understand how relevant and important the wave directions are for sediment transport. This information should be available from the wave hindcast study referred to in the coastal processes assessment.	hindcast wave data and this will be provided once it is available.	
53	Section 8.2 of the application notes that the option of using the rock as an offshore breakwater /reef to further reduce sea level induced erosion effects on Tiwai Peninsula has been discounted by OCEL as the fragmented rock from blasting will be too small for this purpose. Further information is required on the analysis that formed this opinion as there is not reference to this analysis in the OCEL coastal processes assessment (Application Appendix 5).	The on bottom stability of the rock fragments is calculated in Appendix D of the coastal processes assessment. The rock fragments will not be large enough to form a stable submerged breakwater.	No amendments required.
	General Questions		
54	As a result of the works, please provide an assessment what the effects of use of the harbour (frequency and intensity of vessels) on all harbour users as a result of the dredged and deeper draught in the harbour, and how those effects will be managed by South Port? This information is necessary to understand the consequential operational effects on other users of the harbour.	With the current cargo mix the port handles, South Port do not envisage a significant increase in frequency and intensity of vessels following the deepening. On the contrary, exporters may be able to load more on the vessels and therefore the number of vessel calls may reduce. Volumes may increase by 300,000 tonnes/year. To put into perspective, that is 10 vessels in a 12-month period which is not significant.	Section 5.12, AEE.

		<p>Note: there is no limit/restriction on number of vessels South Port currently handles.</p>	
<p>55</p>	<p>As a general observation, our marine ecologist would like to gain clarity on timing of the works, as they have picked up from their review that there appear to be some inconsistencies in the timing of the works and how that will be managed to avoid adverse effects on little blue penguin moulting and breeding and seagrass flowering in particular. Works periods don't seem to match with the recommendations of the bird expert. Marine mammal report says that Foveaux Strait area is utilized by Southern Right Whales in winter and early spring as breeding habitat. While the report says that habitat exclusion of MM resulting from the blasting would be more than minor and that there is considerable uncertainty about the extent of the area affected (pg 32). Page 45 says that any exclusion effects are unlikely to be biologically significant on individuals or populations. The report also talks about mitigation actions to reduce impacts (which isn't mitigation at all...its effect reduction). Having an exclusion zone and observers to prevent blasting while MM are in the zone should avoid acute adverse effects on MM and bring the impacts down to minor. The MM Management Plan (pg 16) says that MM use of the area is highly seasonal and blasting</p>	<p>Please refer to the response provided by the bird expert to Q45. This provides an assessment of the timing of the works, crucially in relation to the Little penguin breeding and moulting seasons.</p> <p>Potential effects on marine mammals is provided in the responses to Q's 7, 21 and 22.</p> <p>The limited studies regarding seagrass in NZ have found that generally seagrass flowers between December and March as is stated in the Marine Assessment of Effects. Turner & Schwarz, (2006) also state that within a 3-year study on seagrass in the North Island seagrass beds did not flower at all. Therefore the avoidance of flowering periods is a precautionary approach and the slight incursion of dredging into these generalised nationwide time frames is expected to have less than minor effects on the ecology of the beds. Particularly when coupled with mitigation measures surrounding the tidal timings of dredging fine silts which are the only aspect of the dredging that are likely to affect the seagrass beds in this highly naturally turbid environment.</p> <p>Further to the above, the 12 month pre-works baseline survey (outlined in Point 24 response above) will further assist in the specific delineation of seagrass biology and reproduction within the subtidal beds in Bluff Harbour.</p>	

<p>activities should not be timed to occur over successive seasons (e.g. back to back summers).</p> <p>Potentially the answers to the initial s.92 questions/points of clarity sought on programme and timing may assist on question 55.</p>	
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Appendix F: Section 95-95G Notification Report



Notification of Resource Consent Application under sections 95-95G of the Resource Management Act 1991 (RMA)

Notification

This application was referred to an Independent Planning Consultant for external objective processing due to the shareholder status of the Southland Regional Council (Environment Southland) in relation to South Port NZ Limited.

Under s95A(2)(a) and s95A(3)(a) the application **must** be publicly notified, as has been requested by the applicant via email 14 September 2021¹⁷.

As the applicant has requested the application be publicly notified, no determination is required to be made as to the significance of adverse effects of the proposed activities. However, I consider the effects of the proposed activities may be more than minor. I also consider that the cultural effects may be more than minor.

Particulars

Applicant:	South Port Limited
Application reference:	APP-20211362
Site address or location:	Bluff Harbour, Bluff
New consent(s) for new activity(ies) (s88)	<input checked="" type="checkbox"/>
New consent(s) for existing activity(ies) (s88)	<input type="checkbox"/>
Change to conditions of existing consent(s) (s127)	<input type="checkbox"/>

¹⁷ ES document management system ID A695355

The proposal

South Port Limited proposed to utilise existing permits (listed below) and supplement these with additional new permits associated with dredging soft sediment from the upper Bluff Harbour and drilling, blasting, and breaking hard rock in the bed of the harbour and dredging/excavating that hard rock onto vessels. All dredged and excavated material will be deposited in two locations (listed below).

South Port's proposal is to dredge and removal seabed materials to a targeted depth of 9.7 m chart datum (CD) in the harbour entrance channel, 9.45 m CD in the swinging basin and 10.7 m CD in the Island Harbour berth basins. A maximum volume of 120,000m³ of soft sediment and 40,000m³ of rock is proposed to be dredged from the harbour. South Port holds existing consents as follows:

Existing consents:

- Deemed Coastal Permit under s.384(1)(c) of the RMA provides a permits where South Port had existing permissions that they become coastal permits, in respect of any area in the coastal marine area, being a permission, licence, permit, or authority in force immediately before the date of commencement of the RMA. This permit includes the right of port companies to occupy the coastal marine area which expires on 30 September 2026. Specifically, the permit allows South Port to remove any blasted or fragmented rock that remains in the channel from the previous capital dredging campaigns in the 1970's and 1980's.
- Coastal permit 201285-V2 that consents the maintenance dredging and deposition of a maximum of 20,000m³ of soft sediment per annum with an annual average volume of spoil not exceeding 12,000m³ over the term of the permit. The permit expires on 2 December 2037.

Sought Consents:

The application (reference APP-20211362) is for the following resource consents to authorise proposed activities in the seabed within Bluff Harbour and Foveaux Strait south and east of Tiwai Point, to be exercised in conjunction with the existing consents listed above:

- × **Coastal Permit** to dredge soft sediment from the swinging basin and from the Island Harbour berth basins 3, 4, 5, 6, 7 and 8,
- × **Coastal Permit** for the disturbance and removal of the seabed/rock through breaking, drilling, blasting and dredging of rock material from rock outcrops within the harbour entrance channel and from the margins of the channel, and

- × **Coastal Discharge Permit** for the discharge of up to a maximum volume of 120,000m³ of soft sediment and 40,000m³ of rock is proposed to be deposited at two disposal sites located in Foveaux Strait offshore of Tiwai Peninsula. The soft sediment disposal site is located and the hard rock material is to be disposed of seaward of Tiwai Peninsula.

The location to which this application relates are:

Location: Centre of swinging basin: 4829468N 1243281E

Centre of berth basins:

Berths 3 & 4 4829504N 1242725E

Berth 5 4829611N 1242626E

Berth 6 4829575N 1242530E

Berths 7 & 8 4829800N 1242615E

Centre of harbour entrance channel: 4828749N 1244359E

Disposal site (sediment):

4829176N 1246514E

4829196N 1246312E

4828631N 1245765E

4828604N 1245986E

Disposal site (rock):

4828318N 1248754E

4828125N 1248607E

4827661N 1249289E

4827865N 1249428E

Legal Description of Property: Crown land comprising seabed.

For the purpose of the consent application, South Port has referred to the sought consents, to be identified as the "Capital Dredging" and all other consented works referred to as "Maintenance Dredging". The term of consents being sought is 10 years, and the programme of physical works is 8

months, albeit 24 months from commencement has been sought for contingency purposes. The South Port application outlines the need to give effects to the Deemed Coastal Permit, the Maintenance Dredging Consent (Coastal permit 201285-V2), and the sought consents to achieve the depths required.

Overall, the application is a **discretionary activity**.

Effects and Issues

The application is for coastal permits/coastal discharge permits under s.14 RMA. Associated with these activities there are a number of environmental effects. These include:

- *The geology of the entrance channel;*
- *The coastal processes, from dredging, rock removal, deepening parts of the channel and of the harbour,*
- *The effects from dredging in term of effects on habitat, aquatic ecology, sediment plumes and effects on other harbour users*
- *The effects on sediment disposal offshore the beach from Tiwai Point and the Bay.*
- *The effects on marine ecosystems*
- *the effects on rocky reef habitat and marine life within removing rocks*
- *The effects from rock breaking, drilling and blasting, including the associated noise from those activities*
- *Sediment and rock disposal effects*
- *Vessel biofouling effects*
- *Effects on coastal water quality*
- *Effects on marine mammals (dolphins, whales etc), including Temporary Threshold Shift effects and Permanent Threshold Short effects, behavioural disturbance, habitat exclusion and or displacement, entanglement and vessel strike, toxic effects, tropic effects*
- *Effects from physiological injury from underwater noise*
- *Effects on avifauna (seabirds)*
- *Culture/Cultural and heritage effects, recognizing the statutory acknowledgement to Bluff Hill/Motupohue, and the Motupohue Mātaaitai Reserve, and the mahinga kai and tauranga waka effects on Iwi. Additional some burial sites are located in the Tiwai area ad also other archaeological sites. The Cultural Impact Assessment (Appendix 16) that outlines the values, rights and interests of Te Rūnanga o*

Awarua in the project, which has been supplemented by an Addendum which lists the potential cultural effects, risks and mitigation.

