

Resource Consent

FILE: 42100
(01, 02, 05 – 10)
Change to Conditions

Document Date: 14.12.2021

*Pursuant to the Resource Management Act 1991, the Northland Regional Council
(hereinafter called "the council") does hereby grant a Resource Consent to:*

PAIHIA MARITIME PROPERTIES LTD

To undertake the following activities on the Paihia waterfront adjacent to Lot 1 DP 74742 at or about location co-ordinates 1699390E 6095200N:

Note: All location co-ordinates in this document refer to Geodetic Datum 2000, New Zealand Transverse Mercator Projection.

- | | |
|-------------------------|--|
| AUT.042100.01.03 | Occupy space in the coastal marine area with, and use, the following existing and proposed structures: <ul style="list-style-type: none">▪ Restaurant and aquarium building and an associated deck;▪ Kitchen and bar facility;▪ Piled deck for public viewing and outdoor dining purposes;▪ Canopy structures over the deck and bar;▪ Berth piles and gantry for temporary mooring of vessels for gamefish weighing purposes;▪ Utility services including telecommunications, water and sewer lines associated with the structures and aquarium;▪ Pontoon facility (inclusive of floating pontoons and an access gangway);▪ Rock abutment (Eastern Abutment) for the purpose of beach protection at or about location coordinates 1699290E 6095294N. |
| AUT.042100.02.02 | Occupation area within the coastal marine area. |
| AUT.042100.03.01 | Place a pontoon facility in the coastal marine area adjacent to an existing deck and pile berths. |
| AUT.042100.04.01 | Discharge sea water from an aquarium to the coastal marine area. |
| AUT.042100.05.02 | Capital dredging of the coastal marine area for a vessel berth and for the construction of a rock abutment. |
| AUT.042100.06.02 | Maintenance dredging in the coastal marine area around the fixed structures. |
| AUT.042100.07.02 | Deposit dredged material in the coastal marine area for purposes of beach re-nourishment. |
| AUT.042100.08.02 | Discharge decant water to the coastal marine area from dredged material placed on the beach as part of beach replenishment activities. |

AUT.042100.09.02 **Construct a rock abutment (Eastern Abutment) in the coastal marine area adjacent to the restaurant and aquarium building.**

AUT.042100.10.02 **Alter and extend an existing structure in the coastal marine area.**

Subject to the following conditions:

AUT.042100.01 – Occupy Space with Structures

- 1 This consent applies only to the structures identified on the **attached** drawings:
 - (a) The 'Restaurant and Aquarium Building, Bar, Outdoor Dining and Public Viewing Deck, Gantry and Piles' on Northland Regional Council Plan Number **4498B**;
 - (b) The Restaurant, Bar and Deck identified on the HB Architecture drawing referenced as Northland Regional Council Plan Number **4500A**;
 - (c) 'Canopy' and 'Deck Extension' identified on the HB Architecture drawing referenced as Northland Regional Council Plan Number **4499D**;
 - (d) The 'Pontoon Facility' identified on the Shorewise Engineering Consultants drawing referenced as Northland Regional Council Plan Number **4976/1**;
 - (e) The 'Eastern Abutment' identified on the Shorewise Engineering Consultants drawing referenced as Northland Regional Council Plan Number **5046/3**.
- 2 All facilities and structures covered by this consent shall be maintained in good order and repair.
- 3 The seaward end of the deck shall be marked with the number **42100** in black lettering on a white background clearly displayed and in such a manner as to be clearly visible from the sea.
- 4 An unobstructed and clear path around the exterior deck and within the Restaurant and Aquarium Building shall be maintained to provide for public access through the building during hours of operation. The path shall be clearly marked on the floor and be at least one metre in width as identified on the HB Architecture drawing referenced as Northland Regional Council Plan Number **4490D**.
- 5 Signs shall be placed as follows:
 - (a) At the entrance to the Restaurant and Aquarium Building stating that the deck is open to the public and that the aquarium is open to the public free of charge;
 - (b) On each of the doors at the ends of the designated public access through the restaurant that indicate the public entitlement to use the designated access at all times between 7.00 a.m. in summer and 8.00 a.m. in winter until 30 minutes after sunset or the restaurant/aquarium closing time, whichever is the later.
 - (c) The signs shall be no smaller than 400 millimetres by 200 millimetres with lettering clearly able to be read from a distance of 4 metres.
- 6 No signage, other than any necessary for the safety of those using the building, shall be placed anywhere on the deck located on the eastern side of the building.
- 7 Noise generated as a result of use of the structures and facilities within the coastal marine area:

- (a) Shall not cause excessive noise as defined in Section 326 of the Resource Management Act 1991; and
 - (b) Shall comply with the operational noise standards identified in the attached **Schedule 1**.
- 8 The Consent Holder shall provide not less than ten public car parks in the vicinity of the building at Paihia.
- 9 A rubbish bin shall be provided and maintained on the deck near its entry point on the western side of the building entrance.
- 10 Maintenance of vessels using the facilities authorised by this consent shall be limited to minor maintenance activities that do not give rise to actual or potential discharges of contaminants to the coastal marine area.
- 11 The pontoon facility shall not be used for overnight berthing of vessels.
- 12 Lighting, other than lighting required by the Director of Maritime Safety to meet international, hydrographic standards for navigational safety purposes shall:
 - (a) Be the minimum required for its purpose – pathway, surface signage illumination, active building entrance, wharf illumination;
 - (b) Be entirely of fully shielded full cut off fittings to contain all light below the horizontal from fittings or masts no higher than 4 metres; and
 - (c) Restrict all spillage to no more than 20 metres from the boundary of the decks.
- 13 The Consent Holder shall have the structural integrity of the foundations of the decks and of the Restaurant and Aquarium building inspected and reported on by a Chartered Professional (Structural) Engineer. The first inspection shall be undertaken prior to March 2025 and the structures shall be re-inspected at ten yearly intervals prior to the month of March in 2035, with a final inspection undertaken prior to 31 October 2043, being six months before the expiry date of this consent. An inspection report from the Chartered Professional Engineer shall be provided to the council's assigned monitoring officer within two weeks of completion of each inspection. The inspection report shall identify any maintenance that is required, the timeframe within which this maintenance is required to be carried out and shall confirm, or otherwise, the ongoing structural integrity and security of the structures.
- 14 The Consent Holder shall carry out all the maintenance required as a result of the inspections undertaken in accordance with Condition 13 above within the timeframe(s) prescribed in the inspection report. The Consent Holder shall notify the council's assigned monitoring office, in writing, as soon as the maintenance works have been completed on each occasion. This notice shall be accompanied by a statement from a Chartered Professional (Structural) Engineer confirming that any identified maintenance works have been undertaken as prescribed in the inspection report.
- 15 In the event of failure or loss of structural integrity of any part of the structures covered by this consent, the Consent Holder shall immediately:
 - (a) Retrieve all affected structure elements and associated debris and dispose of these on land where they cannot re-enter the coastal marine area; and

- (b) Advise the Regional Harbourmaster for Northland and the council's Compliance Manager of the event and the steps being taken to retrieve and dispose of the affected structures and debris.

Advice Note: *The purpose of this condition is to avoid navigation safety being compromised by floating debris and avoid contamination of the coastal marine area.*

AUT.042100.02 – Occupation Area

- 16 This consent only applies to the 'Occupation Area' identified on the **attached** Northland Regional Council Plan Number **5042** and the area identified as 'FNHL Proposed Eastern Abutment Occupation Area' on the **attached** Shorewise Engineering Consultants drawing referenced as Northland Regional Council Plan Number **5046/1**.
- 17 The occupation of space by the facilities authorised by these consents is not an exclusive occupation of space. All outdoor dining and viewing deck areas authorised by this consent that are located in the coastal marine area shall be available for public pedestrian access and use, free of charge, at all times, other than times when it is necessary to limit public pedestrian access for reasons of safety or operational necessity. Any limitation of public access for reasons of safety or operational necessity shall be over the minimum area and for the minimum time necessary. Without limiting the generality of the above, the Consent Holder shall maintain a public viewing walkway and viewing deck area clear of activities associated with outdoor dining activities as identified on the **attached** Northland Regional Council Plan Number **4498B**.

AUT.042100.03 – Place a Pontoon Facility

- 18 The Consent Holder shall notify the council's assigned monitoring officer, in writing of the date installation of the pontoon facility is intended to commence, at least two weeks beforehand.

Advice Note: *Notification of the commencement of works may be made by email to info@nrc.govt.nz.*

- 19 The pontoon facility shall be installed in general accordance with the Shorewise Engineering Consultants drawings referenced as Northland Regional Council Plan Numbers **4976/1** and **4976/2**.
- 20 Immediately upon completion of the installation of the pontoon facility the Consent Holder shall notify the following organisations in writing of the installation of the facilities. Evidence of this notification shall be provided to the council's assigned monitoring officer.