- *Effects on natural character and landscape values*
- *Airborne noise effects*
- *Vibration effects*
- *Effect on marine farms (temporary crayfish holding pots in the harbour)*
- *Effects on navigation and other recreational users*
- *Effects of Climate Change*
- *Cumulative effects and associated risk to the natural and physical environments.*

The Assessment of Environmental Effects is supported by a Risk Assessment, a list of Proposed Conditions in the application and supporting appendices.

The threshold test of s.95E RMA is whether the adverse effects “*are more than minor*”. My evaluation of the application and specifically the above listed environmental effects have found that some of those effects are somewhat lacking in evidential basis (e.g. cultural effects with no official Written Approval), or reliant on previous studies, trials before commencing the works, or on mitigation factors where the effectiveness is partially outside the control of the applicant and its contractors. An example of this, is the reliance of the communication plan to inform landowners to close their windows to avoid noise effects. Additionally, the cumulative effects of the programme have a range of scenarios that could occur when implementing the existing consents, and the sought consent which could potentially have more than minor environmental effects on marine environments, habitat and species.

The applicant has requested full public notification, and from my review of the application and assessment of environmental effects, I consider that some of the effects listed above will have, or is likely to have “*more than minor*”. I also consider that the cultural effects reported in the Cultural Impact Assessment (Appendix 16 of the application by Te Ao Marama Inc.) and the subsequent addendum (December 2021) state that the cultural effects will be “*significant*” and the “*application [and effects] will affect Iwi values, the activity is one that isn’t able to be mitigated some activities [effects]*”. [brackets represent my emphasis/definition added to quote]. However, the Addendum contends that “*Awarua are confident that the outcomes sought in the CIA will be upheld and therefore allow the potential effects to our values, rights and interests to be managed collaboratively by*

South Port and Awarua” which I have evaluated to mean that with mitigation and appropriate communications that tangata whenua are satisfied.

The proposal seeks 8 months of dredging and disposal works, but the works and associated environmental effects could be delivered in three separate occasions, potentially over 24 months (restricted to (February to September). With such heavily reliance on mitigation and the conditions of consent, to address potential adverse effects on the environment and risks to the environment there could arguably also be special circumstances (s.95A (9) RMA) to public notification.

Additionally, the risks to the marine ecology, avifauna, coastal processes from disposal, and residents and businesses nearest the harbour are assessed whereby all the post mitigation (as proposed) results in risk assessments that are “Rare” or “Unlikely” **likelihood**, and “Less than “Minor” or “Minor” in **consequence**. This highlights the importance of certainty of the mitigation and conditions of consent to manage the risk to the natural, built, cultural and social environments, and also the potential effects that could occur through the uncertainties through the programme of works.

Public notification

While under s.95E RMA, the threshold test that environmental effects “that are more than minor” justify notification, under s95A(2)(a) and s95A(3)(a) the application **must** be publicly notified as requested by the applicant. The applicant has corresponded with Environment Southland that the basis of lodgement is that the Council will publicly notify the consent.

In part, South Port has indicated that through their consultation with the public and stakeholders that the application will be publicly notified. Their consultation has included in the application, including Appendix 18 (Letters of Support) from users of the port, Invercargill City Council (Bluff community Board), ancillary companies such as the freezing works, the Chamber of Commerce (Commerce South), owners of ships/vessels, Great South (the Regional Development Agency), and Sea Scouts (Te Ara O Kiwa Sea Scouts). These letters of support are not exhaustive as to who might be affected by this proposal, nor formal written approvals (s.95D(e) RMA), but the letters recognise that some wider support to this project that exists.

Correspondence with Ngai Tahu on the Customary Marine Title has occurred, which the response from Rachael Evans (Legal Advisor for Te Kura Taka Pini) has indicated that they have no comment, however the *“engagement between papatipu rūnanga and councils will allow mana whenua comment if appropriate”*. That engagement is in fact meant to occur between South Port and Te Ao Marama Inc.



Hamish Peacock

Consultant Consent Processing Officer

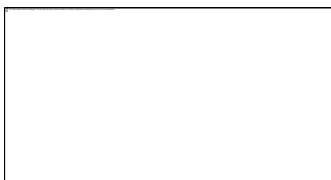
Date: 9/12/21

Delegated Authority Sign Off

The application will be publicly notified



This decision is made under delegated authority by:



Bruce Halligan

Acting Consents Manager

Date: X December 2021

Appendix G: The Key Provisions and Policy Evaluation

<p>New Zealand Coastal Policy Statement 2010</p>	
<p>Objective 1</p> <p>To safeguard the integrity, form, functioning and resilience of the coastal environment and sustain its ecosystems, including marine and intertidal areas, estuaries, dunes and land, by:</p> <ul style="list-style-type: none"> • maintaining or enhancing natural biological and physical processes in the coastal environment and recognising their dynamic, complex and interdependent nature; • protecting representative or significant natural ecosystems and sites of biological importance and maintaining the diversity of New Zealand’s indigenous coastal flora and fauna; and • maintaining coastal water quality, and enhancing it where it has deteriorated from what would otherwise be its natural condition, with significant adverse effects on ecology and habitat, because of discharges associated with human activity. 	<p>In evaluating the policy assessment in the application, I do not concur with protection of sediment effects on the ecologically sensitive rocky shorelines around the Motupōhue Mātaitai Reserve, Tiwai Point and tidal flats of the upper parts of Bluff Harbour and Awarua Bay, and undertaking the works on already modified seabed is “safeguarding” all of those environments. This implies sufficient separation from those sensitive environments and two wrongs, make a right approach. This is not what Objective 1 seeks which is <i>“safeguardingthrough maintaining and enhancing.....and protectingand maintaining water quality.”</i></p> <p>I would evaluate that the proposal is in part consistent with Objective 1, if restrictions are placed on the term of consent, and 24 months to complete, hopefully a one 8 month period of works. I do agree that the sediment mobilisation and distribution mapping (in the application) provides some evidence that coastal water quality is maintained.</p>
<p>Objective 2</p> <p>To preserve the natural character of the coastal environment and protect natural features and landscape values through:</p> <ul style="list-style-type: none"> • recognising the characteristics and qualities that contribute to natural 	<p>I concur with the assessment in the application, in that the plan provisions don’t establish any of these environments to have a natural character of the coastal environment of note that necessitates protection of natural features and landscape values.</p>

<p>character, natural features and landscape values and their location and distribution;</p> <ul style="list-style-type: none"> • identifying those areas where various forms of subdivision, use, and development would be inappropriate and protecting them from such activities; and • encouraging restoration of the coastal environment. 	<p>However, it is noteworthy that Objective 2 does seek to encourage restoration of the coastal environment (including the natural environment which can constitute, amongst other things the marine ecology and bird life), which any restoration is not evident in the application. For example the restoration</p>
<p>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 by:</p> <ul style="list-style-type: none"> • recognising the ongoing and enduring relationship of tangata whenua over their lands, rohe and resources; • promoting meaningful relationships and interactions between tangata whenua and persons exercising functions and powers under the Act; • incorporating mātauranga Māori into sustainable management practices; and • recognising and protecting characteristics of the coastal environment that are of special value to tangata whenua. <p>Policy 2 – not replicated here, but relevant.</p>	<p>I concur with the application, that the exercise of partnership has seen South Port engage and involve tangata whenua through consultation and an MOU. In the policy assessment it is not 100% clear if that MOU is already in place, or yet to be developed, but with agreement in place, this would support being consistent with the intent of Objective 3. The MOU will presumably provide answers as to how the bullet points would be upheld.</p> <p>I do hold concerns for how the MoU will ensure sufficient mitigation of the values that tangata whenua have reported in Appendix 16 of the application, as outlined in Section 3.7 of this report.</p>
<p>Objective 4 To maintain and enhance the public open space qualities and recreation</p>	<p>I generally concur that South Port will manage the public open spaces, predominately through a Communication Plan, which will</p>

<p>opportunities of the coastal environment by:</p> <ul style="list-style-type: none"> • recognising that the coastal marine area is an extensive area of public space for the public to use and enjoy; • maintaining and enhancing public walking access to and along the coastal marine area without charge, and where there are exceptional reasons that mean this is not practicable providing alternative linking access close to the coastal marine area; and • recognising the potential for coastal processes, including those likely to be affected by climate change, to restrict access to the coastal environment and the need to ensure that public access is maintained even when the coastal marine area advances inland. 	<p>manage expectations of use of the coastal environment. While that might inhibit (where works sites are noted), the margins will still be useable, and the focused duration of works and consent term will enable the general public to enjoy these spaces once works are complete. Therefore, I do agree the proposal that the intent of South Port is not to contravene these policies during physical works. In the main, once the channel is deepened, the safer navigation of vessels does enhance the quality of the experience.</p>
<p>Objective 6</p> <p>To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, recognising that:</p> <ul style="list-style-type: none"> • the protection of the values of the coastal environment does not preclude use and development in appropriate places and forms, and within appropriate limits; • some uses and developments which depend upon the use of natural and physical resources in the coastal environment are important to the 	<p>My evaluation is that the South Port proposal achieves the intent of Objective 6, and my focus has been more so on the appropriate limits (conditions) to give greater certainty that effects will be managed appropriately.</p> <p>Port operations and safe navigational channels into and from ports is in my view one of those developments anticipated through Objective 6.</p>

<p>social, economic and cultural wellbeing of people and communities;</p> <ul style="list-style-type: none"> • functionally some uses and developments can only be located on the coast or in the coastal marine area; • the coastal environment contains renewable energy resources of significant value; • the protection of habitats of living marine resources contributes to the social, economic and cultural wellbeing of people and communities; • the potential to protect, use, and develop natural and physical resources in the coastal marine area should not be compromised by activities on land; • the proportion of the coastal marine area under any formal protection is small and therefore management under the Act is an important means by which the natural resources of the coastal marine area can be protected; and • historic heritage in the coastal environment is extensive but not fully known, and vulnerable to loss or damage from inappropriate subdivision, use, and development. 	
<p>Policy 1 Extent and characteristics of the coastal environment</p> <p>(1) Recognise that the extent and characteristics of the coastal environment vary from region to region and locality to locality; and the</p>	<p>My view that Bluff Harbour and South Port’s operations is a working environment, include the history that its use in supporting whalers and</p>

<p>issues that arise may have different effects in different localities.</p> <p>(2) Recognise that the coastal environment includes:</p> <p>(a) the coastal marine area;</p> <p>(b) islands within the coastal marine area;</p> <p>(c) areas where coastal processes, influences or qualities are significant, including coastal lakes, lagoons, tidal estuaries, saltmarshes, coastal wetlands, and the margins of these;</p> <p>(d) areas at risk from coastal hazards;</p> <p>(e) coastal vegetation and the habitat of indigenous coastal species including migratory birds;</p> <p>(f) elements and features that contribute to the natural character, landscape, visual qualities or amenity values;</p> <p>(g) items of cultural and historic heritage in the coastal marine area or on the coast;</p> <p>(h) inter-related coastal marine and terrestrial systems, including the intertidal zone; and</p> <p>(i) physical resources and built facilities, including infrastructure, that have modified the coastal environment.</p>	<p>sealers (1820's) and the Bluff Wharf (1860's), and that the rail linking Bluff to Invercargill (1867) form part of the history and characteristics of the coast. While the CMA extends right up into the harbour, the character of the channel itself remains natural, until divers or cameras survey its seabed. This would illustrate some modifications, from previous blasting and dredging, again a working/modified coastal environments. For these reasons, and those purported in the South Port Application, I consider the proposal consistent with Policy 1.</p>
<p>Policy 2 The Treaty of Waitangi, tangata whenua and Māori heritage</p> <p>In taking account of the principles of the Treaty of Waitangi (Te Tiriti o Waitangi), and kaitiakitanga, in</p>	<p>My evaluation of the South Port application is that there is honouring the treaty through engagement and involvement, including a MoU which we have not been privy to, albeit, an</p>

<p>relation to the coastal environment:</p> <p>(a) recognise that tangata whenua have traditional and continuing cultural relationships with areas of the coastal environment, including places where they have lived and fished for generations;</p> <p>(b) involve iwi authorities or hapū on behalf of tangata whenua in the preparation of regional policy statements, and plans, by undertaking effective consultation with tangata whenua; with such consultation to be early, meaningful, and as far as practicable in accordance with tikanga Māori;</p> <p>(c) with the consent of tangata whenua and as far as practicable in accordance with tikanga Māori, incorporate mātauranga Māori¹ in regional policy statements, in plans, and in the consideration of applications for resource consents, notices of requirement for designation and private plan changes;</p> <p>(d) provide opportunities in appropriate circumstances for Māori involvement in decision making, for example when a consent application or notice of requirement is dealing with cultural localities or issues of cultural significance, and Māori experts, including pūkenga², may have knowledge not otherwise available;</p> <p>(e) take into account any relevant iwi resource management plan and any other relevant planning document</p>	<p>understanding of where tangata whenua values are in these environments (CIA and Addendum) and how the management is acceptable to Iwi.</p>
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<p>recognised by the appropriate iwi authority or hapū</p>	
<p>Policy 3 Precautionary approach</p> <p>(1) Adopt a precautionary approach towards proposed activities whose effects on the coastal environment are uncertain, unknown, or little understood, but potentially significantly adverse.</p> <p>(2) In particular, adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects from climate change, so that:</p> <p>(a) avoidable social and economic loss and harm to communities does not occur;</p> <p>(b) natural adjustments for coastal processes, natural defences, ecosystems, habitat and species are allowed to occur; and</p> <p>(c) the natural character, public access, amenity and other values of the coastal environment meet the needs of future generations.</p>	<p>The application does not include an assessment of Policy 3. However, Policy 3 is really important in respect that a precautionary approach should be taken towards activities in the coastal environment, especially where uncertainty, or little is understood, but could have significant adverse effects.</p> <p>Policy 3 (b) also expects natural adjustments for coastal processes, and yet this application has human induced works (dredging, blasting, breaking and removal and also deposition) which is not allowing or possibly accelerating natural processes.</p> <p>To take a more precautionary approach in this project requires better baseline monitoring, and then ongoing monitoring and reporting, with action-orientated conditions if triggers are exceeded, or if the environment/ecology does not respond as reported in the AEE.</p>
<p>Policy 4</p>	<p>Policy 4, amongst other matters expects integrated management of”activities that affect the coastal environment”, which is not just integration amongst organisations, but also in the management/regulatory elements, which is why I think the consideration of all the authorisations and cumulative effects is imperative in</p>

	<p>consideration of the decision for the sought consents. Rather than “slice and dice” of different consents, it is beneficial to consider all of the effects if South Port are giving effect to the sought consents, after exercising the existing authorisations.</p>
<p>Policy 9 Ports</p> <p>Recognise that a sustainable national transport system requires an efficient national network of safe ports, servicing national and international shipping, with efficient connections with other transport modes, including by:</p> <p>(a) ensuring that development in the coastal environment does not adversely affect the efficient and safe operation of these ports, or their connections with other transport modes; and</p> <p>(b) considering where, how and when to provide in regional policy statements and in plans for the efficient and safe operation of these ports, the development of their capacity for shipping, and their connections with other transport modes.</p>	<p>I concur with the application and assessment, that the dredging will enhance the efficiency and safety of the port operations, thereby being consistent with Policy 9.</p>
<p>Policy 11 Indigenous biological diversity (biodiversity)</p> <p>To protect indigenous biological diversity in the coastal environment:</p> <p>(a) avoid adverse effects of activities on:</p> <p>(i) indigenous taxa⁴ that are listed as threatened⁵ or at risk in the New</p>	<p>While the bird survey (EcoVista) recognises bird species that breed and/or feed and moult in and around Bluff Harbour that are nationally threatened or At Risk, the assessment also considers the timing (February-September) to “generally sits outside of the peak breeding seasons and penguin moulting period”. My evaluation without having technical specialist advice in Yellow-eyed penguin,</p>

<p>Zealand Threat Classification System lists;</p> <p>(ii) taxa that are listed by the International Union for Conservation of Nature and Natural Resources as threatened;</p> <p>(iii) indigenous ecosystems and vegetation types that are threatened in the coastal environment, or are naturally rare; (iv) habitats of indigenous species where the species are at the limit of their natural range, or are naturally rare;</p> <p>(v) areas containing nationally significant examples of indigenous community types; and (vi) areas set aside for full or partial protection of indigenous biological diversity under other legislation; and</p> <p>(b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on:</p> <p>(i) areas of predominantly indigenous vegetation in the coastal environment;</p> <p>(ii) habitats in the coastal environment that are important during the vulnerable life stages of indigenous species;</p> <p>(iii) indigenous ecosystems and habitats that are only found in the coastal environment and are particularly vulnerable to modification, including estuaries, lagoons, coastal wetlands, dunelands,</p>	<p>Fiordland Crested penguin and Little penguin is questioning whether the applicant is avoiding adverse effects, or avoiding significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on habitats, ecosystems, and corridors for these species.</p>
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<p>intertidal zones, rocky reef systems, eelgrass and saltmarsh;</p> <p>(iv) habitats of indigenous species in the coastal environment that are important for recreational, commercial, traditional or cultural purposes;</p> <p>(v) habitats, including areas and routes, important to migratory species; and</p> <p>(vi) ecological corridors, and areas important for linking or maintaining biological values identified under this policy</p>	
<p>Policy 13 Preservation of natural character</p> <p>(1) To preserve the natural character of the coastal environment and to protect it from inappropriate subdivision, use, and development:</p> <p>(a) avoid adverse effects of activities on natural character in areas of the coastal environment with outstanding natural character; and</p> <p>(b) avoid significant adverse effects and avoid, remedy or mitigate other adverse effects of activities on natural character in all other areas of the coastal environment;</p> <p>including by:</p> <p>(c) assessing the natural character of the coastal environment of the region or district, by mapping or otherwise identifying at least areas of high natural character; and</p> <p>(d) ensuring that regional policy statements, and plans, identify areas where preserving natural character requires objectives, policies and rules, and include those provisions.</p>	<p>The manner that the application assesses the relevant part so of Policy 13, seems to omit (2) in the application which is to recognise the natural character includes matters of natural elements, processes and patterns, biophysical, ecological, geological. These matters have been pulled into sub sections 4 of the body of this report, because it is much more than just physical attributes of the coast.</p>