Hydrographic Surveyor
Land Information New Zealand
PO Box 5501
Wellington 6145
The Maritime Safety Inspector
Maritime New Zealand
PO Box 195
Ruakākā 0151

Far North District Council
Private Bag 752
Kaikohe 0440

The Consent Holder shall include a scale plan of the completed works with the notification.

AUT.042100.04 – Discharge Seawater

- 21 The discharge shall not exceed 50 cubic metres of seawater per day.
- 22 Access to easily accessible sampling points shall be provided and maintained at the inlet of the filtration plant and at the final outlet of the aquarium tank.
- 23 The exercise of this consent shall maintain the following water quality standards in the receiving waters as measured beyond a 10 metre radius from the discharge point:
- (a) The natural temperature of the water shall not change by more than 3 degrees Celsius;
 - (b) The natural pH of the water shall be within the range 6.5 to 9.0 except where due to natural causes;
 - (c) The concentration of dissolved oxygen (daily minimum) shall not be reduced below 6 g/m³;
 - (d) There shall be no production of conspicuous oil or grease films, scums or foams, floatable or suspended materials, or emissions of objectionable odour;
 - (e) There shall be no destruction of natural aquatic life by reason of a concentration of toxic substances.
- 24 The discharge shall not cause the ammonium-nitrogen (NH₄-N) concentration of the receiving waters outside a 10 metre radius from the discharge point to fall below the following standard:

Total Ammonia, NH ₄ -N g/m ³					
pH	10°C	15°C	20°C	25°C	30°C
6.50	1.81	1.81	1.22	0.86	0.60
6.75	1.81	1.81	1.22	0.86	0.60
7.00	1.81	1.81	1.22	0.86	0.61
7.25	1.81	1.81	1.23	0.86	0.61
7.50	1.81	1.81	1.23	0.86	0.61
7.75	1.73	1.64	1.15	0.81	0.58
8.00	1.13	1.09	0.76	0.54	0.39
8.25	0.64	0.62	0.44	0.32	0.23
8.50	0.37	0.36	0.26	0.19	0.14

Note: pH and temperature, where practicable, should be measured in the mid-day early afternoon period (noon to 2.00 p.m. NZ Standard Time).

- 25 The discharge shall not cause the total copper (Cu) concentration of the receiving waters beyond a 10 metre radius from the discharge point to rise above 1.3 milligrams per cubic litre.
- 26 The filter backwash shall not, at any time, be discharged between the period 6.30 a.m. to 9.00 p.m. (NZDST).
- 27 Changes in the operation of the aquarium likely to affect the constituents of the discharge, including changes in the use of antibiotics, disinfectants and other treatment chemicals at the aquarium shall be notified, in writing, to the council's assigned monitoring officer.

AUT.042100.05 to AUT.042100.08 – Capital Dredging, Maintenance Dredging and Deposition of Dredged Material and Discharge of Decant Water

28 Capital dredging for construction of the Eastern Abutment shall be confined to the area identified as 'Capital Dredging Area for Footprint of Eastern Abutment' on the **attached** Shorewise Engineering Consultants drawing referenced as Northland Regional Council Plan Number **5046/2**. Capital and maintenance dredging for the vessel berth alongside the deck associated with the restaurant and aquarium building shall be confined to the area identified as 'Dredging Area for Vessel Berth' on the **attached** HB Architecture drawing referenced as Northland Regional Council Plan Number **4499D**.

29 The Consent Holder shall notify the council's assigned monitoring officer, in writing of the date dredging is intended to commence, at least two weeks beforehand, on each occasion. The notification shall include details of method of dredging, the disposal site for dredged spoil, and duration of the planned work.

Advice Note: *Notification of the commencement of works may be made by email to info@nrc.govt.nz.*

30 As part of the written notification required by Condition 29, the council's assigned monitoring officer shall be provided with written certification from a suitably qualified and experienced person that all plant and equipment entering the coastal marine area associated with the exercise of these consents are free from unwanted or risk marine species.

31 A copy of the consents shall be provided to the person who is to carry out the dredging works. A copy of the consents shall be held on site, and available for inspection by the public, during dredging.