<p>(2) Recognise that natural character is not the same as natural features and landscapes or amenity values and may include matters such as:</p> <ul style="list-style-type: none"> (a) natural elements, processes and patterns; (b) biophysical, ecological, geological and geomorphological aspects; (c) natural landforms such as headlands, peninsulas, cliffs, dunes, wetlands, reefs, freshwater springs and surf breaks; (d) the natural movement of water and sediment; (e) the natural darkness of the night sky; (f) places or areas that are wild or scenic; (g) a range of natural character from pristine to modified; and (h) experiential attributes, including the sounds and smell of the sea; and their context or setting. 	
<p>Policy 23 Discharge of Contaminants</p> <p>(1) In managing discharges to water in the coastal environment, have particular regard to:</p> <ul style="list-style-type: none"> (a) the sensitivity of the receiving environment; (b) the nature of the contaminants to be discharged, the particular concentration of contaminants needed to achieve the required water quality in the receiving environment, and the risks if that concentration of contaminants is exceeded; and (c) the capacity of the receiving environment to assimilate the contaminants; and: 	<p>I concur with the assessments of Policy 23 in the application, and my only concern is that should the reasonable mixing zone be different to that determined in the application, this may require a variation. The turbidity meters located on the edge of the disposal site can help ensure that this reasonable mixing zone is maintained. A condition (or modification to conditions 13 and 42) is required as to what constitutes reasonable mixing, and the tier/trigger levels, and then a greater understanding of the South Port operational changes, referred to as management responses in condition 13) to be more compliant, or the need</p>

<p>(d) avoid significant adverse effects on ecosystems and habitats after reasonable mixing;</p> <p>(e) use the smallest mixing zone necessary to achieve the required water quality in the receiving environment; and</p> <p>(f) minimise adverse effects on the life-supporting capacity of water within a mixing zone.</p> <p>(2) In managing discharge of human sewage, do not allow:</p> <p>.....[NOT APPLICABLE]</p> <p>(3) Objectives, policies and rules in plans which provide for the discharge of treated human sewage into waters of the coastal environment must have been subject to early and meaningful consultation with tangata whenua.</p> <p>(4) In managing discharges of stormwater take steps to avoid adverse effects of stormwater discharge to water in the coastal environment, on a catchment by catchment basis, by:[NOT APPLICABLE]</p> <p>(5) In managing discharges from ports and other marine facilities:</p> <p>(a) require operators of ports and other marine facilities to take all practicable steps to avoid contamination of coastal waters, substrate, ecosystems and habitats that is more than minor;</p> <p>(b) require that the disturbance or relocation of contaminated seabed material, other than by the movement of vessels, and the dumping or storage of dredged material does not result in significant adverse effects on water quality or</p>	<p>to obtain a variation. In taking such an approach, I consider the discharges of contaminants could be consistent with Policy 23.</p>
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<p>the seabed, substrate, ecosystems or habitats;</p> <p>(c) require operators of ports, marinas and other relevant marine facilities to provide for the collection of sewage and waste from vessels, and for residues from vessel maintenance to be safely contained and disposed of; and</p> <p>(d) consider the need for facilities for the collection of sewage and other wastes for recreational and commercial boating.</p>	
<p>Regional Policy Statement</p>	
<p>Objective COAST.2 – Activities in the coastal marine area Infrastructure, ports, energy projects, aquaculture, mineral extraction activities, subdivision, use and development in the coastal environment are provided for and able to expand, where appropriate, while managing the adverse effects of those activities.</p>	<p>I concur with the assessment of Objective 2 in the application, which is very enabling for the proposed works, where adverse effects can be managed.</p>
<p>Objective COAST.3</p> <p>Coastal water quality and ecosystems are maintained or enhanced.</p>	<p>I generally concur with the assessment in the application in respect to water quality, in that water quality affects will be short-lived (duration and day works), and managed within a mixing zone. Whereas, I have raised elsewhere my concern for ecosystem effects, and the South Port approach to maintenance and enhancement is very much reliant on observations and natural recolonisation processes.</p>

<p>Objective COAST.4</p> <p>The natural character of the coastal environment is restored, rehabilitated or preserved.</p>	<p>I generally concur with the assessment in the application against Objective 4, but also note that the assessment places emphasis on “existing modified natural character ...to be preserved” which is not recognising that the existing authorisations (some with no conditions) have no responsibility by Southport to restore, rehabilitate or preserve the natural character.</p>
<p>Objective COAST.5 – Aquaculture</p> <p>Recognise the contribution of aquaculture to the well-being of people and communities by making provision for aquaculture in appropriate locations while:</p> <p>(a) protecting coastal indigenous biodiversity in accordance with Policy BIO.3;</p> <p>(b) protecting outstanding natural features, landscapes and natural character in accordance with Policy COAST.3; and</p> <p>(c) avoiding, remedying, or mitigating other adverse effects.</p>	<p>Objective 5 is not assessed in the application, and possibly because the proposal does not involve aquaculture. I would assess it is in part, relevant given Objective 5 seeks to protect coastal indigenous biodiversity, protect.....natural character and avoid, remedy and mitigate other adverse effects. There have been no submissions in opposition from aquaculture / farming, which I can only assume there is no concern from the South Port proposal, but this does not dismiss the needs for ES to ensure the conditions of this/these consents avoid, remedy or mitigate effects for potential aquaculture activities, potentially within the harbour.</p>
<p>Policy COAST.2 – Management of activities in the coastal environment</p> <p>Ensure adequate measures or methods are utilised within the coastal environment when making provision for subdivision, use and development to:</p> <p>(a) protect indigenous biodiversity, historic heritage, natural character,</p>	<p>I generally concur with the philosophy and approach South Port have in the Policy 2 assessment, but note they rely on an adaptive receptor-based management approach where the monitoring maybe significantly longer after and distant from the generation of sediment (generated by dredging</p>

<p>and natural features and landscape values;</p> <p>(b) maintain or enhance amenity, social, intrinsic, ecological and cultural values, landscapes of cultural significance to tangata whenua and coastal dune systems;</p> <p>(c) maintain or enhance public access; and</p> <p>(d) avoid or mitigate the impacts of natural hazards, including predicted sea level rise and climate change.</p>	<p>and disposal). Given the technical advice on the turbidity of the waters, wind and wave action, unless monitoring is setup within the reasonable mixing zone, there is every chance of not picking up any sediment from the proposed activities, making the management almost worthless. Potential changes to conditions could easily alter this, and enable south Port to collect more valuable data on sediment to inform their decision making and use of the tiered approach.</p>
<p>Policy COAST.3, Protection of the coastal environment</p> <p>Ensure that subdivision, use and development activities:</p> <p>(a) avoid adverse effects on areas of outstanding natural features and landscapes, and/or outstanding natural character;</p> <p>(b) avoid significant adverse effects, and avoid, remedy or mitigate other adverse effects on other natural features and landscapes and/or natural character in the coastal environment;</p> <p>(c) protect and provide for nationally significant, regionally significant, and critical infrastructure, including ports and energy projects for the region, including by:</p> <p>(i) recognising that new development of the National Grid should seek to avoid adverse effects on the values of outstanding natural features and landscapes, and/or areas of outstanding or high natural character located within rural coastal environments. In the coastal environment, in some circumstances, adverse effects on those areas must be avoided</p>	<p>I generally agree with the assessment in the application, and note that any dredging and disposal cannot avoid effects, but it is due to the conditions of consent to avoid significant adverse effects to be entirely consistent with Policy 3. I do think this is possible, but requires further development of the proposed conditions of consent.</p>