32 Capital dredging for construction of the Eastern Abutment shall not exceed 2.5 metres below Chart Datum. Capital dredging for the berth space and any subsequent maintenance dredging shall not exceed 2.0 metres below datum.

33 Works associated with these consents shall only be carried out between 7.00 a.m. and sunset or 6.00 p.m., whichever occurs earlier, and only on days other than Sundays and public holidays.

34 Dredging works shall only be carried out between 1 March and 15 December.

35 Dredging operations shall not result in the complete blockage of navigation channels at any time.

36 The exercise of these consents shall not cause any of the following effects on the quality of the receiving waters, as measured at or beyond a 100 metre radius from the dredger or deposition area:

- (a) The visual clarity, as measured using a Secchi disk, shall not be reduced by more than 50% of the background visual clarity at the time of measurement;
- (b) The turbidity of the water (Nephelometric Turbidity Units (NTU)) shall not be increased by more than 50% of the background turbidity at the time of measurement;
- (c) The Total Suspended Solids shall not exceed 40 grams per cubic metre above the background measurement;

- (d) The production of any conspicuous oil or grease film, scums or foams, or floatable or suspended materials, or emissions of objectionable odour; and
 - (e) The destruction of natural aquatic life by reason of a concentration of toxic substances.
- 37 Monitoring of dredging shall be undertaken in accordance with the **attached Schedule 2**.
- 38 Maintenance dredging shall not take place more frequently than once in any consecutive 12 month period.
- 39 Other than disposal of suitable dredged material to the renourished beach identified on the Haigh Workman Civil & Structural Consultants Ltd drawing referenced as Northland Regional Council Plan Number **4975A** as part of authorised beach replenishment and reclamation activities, no disposal of dredged material shall take place to the coastal marine area.
- 40 All of the capital dredged material that is suitable for constructing the base layer of the nourished beach is to be used for this purpose. All dredged material from maintenance dredging shall be disposed of to an authorised land based site.
- 41 The council's assigned monitoring officer shall be notified in writing as soon as capital dredging is completed, and on completion of each maintenance dredging operation on each occasion.
- 42 Following completion of dredging on each occasion, a bathymetric survey of the dredged area shall be carried out at, or better than, the following specifications:
- (a) Sample rate: Maximum of 2 Hz;
 - (b) Survey line spacing: Maximum of 20 metres, located perpendicular to the dredged channel;
 - (c) Accuracy: RTK-GPS or similar methodology that can provide equivalent or higher accuracy;
 - (d) Datum: Datum 2000, NZTM projection, with elevations referenced to OTP1964 vertical datum or Chart Datum;
 - (e) Data Supply: ASCII X, Y, Z file in csv format.

A copy of the ASCII X, Y, Z file, referred to in (e) above shall be provided to the council's assigned monitoring officer at the same time as the bathymetric plan. The datum used for the bathymetric survey shall be the applicable Chart Datum at the site.

- 43 Immediately upon completion of the bathymetric survey, the Consent Holder shall notify the following organisations in writing, providing details of the survey. Evidence of this notification shall be provided to the council's assigned monitoring officer.

Hydrographic Surveyor
Land Information New Zealand
PO Box 5501
Wellington 6145

Far North District Council
Private Bag 752
Kaikohe 0440

The Maritime Safety Inspector
Maritime New Zealand
PO Box 195
Ruakākā 0151

The Consent Holder shall include a scale plan of the bathymetric survey with the notification.

AUT.042100.09 – Construction of the Eastern Abutment

44 The Eastern Abutment shall be constructed in general accordance with the **attached** Shorewise Engineering Consultants drawings referenced as Northland Regional Council Plan Numbers **5046/2, 5046/3, and 5046/4** and the **attached** Civil Engineering drawings and documents referenced as Northland Regional Council Plan Numbers **5061/8, 5061/9, 5061/10, 5061/11, 5061/12 and 5061/13**.

45 The Consent Holder shall notify the council's assigned monitoring officer, in writing of the date construction of the Eastern Abutment is intended to commence, at least 15 working days beforehand. The Consent Holder shall arrange for a site meeting between the Consent Holder's contractor(s) and the council's assigned monitoring officer prior to the commencement of the works.

Advice Note: *Notification of the commencement of works may be made by email to info@nrc.govt.nz.*

46 As part of the written notification required by Condition 45 the council's assigned monitoring officer shall be provided with written certification from a suitably qualified and experienced person that all plant and equipment entering the coastal marine area associated with the exercise of this consent are free from unwanted or risk marine species.