<p>Policy COAST.4 – Infrastructure, port, aquaculture, mineral extraction and energy projects.</p> <p>Recognise and make provision for nationally significant, regionally significant or critical infrastructure that has a functional, operational or technical need to be located within the coastal environment, and appropriate port, aquaculture, mineral extraction activities and energy projects that must be located within the coastal environment.</p>	<p>I concur with the assessment in the application, thereby being consistent with Policy 4.</p>
<p>Policy COAST.5 – Management of effects on coastal water quality and ecosystems.</p> <p>Avoid, remedy or mitigate adverse effects of land-based and marine activities on coastal water quality and its ecosystems.</p>	<p>I generally concur with the assessment in the application, but that does recognise that “within and beyond the disposal sites, soft sediment communities will be maintained owing to their tolerance to natural sediment movements due to effects of tidal currents and wave action”. I take from this statement, there is some form of management within the mixing zone to avoid, remedy or mitigate adverse effects, and this needs to be reflected in the conditions of consent to be entirely consistent with Policy 5.</p>
<p>Policy COAST.7 – Management of activities in the coastal marine area</p> <p>Within the coastal marine area, provide a framework to avoid or mitigate adverse effects on the coastal environment for the following activities:</p>	<p>Policy 7 was not assessed in the application. Policy 7 is important from a planning perspective in its enabling (management) approach, but also that it picks up on the use and development activities, the emission of noise, and commercial activities, such that the Port operates.</p>

<p>(a) the allocation, use and occupation of coastal space;</p> <p>(b) the use and development of the natural and physical resources of the coastal marine area;</p> <p>(c) the emission of noise;</p> <p>(d) commercial activities on the water and on the foreshore and seabed.</p>	<p>My evaluation is the only coastal marine management framework is through the consents, and why the conditions become critical to mitigate actual and potential adverse effects on the environment.</p>
<p>Policy BIO.3 – Protect coastal indigenous biodiversity</p> <p>Protect indigenous biodiversity from adverse effects in the coastal environment as set out in Policy 11 of the New Zealand Coastal Policy Statement 2010.</p>	<p>I acknowledge and recognise the policy assessment in the application, which is focused on the proposal and nature of mitigation, but the assessment does not go so far as addressing if these measures protect the biodiversity, rather it seems to avoid adverse effects, which I don't think will be all-together possible without greater controls through the conditions of consent.</p>
<p>Regional Coastal Plan</p>	
<p>Objective 10.1.1 - Disturbance to the seabed or foreshore</p> <p>To avoid, remedy, or mitigate the adverse effects of disturbance to the seabed or foreshore.</p>	<p>While Objective seeks to avoid, this is not consistent with the rules that control (controlled activity status) this activity, and the predominate remedy or mitigation is to time and minimise the duration of the disturbances. Through the risk assessments and conditions, I consider the applicant is attempting to do what they can in remediation or mitigation.</p>
<p>Objective 10.1.2 - Maintain safe and efficient navigation</p>	<p>The proposal is predominately about creating safe navigation, thereby being consistent with Objective</p>

<p>To maintain safe and efficient navigation in the coastal marine area.</p>	<p>10.1.2, but it will still require ongoing maintenance dredging.</p>
<p>Policy 10.1.1 - Dredging and excavation</p> <p>Provide for dredging and excavation to remove deposited silt and other material, where the rate of natural deposition has been exceeded, and that deposition adversely effects the continuance of current uses and activities.</p>	<p>Policy 10.1.1 is enabling dredging/excavation, but the rationale of this proposal is not due to the natural rates of deposition, rather enabling the port to operate with greater draught and the benefits this brings to safe and efficient/effective Port operations.</p>
<p>Policy 10.1.3 - Drilling, tunnelling, excavation, dredging and drainage activities</p> <p>Avoid, remedy or mitigate the impact of drilling, tunnelling, excavation, dredging and drainage activities on the environment in which they are undertaken.</p>	<p>The proposal is focusing on specific channel and berthing facility to excavate/dredge, which is not avoiding, but through the conditions of consent can mitigate (timing and duration) impacts on the natural environment.</p>
<p>Objective 10.2.1 - Minimise deposition</p> <p>To minimise deposition that results from human activities in the coastal marine area.</p>	<p>The Port activities includes the dredging which now has generated the need for further dredging, and corresponding deposition. According to South Port there is no better practicable disposal option, and this is the minimum necessary to conduct the works. Therefore is the minimum disposal based on dredging requirements.</p>
<p>Policy 10.2.1 - Avoid deposition wherever practicable</p> <p>Avoid, wherever practicable, remedy or mitigate the adverse effects of human induced deposition of substances and material (natural or</p>	<p>The test of practicable was sought in a s.92 question, where the rock material could have some value ashore. The response is provided in Appendix E (Item #), where South Port</p>

<p>otherwise) into the coastal marine area, where that deposition will significantly increase the natural volume of material being deposited as the result of coastal processes on the seabed or foreshore.</p>	<p>advised it was not practicable nor cost effective.</p>
<p>Policy 10.2.2 - Dredged material</p> <p>Provide for the disposal of dredged material taken from the coastal marine area, back into the coastal marine area where the activity will not have significant adverse effects on habitat and heritage values, coastal processes, navigation, safety and water quality.</p>	
<p>Policy 10.2.3 - Avoid, remedy or mitigate the disposal of contaminants in the coastal marine area</p> <p>Avoid, wherever practicable, remedy or mitigate the adverse effects of the disposal or deposition of contaminants and materials containing contaminants in the coastal marine area.</p>	<p>If, as in the case of this application, consents are sought for disposal I am unsure how the plan expects to avoid disposal of contaminants, as generally it would be the most practicable solution by most dredged harbours, therefore the focus of this s.42A report has been on what remedial or mitigation is appropriate.</p>
<p>Policy 10.2.4 - Deposit/dispose dredging material from the coastal marine area onto similar materials</p> <p>Dispose of dredging spoil from the coastal marine area onto similar substrate in the coastal marine area.</p>	<p>Two areas have been sought for disposal that can accommodate the soft sediment and rock, which Mr Todd has audited and addressed within 4.7 of this report.</p>

Appendix H: Risk Assessment

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Table 5-3: Risk Assessment Matrix.

This risk matrix provides a visual representation of the level of risk the proposal poses to the coastal environment. The matrix is similar to other risk matrices in providing a comparison between the level of risk that the proposal poses to the coastal environment in the absence of mitigation versus the level of risk when mitigation measures are in place, as proposed in this application.

The level of risk associated with each category of effect listed in Table 5-2 is colour coded in accordance with the risk level table below. Each effect was evaluated by South Port in terms of likelihood of the effect occurring and the consequence of that effect occurring with and without mitigation. These are specified in the respective pre-mitigation and post mitigation cells in the risk matrix.

Risk Level Table

Likelihood	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
Almost certain					
Likely					
Moderate					
Unlikely					
Rare					
Green, Low Risk: Yellow, Moderate Risk: Red, High Risk					

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Risk	Pre-mitigation	Mitigation Measures	Post mitigation as proposed in this application
Effects on dredged sediment deposition and channel deepening on coastal processes	Likelihood = Unlikely Consequence = Minor	None required.	Likelihood = Unlikely Consequence = Minor
Effects on marine ecology in the absence of any restrictions on the programming of the works.	Likelihood = Unlikely Consequence = Major	Restricting the drilling, rock breaking, blasting and dredging activities to the period 1 February to 30 September.	Likelihood = Rare Consequence = Minor

The effects from dredging sediment from within the harbour, is greater volumes of sediment moving through the system (outwards tide) causing infilling from upstream/upgradient. The acceleration of sediment, could smother seagrasses within the harbour, however the turbidity is understood to have such strength and velocity the seagrasses are most likely able to tolerate those effects.

Categorising a risk on marine ecology make a significant assumption of any restrictions on the programme. Such restrictions could be no greater than 8 months work, or not over 24 months in total (two seasonal windows) of dredging and disposal, or daily restrictions /outgoing tides.

The circle area is where I have doubt as to the risk assessment conclusions based on advice from Steve White.

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<p>Effects of noise and vibration on the local community and neighbourhood that will generate annoyance and potentially generate adverse reaction.</p>	<p>Likelihood = Likely Consequence = Moderate</p>	<p>Restricting drilling operations to daytime hours from 7.30 am to 6 pm, Monday to Sunday due to night time impacts of above water surface noise from drilling rig on Bluff residents.</p> <p>Regular maintenance and up-keep of all drilling and dredging equipment (e.g., lubrication and repair of winches, generators) will be undertaken to lessen above surface noise production.</p> <p>South Port will provide advance notice to all commercial shipping organisations and water based recreational user groups in Southland through a number of communication channels as specified in the Harbour Use Communication Plan (Appendix 17).</p>	<p>Likelihood = Rare Consequence=Minor</p>
<p>Effects on harbour navigation and recreation</p>	<p>Likelihood = Almost certain Consequence = Major</p>	<p>South Port will provide advance notice to all commercial shipping organisations and water based recreational user groups in Southland through a number of communication channels as specified in the Harbour User Communication Plan</p>	<p>Likelihood = Rare Consequence=Less than minor</p>
<p>Sedimentation Effects</p>	<p>Likelihood = Likely Consequence = Moderate</p>	<p>Dredging of the berth basins where fine sediments occur shall take place during outgoing ebb tides to avoid the potential for suspended sediment to migrate into the upper harbour and Awarua Bay.</p> <p>Finer sediment shall be deposited at the sediment disposal site during outgoing tides to avoid sediment affecting the rocky shoreline of the Motupöhue mātaītai.</p>	<p>Likelihood = Unlikely Consequence=Less than minor</p>

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		Sediment contamination concentrations are largely well below ANZG (2018) guidelines for the protection of aquatic health.	
Effects of drilling and blasting activities on fish	Likelihood = Almost certain Consequence = Major	Drilling and blasting will occur between February and September to avoid peak feeding and breeding times in the harbour. A number of fish species migrate from the coastal zone to offshore or northern waters during the late autumn to winter months. A 'warning' open water blast of low peak pressure will be set off to remove fish from the entrance channel area before each blasting operation commences. This will be undertaken in conjunction with a 'soft start', whereby blasting effort begins at a lower rate and increases over the individual operation.	Likelihood = Unlikely Consequence=Minor
Effects of drilling and blasting on seabirds		The proposed timing of the drilling and blasting programme from early February to late September is mostly outside of the breeding season for little penguin, shore birds, gulls and cormorants/shags.	