47 At least 15 working days prior to the commencement of works associated with this consent, the Consent Holder shall provide a detailed Construction Management Plan (CMP) to the council's assigned monitoring officer for certification by the council's Compliance Manager.

The CMP shall specify, but not necessarily be limited to, the following matters:

- (a) A construction timetable and updated copies of any construction plans and sediment controls to be implemented.
- (b) Site management, including details of:
 - Site access.
 - Storage of fuels and lubricants.

(Advice Note: *These should be banded or contained in such a manner so as to prevent the discharge of contaminants from spillages).*

- Maintenance of machinery and plant to minimise the potential for leakage of fuels and lubricants.
 - Confirmation that no equipment or machinery is cleaned, or refuelled in any part of the coastal marine area, except for machinery operating on the barge that may require refuelling.
- (c) Methods to minimise discolouration of the coastal marine area during construction and dredging activities.
- (d) Methods to ensure compliance with noise standards.
- (e) Methods to remedy any disturbance to the foreshore during works.
- (f) A contingency plan in the event that there is any discharge to the coastal marine area.
- (g) Measures to provide for public safety.

(h) A Construction Traffic Management Plan, prepared in consultation with the New Zealand Transport Agency and Far North District Council, which shall include, but not by way of limitation, specific details relating to avoiding, remedying or mitigating any adverse effects of:

- Machinery during site works.
- Proposed numbers and timing of truck movements throughout the day and the proposed routes including the identification of heavy vehicle routes which avoid residential streets.
- Safe and clear pedestrian access and thoroughfare on roads and footpaths adjacent to the site.
- Storage of materials and loading and unloading of equipment.

(i) Measures to address biosecurity.

48 The Consent Holder shall undertake the activities authorised by this consent in accordance with the certified CMP. Certification and compliance with the CMP does not override the requirement to comply with any/all other conditions of this consent.

Advice Note: *The council's Compliance Manager's certification of the CMP is in the nature of certifying that adoption of the CMP is likely to result in compliance with the conditions of this consent. The Consent Holder is encouraged to discuss its proposed CMP with council monitoring staff prior to finalising this plan.*

49 A copy of these consents shall be provided to the person who is to carry out the construction works. A copy of these consents shall be held on site, and available for inspection by the public, during construction.

50 The exercise of this consent shall not result in any of the following effects on coastal water quality, as measured at any point 50 metres from location of the works:

	Standard
Natural visual clarity	Not reduced more than 20%.
Oil/grease film, scum, foam, odour	No conspicuous oil or grease film, scums or foams, floatable or suspended materials, or emissions of objectionable odour.

51 All vehicles or equipment entering the coastal marine area associated with the exercise of this consent shall be in good state of repair and free of any leaks e.g. oil, diesel etc.

52 The Consent Holder shall ensure that an oil spill kit, appropriate to the equipment being used, is provided and maintained on site during dredging and earthworks activities.

53 No machinery operating from the land shall be left within the intertidal zone during high tide periods, or in a position where it could come into contact with coastal water.

54 The council's assigned monitoring officer shall be notified in writing as soon as the construction has been completed.

- 55 A certificate of compliance, or a written statement, from an independent Chartered Professional Engineer that the works are constructed in general accordance with the drawings identified in Condition 44 shall be provided to the council's assigned monitoring officer within two weeks of completion of the works.
- 56 Immediately upon completion of the installation of the Eastern Abutment, the Consent Holder shall notify the following organisations in writing of its completion. Evidence of this notification shall be provided to the council's assigned monitoring officer.

Hydrographic Surveyor
Land Information New Zealand
PO Box 5501
Wellington 6145
The Maritime Safety Inspector
Maritime New Zealand
PO Box 195
Ruakākā 0151

Far North District Council
Private Bag 752
Kaikohe 0440

A scale plan of the completed works shall be included with the notification.

- 57 In the event of archaeological sites or kōiwi being uncovered, activities in the vicinity of the discovery shall cease and the Consent Holder shall contact Heritage New Zealand Pouhere Taonga. Work shall not recommence within the area of the discovery until the relevant Heritage New Zealand Pouhere Taonga approval has been obtained.