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	<p>Likelihood = Almost certain Consequence = Major</p>	<p>A 'warning' open water blast of low peak pressure will be set off to remove penguins, cormorants/shags and other seabirds from the area before each blasting operation commences. This will be undertaken in conjunction with a 'soft start', whereby blasting effort begins at a lower rate and increases over each blasting event.</p> <p>These mitigation measures will be supported by monitoring of the MMOZ that applies to Otariids (seals) to ensure blasting does not occur if seabirds are observed in the observation zone.</p>	<p>Likelihood = Rare Consequence=Minor</p>
Effects of invasive species	<p>Likelihood = Moderate Consequence = Major</p>	<p>In accordance with the biofouling management plans prepared by the dredge operators (Appendices 14 & 15), the dredge operators shall provide a list of management actions undertaken, including inspections of vessels for fouling organisms in advance of arrival at Bluff Harbour.</p>	<p>Likelihood = Rare Consequence=Less than minor</p>
Physiological injury to marine mammals due to underwater noise during blasting operations	<p>Likelihood=Likely Consequence=Major</p>	<p>Blasting will be limited to the period February to September to avoid the late spring and summer months when marine mammals are more likely to enter the harbour.</p> <p>Direct on-site monitoring of the MMOZs for each marine mammal group (Low frequency cetaceans, Medium frequency cetaceans, High frequency cetaceans and Otariids) by marine mammal observers to ensure blasting does not occur if marine mammals are</p>	<p>Likelihood=Rare Consequence=Less than minor</p>

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		observed in the MMOZs. Further details are provided in the marine mammal management plan (Appendix 9).	
Physiological injury to marine mammals due to underwater noise during drilling and dredging operations and from eco-sounders	Likelihood=Unlikely Consequence=Less than minor	Regular maintenance and up-keep of all dredging equipment and vessel (e.g., lubrication and repair of winches, generators) will be undertaken to lessen underwater noise production.	Likelihood=Unlikely Consequence=Less than minor
Behavioural disturbance to marine mammals caused by underwater noise generated by:			
Blasting	Likelihood=Moderate Consequence=Moderate	Direct on-site monitoring of the MMOZs for each marine mammal group (Low frequency cetaceans, Medium frequency cetaceans, High frequency cetaceans and Otariids) by marine mammal observers to ensure blasting does not occur if marine mammals are observed in the MMOZs. Further details are provided in the marine mammal management plan.	Likelihood=Rare Consequence=Less than minor
Drilling and dredging	Likelihood=Unlikely Consequence=Less than minor	Regular maintenance and up-keep of all dredging equipment and vessel (e.g., lubrication and repair of winches, generators) will be undertaken to lessen underwater noise production.	Likelihood=Rare Consequence=Less than minor
Presence of vessels	Likelihood=Moderate Consequence=Less than minor	Project induction around appropriate vessel operator behaviour around marine mammals.	Likelihood=Rare Consequence=Less than minor

Moderate to fast moving vessels	Likelihood=Unlikely Consequence=Less than minor	Project induction around appropriate vessel operator behaviour around marine mammals.	Likelihood=Rare Consequence=Less than minor
Habitat exclusion and/or displacement of marine mammals due to underwater noise from:			
Blasting	Likelihood=Likely Consequence=Moderate	Direct on-site monitoring of TTS MMOZs for each marine mammal group (Low frequency cetaceans, Medium frequency cetaceans, High frequency cetaceans and Otariids) by marine mammal observers. Further details are provided in the marine mammal management plan.	Likelihood=Rare Consequence=Less than minor
Drilling	Likelihood=Unlikely Consequence=Minor	Direct on-site monitoring of TTS MMOZs for each marine mammal group (Low frequency cetaceans, Medium frequency cetaceans, High frequency cetaceans and Otariids) by marine mammal observers. Further details are provided in the marine mammal management plan.	Likelihood=Rare Consequence=Less than minor
Due to moderate to fast moving vessels	Likelihood=Unlikely Consequence=Minor	Project induction around appropriate vessel operator behaviour around marine mammals.	Likelihood=Rare Consequence=Less than minor
Dredging		None recommended.	

	Likelihood=Unlikely Consequence=Less than minor		Likelihood=Rare Consequence=Less than minor
Presence of vessels	Likelihood=Unlikely Consequence=Less than minor	None recommended.	Likelihood=Rare Consequence=Less than minor
Eco-sounders	Likelihood=Unlikely Consequence=Less than minor	None recommended.	Likelihood=Rare Consequence=Less than minor
Effects of sediment plumes on marine mammals	Likelihood=Unlikely Consequence=Less than minor	None recommended.	Likelihood=Rare Consequence=Less than minor
Entanglement of marine mammals due to loose or slack lines, rubbish and marine debris.	Likelihood=Unlikely Consequence=Major	Avoid loose ropes or lines dangling between the tug and hopper barges due passage to the offshore rock disposal site. Ensuring there is only one riser line for the detonation wires for each blast event. Ensuring proper waste management is in place.	Likelihood=Rare Consequence=Less than minor

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Vessel strike due to fast moving vessels	Likelihood=Unlikely Consequence=Major	Project induction around appropriate vessel operator behaviour around marine mammals, including adoption of best boating practice guidelines for marine mammals including speed limits to further reduce any chance of mortality from vessel strikes.	Likelihood=Rare Consequence=Less than minor
Direct toxic effects due to sediment plume	Likelihood=Rare Consequence=Less than minor	None recommended.	Likelihood=Rare Consequence=Less than minor
Indirect toxic effects due to sediment plume	Likelihood=Rare Consequence=Less than minor	None recommended.	Likelihood=Rare Consequence=Less than minor
Trophic effects due to sediment deposition and underwater noise from drilling, blasting and dredging.	Likelihood=Rare Consequence=Less than minor	None recommended.	Likelihood=Rare Consequence=Less than minor
Effects on Coastal Water Quality	Likelihood=Likely Consequence=Moderate	Dredging of the berth basins where finer sediments occur shall take place during slack and outgoing tides to avoid the potential for suspended sediment to migrate into the upper harbour. Fine sediment dredged from the berth basins shall be deposited at the sediment disposal site during outgoing	Likelihood = Rare Consequence=Less than minor

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		<p>ebb tides to ensure sediment suspended in the water column is rapidly dispersed and transported out into Foveaux Strait.</p> <p>The employment of a "Green Valve on the TSHD to reduce turbidity in the harbour during the dredging operations by facilitating settlement of the suspended sediment onto the seabed close to the dredging area as opposed to being carried towards the surface.</p>	
Effects on Marine Aquaculture Operations	<p>Likelihood=Likely Consequence=Major</p>	<p>Dredging of the berth basins where finer sediments occur shall take place during outgoing ebb tides to avoid the potential for suspended sediment to migrate into the upper harbour where crayfish pots may be placed on a temporary basis (refer Figure 3-5).</p> <p>No marine aquaculture farms are currently operating in Bluff Harbour.</p>	<p>Likelihood = Rare Consequence=Less than minor</p>
Effects on Cultural Values	<p>Likelihood=Likely Consequence=Major</p>	<p>A draft MOU prepared by Te Runanga o Awarua and South Port sets out the mitigation measures jointly agreed to that provide for an improvement in the health of Bluff Harbour (Awarua) for cultural use, including for mahinga kai and tauranga waka.</p>	<p>Likelihood = Rare Consequence=Less than minor</p>

Appendix I: Legal Advice – South Port (Chapman Tripp) and ES (Wynn Williams)



19 April 2021

Lacey Bragg
Environment Southland
Invercargill

From: Andrew Woods / Kirsty Jacomb
Direct: +64 3 353 0025 / +64 3 353 0398
Mobile: +64 27 436 0208
Email: andrew.woods@chapmantripp.com /
kirsty.jacomb@chapmantripp.com
Ref: 100352534/1649451.4

by email

Dear Lacey

SOUTH PORT: DREDGING AUTHORITY

- 1 We act for South Port New Zealand Limited (*South Port*).
- 2 South Port has asked us to provide a legal opinion explaining the statutory authorisation for the Southland Harbour Board's (South Port's predecessor) dredging of the entrance channel to the Bluff Harbour.

Background

- 3 The Bluff Harbour entrance is well known as a very challenging entrance channel. South Port and its predecessors have enabled shipping vessels to operate in the harbour by dredging undertaken over a long period of time.
- 4 To allow for ongoing operations and to increase safety for vessels South Port is proposing to increase the depth of the existing entrance channel by further dredging. South Port recently sought Environment Southland's approval to undertake this dredging as a permitted activity under rule 10.1.4 of the Southland Regional Coastal Plan on the basis that it is capital dredging that has previously been authorised and falls within the ambit of section 384 of the RMA.
- 5 Environment Southland has asked South Port to provide confirmation of the basis for its previous statutory authority to dredge the entrance channel.

Executive summary

- 6 Section 3 of the Bluff Harbour Reclamation and Leasing and Empowering Act 1929 (the *1929 Act*) provided the Bluff Harbour Board express statutory authority to dredge and deepen the Bluff Harbour.
- 7 Both the Bluff Harbour Improvement Act 1952 Act (the *1952 Act*) and the Southland Harbour Board Empowering Act 1968 (the *1968 Act*) provide the Southland Harbour Board express statutory authority to widen and deepen the Bluff Harbour entrance channel.

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Auckland
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Christchurch



8 Under section 384 of the Resource Management Act 1991 (*RMA*) the statutory authorisation under the 1952 Act and the 1968 Act are still effective as a coastal permit.

9 South Port may dredge the entrance channel to the Island Harbour to allow for the safe and convenient navigation of ships as a permitted activity pursuant to rule 10.1.4 of the Southland Regional Coastal Plan.

Bluff Harbour Reclamation and Leasing and Empowering Act 1929

10 Section 3 of the 1929 Act provides for dredging – authorising the Bluff Harbour Board (Southland Harbour Board’s predecessor) expressly to dredge and deepen the harbour.

3 Bluff Harbour Board may reclaim land described in Schedule 1

Subject to the provisions of section one hundred and seventy-one of the Harbours Act 1923, it shall be lawful for the Board from time to time, in such parts or subdivisions as it shall think fit, to reclaim from the waters of the Bluff Harbour the parcel of land described in Schedule 1 hereto, and for that purpose **to dredge and deepen the said harbour** and use the material thereby obtained in effecting such reclamation.

Schedule 1

ALL that piece of land, containing 21 acres, more or less, shown edged yellow on the plan marked M D 6546, and deposited in the office of the Marine Department, at Wellington.

[emphasis added]

11 There was no limit on the extent or location of the dredging authorised by the 1929 Act.

12 The 1929 Act operated through to its repeal by the Local Government Act 2002. But the relevant provision – section 3 - was repealed by the 1952 Act (referred to below).

Bluff Harbour Board Empowering Act 1949

13 The Bluff Harbour Board Empowering Act 1949 (the *1949 Act*) authorised the Board to borrow money for the purpose of carrying out the works in Schedule 2 of the Act.

14 Schedule 2 refers to widening to a minimum width of 350 ft and deepening to a minimum depth of 27 ft the No. 3 Reach of the Entrance Channel of Bluff Harbour.

15 The Hansard reports for the 1949 Act record:

“[the Board] proposes to widen the channel into the harbour... It is quite an undertaking on the part of a pilot to bring a long ship through the narrow curved channel. The Harbour Board is therefore anxious to widen it... The Board proposes to widen the channel to a width of 350ft., with a low-water depth of 27 ft. That is why the Board is asking for a loan...”



and

"The channel entrance has some limitation in that it is not adequate in width, and some deepening as well as widening is necessary".

and

"There can be no question that this Bill is necessary in the interests of the people of Southland"

Bluff Harbour Improvement Act 1952

- 16 The 1952 Act was passed to enable the construction of the man-made Island Harbour for port expansion. The 1952 Act authorised the Bluff Harbour Board (Southland Harbour Board's predecessor) to construct and carry out the harbour works set out in the First Schedule to the Act.¹
- 17 The First Schedule to the 1952 Act refers to the reclamation of land from the waters of Bluff Harbour by the use of material dredged from the harbour authorising that dredging expressly:
- "... by the use of spoil dredged from the berthage and swinging basin, and all works necessary or incidental to such reclamation ..."

Southland Harbour Board Empowering Act 1968

- 18 The 1968 Act authorised the Board to borrow \$3.7M. All money borrowed under the 1968 Act was required to be and applied in the construction and carrying out of the harbour works and purposes specified in the First Schedule to the 1968 Act:
- "All money borrowed under the authority of this section shall be applied and expended in the construction and carrying out of the harbour works, and for the other purposes, specified in the First Schedule to this Act."
- 19 Schedule 1 includes:
- "Widening and deepening the entrance channel ..."
- 20 As a statutory authority the Board had the powers given to it be statute either expressly or by necessary implication. The requirement under the 1968 Act to apply and expend the money to widen and deepen the entrance channel authorised the Board to undertake that work both expressly and by necessary implication.

Involvement of other statutory authorities

- 21 The dredging undertaken by the Southland Harbour Board on each occasion to widen and deepen the entrance channel was a highly visible activity both in a physical sense to the community and in an administrative sense to statutory authorities with responsibility for those dredging activities. By way of example we provide below

¹ Bluff Harbour Improvement Act 1952, section 4(1).



details of this visibility in an administrative sense in relation to dredging undertaken in 1977.

- 21.1 On 25 November 1977 the Southland Harbour Board made an application to the New Zealand Port's Authority for authorisation to raise a loan of \$1,600,000 to widen and deepen the No. 3 reach entrance channel to the Bluff Harbour to a depth of "at least 10.24 metres and so allow the major port users a greater utilisation of the larger bulk vessels now available in their respective trades".² A copy of this application is attached as **Appendix A**.
- 21.2 In considering the application the New Zealand Ports Authority received from each of the Ministry of Works and Development and the Ministry of Transport reports on the Southland Harbour Board's application. These reports are attached as **Appendix B** and **C**. The Ministry of Transport also provided a supplementary report which is attached as **Appendix D**.
- 21.3 After careful examination the application was approved by the New Zealand Port's Authority on 29 May 1978 (the approval letter is attached as **Appendix E**).
- 22 The reclamation of land arising from the dredging on each occasion has been further recognised in Orders in Council for the Southland Harbour Board.

8 December 1977:

Vesting Land Reclaimed from Bluff Harbour in the Southland Harbour Board

RICHARD WILD, Administrator of the Government
ORDER IN COUNCIL

At Government House at Wellington this 25th day of
October 1977

Present:

HIS EXCELLENCY THE ADMINISTRATOR OF THE GOVERNMENT
IN COUNCIL

PURSUANT to section 11 of the Bluff Harbour Improvement Act 1952, His Excellency the Administrator of the Government, acting by and with the advice and consent of the Executive Council, hereby vests in the Southland Harbour Board 1.5369 hectares of land, being Section 52, Block 1, Campbelltown Hundred, as shown on plan M.D. 15879, and deposited in the office of the Ministry of Transport at Wellington.

P. G. MILLEN, Clerk of the Executive Council.

(M.O.T. H.O. 43/11/6)

² Southland Harbour Board "Channel Widening & Deepening" dated 21 November 1977, page 2.



25 November 1976

*Authorising Southland Harbour Board to Reclaim Crown
Seabed in Bluff Harbour*

DENIS BLUNDELL, Governor-General

ORDER IN COUNCIL

At the Government House at Wellington this 15th day of
November 1976

Present:

HIS EXCELLENCY THE GOVERNOR-GENERAL IN COUNCIL

PURSUANT to section 175 (3), and subject to sections 176
to 182 of the Harbours Act 1950, His Excellency the Governor-
General, acting by and with the advice and consent of the
Executive Council, hereby authorises Southland Harbour
Board to reclaim an area of 1.7140 hectares of Crown seabed
in Bluff Harbour, as shown on plan MD 15773, and deposited
in the office of the Ministry of Transport at Wellington.

P. G. MILLEN, Clerk of the Executive Council.

(M.O.T. 43/11/6/2)

31 October 1968

*Validating Reclamation of Endowment Foreshore
in Bluff Harbour*

ARTHUR PORRITT, Governor-General

ORDER IN COUNCIL

At the Government Buildings at Wellington this 14th day
of October 1968

Present:

THE RIGHT HON. J. R. MARSHALL PRESIDING IN COUNCIL

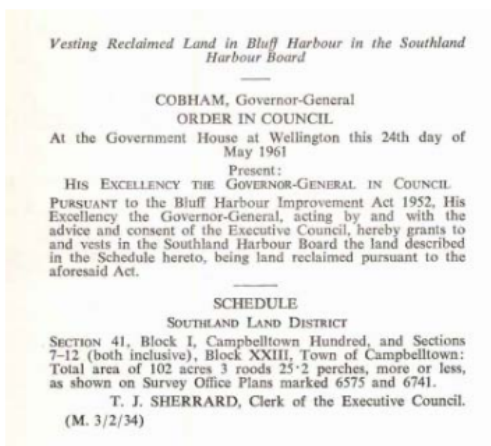
PURSUANT to sections 175 and 265 of the Harbours Act 1950,
His Excellency the Governor-General, acting by and with
the advice and consent of the Executive Council, hereby
validates the reclamation by Southland Harbour Board made
from endowment foreshore in Bluff Harbour, of the land
containing 1 rood 8 perches, more or less, being Section 13,
Block XXIII, Town of Campbelltown, and shown edged red
on S.O. Plan 6844, now numbered M.D. 13146 and deposited
in the office of the Marine Department at Wellington.