Advice Note: *The Heritage New Zealand Pouhere Taonga Act 2014 makes it unlawful for any person to destroy, damage or modify the whole or any part of an archaeological site without the prior authority of Heritage New Zealand Pouhere Taonga.*

- 58 The Consent Holder shall not damage State Highway 11 nor any Crown owned infrastructure, or adversely affect State Highway drainage during construction activities, beyond those activities specifically authorised by resource consent or otherwise agreed with the land owner. Should damage occur, then the Consent Holder shall promptly advise this to the land owner.

AUT.042100.10 – Extend Structures

- 59 The extension of the deck associated with the restaurant and aquarium building shall be constructed and maintained in general accordance with the attached HB Architecture drawing referenced as Northland Regional Council Plan Number **4499D** and the **attached** Structural Sense Limited drawing titled referenced as Northland Regional Council Plan Numbers **4997/1** and **4997/2**.

General Conditions – Applying to all Consents

- 60 Noise levels associated with the exercise of these consents shall not exceed those set out in **Schedule 1 attached**.
- 61 The Consent Holder shall ensure that an oil spill kit, appropriate to the equipment being used, is provided and maintained on site during dredging and earthworks activities.
- 62 The coastal marine area shall be kept free of debris resulting from the Consent Holder's activities.

63 The Consent Holder shall, on becoming aware of any discharge associated with the Consent Holder's operations that is not authorised by these consents:

- (a) Immediately take such action, or execute such work as may be necessary, to stop and/or contain the discharge; and
- (b) Immediately notify the council by telephone of the discharge; and
- (c) Take all reasonable steps to remedy or mitigate any adverse effects on the environment resulting from the discharge; and
- (d) Report to the council's Compliance Manager in writing within one week on the cause of the discharge and the steps taken or being taken to effectively control or prevent the discharge.

For telephone notification, during the council's opening hours, the council's assigned monitoring officer for these consents shall be contacted. If that person cannot be spoken to directly, or it is outside of the council's opening hours, then the Environmental Emergency Hotline shall be contacted.

Advice Note: *The Environmental Emergency Hotline is a 24 hour, seven day a week, service that is free to call on 0800 504 639.*

64 These consents shall not lapse until 31 March 2030.

65 The council may, in accordance with Section 128 of the Resource Management Act 1991, serve notice on the Consent Holder of its intention to review the conditions annually during the month of March to deal with any adverse effects on the environment that may arise from the exercise of these consents and which it is appropriate to deal with at a later stage. The Consent Holder shall meet all reasonable costs of any such review.

EXPIRY DATE: 31 MARCH 2044

These consents are granted this Fourteenth day of December 2021 under delegated authority from the council by:



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Stuart Savill
Consents Manager

SCHEDULE 1

ENVIRONMENTAL STANDARDS – NOISE

CONSTRUCTION NOISE

The noise from all construction activities seaward of the line of Mean High Water Springs (MHWS) shall comply with the construction noise limits prescribed in NZS6803:1999 “Acoustics – Construction Noise

Sound levels shall be measured in accordance with New Zealand Standard NZS 6801:2008 “Acoustics – Measurement of environmental sound” and assessed in accordance with NZS 6802:2008 “Acoustics – Environmental noise”.

Based on Table 2, NZS 6803: 1999 “Acoustics – Construction Noise”, Standards New Zealand

Time of Week	Typical Duration	Typical Duration (dBA)		Short-term Duration		Long-term Duration	
		L _{eg}	L _{max}	L _{eg}	L _{max}	L _{eg}	L _{max}
Weekdays	0630 – 0730	60	75	65	75	55	75
	0730 – 1800	75	90	80	95	70	85
	1800 – 2000	70	85	75	90	65	80
	2000 – 0630	45	75	45	75	45	75
Saturdays	0630 – 0730	45	75	45	75	45	75
	0730 – 1800	75	90	80	95	70	85
	1800 – 2000	45	75	45	75	45	75
	2000 – 0630	45	75	45	75	45	75

Noise measurements shall be measured in accordance with NZS 6801: 2008 “Acoustics – Measurement of environmental sound” and assessed in accordance with NZS 6802: 2008 “Acoustics – Environmental noise”. Measurement shall be at the notional boundary of any dwelling landward of mean high water springs. Construction noise shall comply with, and be measured and assessed in accordance with, the requirements of the Standard.

The notional boundary is defined in NZS 6801:2008 “Acoustics – Measurement of environmental sound” as a line 20 metres from any part of any dwelling, or the legal boundary where this is closer to the dwelling.

OPERATION

Noise emitted from any activity, when measured at the boundary of the zone (as defined below), shall not exceed the following noise levels.