P. J. BROOKS, Clerk of the Executive Council.

(M. 43/11/6)



1 June 1961



- 23 The relevant Government bodies were therefore well aware of the dredging activities and that the Southland Harbour Board was using statutory processes to enable the dredging. It is not credible to suggest that the Southland Harbour Board might have undertaken any dredging without statutory authority given the extensive and repeated direct involvement of the Ministry of Transport, the Ministry of Works and Development and the New Zealand Ports Authority in the statutory processes relating to the dredging.

Application of section 384 of the RMA

- 24 The RMA introduced a new regime for authorisation to undertake works in the coastal marine area.
- 25 A transitional regime was provided for, including section 384 which provides for existing permissions to become coastal permits.
- 26 Under section 384(1)(c) of the RMA an authority under a Special Act that was in force immediately before the commencement of the RMA becomes a coastal permit granted under the RMA on the same conditions. For completeness we note that a coastal permit is a type of resource consent.³
- 27 As set out above, the Southland Harbour Board had authority under both the 1952 Act and the 1968 Act to deepen the entrance channel. Both the 1952 Act and the 1968 Act are a Special Act under the Harbours Act 1950.⁴ The 1952 Act was repealed, as from 1 July 2003, by the Local Government Act 2002. The 1968 Act was repealed by section 269 of the Local Government Act 2002. Both the 1952 Act

³ Resource Management Act 1991, section 87(c).

⁴ Bluff Harbour Improvement Act 1952, section 3.



and the 1968 Act were in force immediately before (and indeed after) the commencement of the RMA.

- 28 Section 384 applies with the effect that the authority under the 1952 Act and the 1968 Act to deepen the entrance channel by dredging are still effective. That is, the authority to undertake the dredging authorised by the 1952 Act and the 1968 Act are deemed a coastal permit under the RMA.
- 29 This is consistent with the fact that no approval was sought under section 178(1) or (2) of the Harbours Act in relation to the dredging undertaken in 1977 detailed above.⁵ Approval was required under that section to undertake harbour works **unless any other Act specifically provides**. No approval was granted (or sought) under that section because Southland Harbour Board already had statutory authority under both the 1952 Act and the 1968 Act to dredge the entrance channel. Given this conclusion we have not considered the application of section 425 of the RMA further.

Southland Regional Coastal Plan

- 30 South Port seeks confirmation from Environment Southland that it can undertake the dredging as a permitted activity.
- 31 This confirmation is sought on the basis that the Southland Regional Coastal Plan provides that maintenance dredging is a permitted activity, "In areas where capital dredging has been approved by way of a resource consent".⁶ Maintenance dredging is defined as:⁷

dredging of the bed of the sea necessary to maintain water depths to previously approved levels, for the safe and convenient navigation of ships in navigation channels and at berthing and mooring facilities, including marina developments.

- 32 The dredging of the entrance channel falls precisely within rule 10.1.4 and is a permitted activity because:
- 32.1 section 384 applies with the effect that the approval under both the 1952 Act and the 1968 Act overrides the RMA and continues in force as a deemed coastal permit;
- 32.2 the dredging authorised under the 1952 Act and under the 1968 Act is not limited to any depth – dredging to any depth is permitted by both the 1952 Act and the 1968 Act; and
- 32.3 the dredging now proposed is necessary for the safe and convenient navigation of ships in the entrance channel and therefore also comes squarely within the definition of 'maintenance dredging'.

⁵ Authority was required under that section unless any other Act specifically provided for the harbour works.

⁶ Southland Regional Coastal Plan, rule 10.1.4.

⁷ Southland Regional Coastal Plan, clause 10.1. This is the same definition as in the New Zealand Coastal Policy Statement, Schedule 1.6.



General

33 We would be happy to answer any questions.

Yours faithfully



Andrew Woods / Kirsty Jacomb

Partner / Solicitor

Hamish Peacock

From: Mike Doesburg <Mike.Doesburg@wynnwilliams.co.nz>
Sent: Friday, 7 May 2021 6:50 PM
To: Bruce Halligan; Lacey Bragg
Subject: RE: South Port: Dredging authority

This sender is trusted.

Hi Bruce and Lacey,

I have had the opportunity to consider this further. As indicated below, we agree with Chapman Tripp that the 1952 and 1968 Acts are "Special Acts" and are therefore the authorisation under them are treated as coastal permits under s384 of the Act.

On its face, Chapman Tripp's advice means that SouthPort could undertake unlimited dredging to widen or deepen the entrance channel. However, the concern we have is that the 1952 Act authorised dredging only for the purpose of a particular reclamation and the 1968 Act is directed at borrowing money for a particular dredging campaign, rather than authorising any dredging in perpetuity.

Please let me know if you would like to arrange a call to discuss this?

Kind regards,
Mike

Mike Doesburg | Partner | Wynn Williams

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From: Bruce Halligan <Bruce.Halligan@es.govt.nz>
Sent: Friday, 30 April 2021 2:40 PM
To: Mike Doesburg <Mike.Doesburg@wynnwilliams.co.nz>
Cc: Lacey Bragg <Lacey.Bragg@es.govt.nz>
Subject: RE: South Port: Dredging authority

Appreciated Mike, thanks for this, look forward to receiving your feedback next week, don't expect that should have to impede on your family time over the weekend
BGH

From: Mike Doesburg [<mailto:Mike.Doesburg@wynnwilliams.co.nz>]
Sent: Thursday, 29 April 2021 10:29 PM
To: Bruce Halligan <Bruce.Halligan@es.govt.nz>
Cc: Lacey Bragg <Lacey.Bragg@es.govt.nz>
Subject: RE: South Port: Dredging authority

Hi Bruce,

Thank you for this. It's good to see that SouthPort has sought advice.

On its face it is helpful and is what ES needs. I agree with the reasoning, but would like to consider further the extent of the authorisations provided by the 1952 and 1968 Acts referred to. I am not sure that the authorisations are unlimited, as the Chapman Tripp letter suggests. Both Acts seem to contemplate particular works being authorised, not just a blank cheque to dredge or reclaim.

I will consider the advice in more detail and give you my thoughts over the weekend.

Kind regards,
Mike

Mike Doesburg | Partner | Wynn Williams

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From: Bruce Halligan <Bruce.Halligan@es.govt.nz>
Sent: Thursday, 29 April 2021 9:45 AM
To: Mike Doesburg <Mike.Doesburg@wynnwilliams.co.nz>
Cc: Lacey Bragg <Lacey.Bragg@es.govt.nz>
Subject: FW: South Port: Dredging authority

Hi Mike, Sorry to bother you again, I am seeking to progress this matter while Lacey is having a couple of days well-earned leave

You will recall our previous discussion about Southport dredging and whether this could occur as a permitted activity. You will recall that we had previously agreed that previous correspondence provided did not get us to that point, but had offered them the opportunity to provide a legal opinion.

They have now provided the attached from Chapman Tripp.

I would appreciate if you could please consider this and provide your legal feedback, to Lacey in the first instance for continuity

Thanks very much in advance
BGH

Bruce Halligan
Consents Manager - Acting
Environment Southland Te Taioa Tonga

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Cnr Price St & North Rd, Private Bag 90116, Invercargill 9840
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From: Kirsty Jacomb [<mailto:Kirsty.Jacomb@chapmantripp.com>]
Sent: Thursday, 29 April 2021 8:52 AM
To: Lacey Bragg <Lacey.Bragg@es.govt.nz>
Cc: Andrew Woods <Andrew.Woods@chapmantripp.com>; Bruce Halligan <Bruce.Halligan@es.govt.nz>; ngear@southport.co.nz; Frank O'Boyle <fboyle@southport.co.nz>
Subject: South Port: Dredging authority

Good morning,

We act for South Port New Zealand Limited. Please find **attached** letter explaining its authorisation to dredge the entrance channel to the Bluff Harbour.

The appendices are available at <https://spaces.hightail.com/receive/wJoDCuzaaT>. The password is Chapman3398 and the link will expire in one month.

I previously sent this on 20 April 2021 but have been advised that Environment Southland did not receive it.

Kind regards,

Kirsty

KIRSTY JACOMB
SOLICITOR

Chapman Tripp

D: +64 3 353 0398

LEGAL ADMINISTRATOR: Amie Green | D: +64 3 353 0344

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