<i>Time Period</i>	<i>Noise Limit</i>
<i>0700 hrs to 2200 hrs</i>	<i>55 dBA L₁₀</i>
<i>2200 hrs to 0700 hrs the following day</i>	<i>45 dBA L₁₀</i>
	<i>70 dBA L_{max}</i>

Note: The boundary of the zone shall be the line of mean high water springs and the radius of 100 metres of the source of the noise.

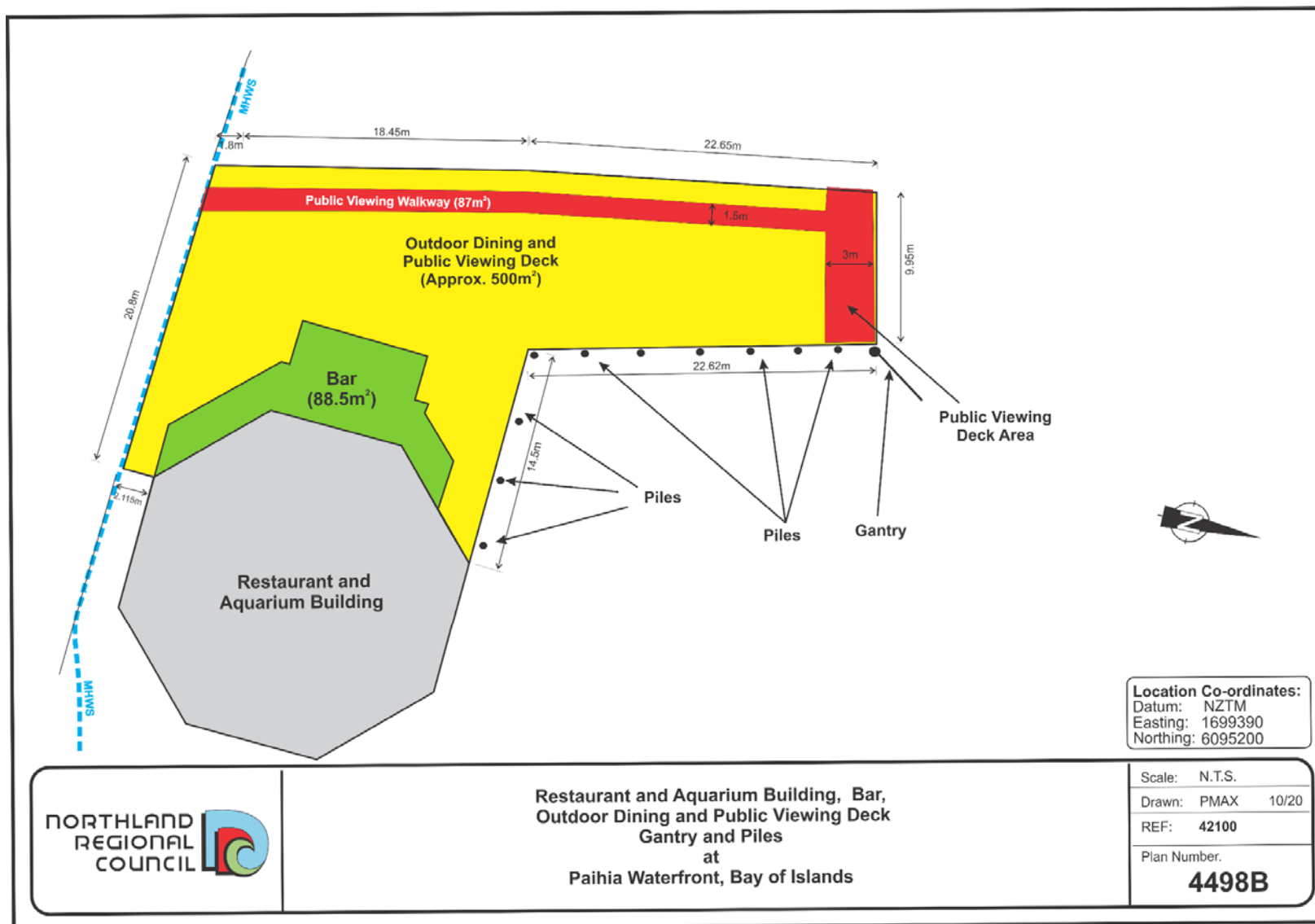
SCHEDULE 2

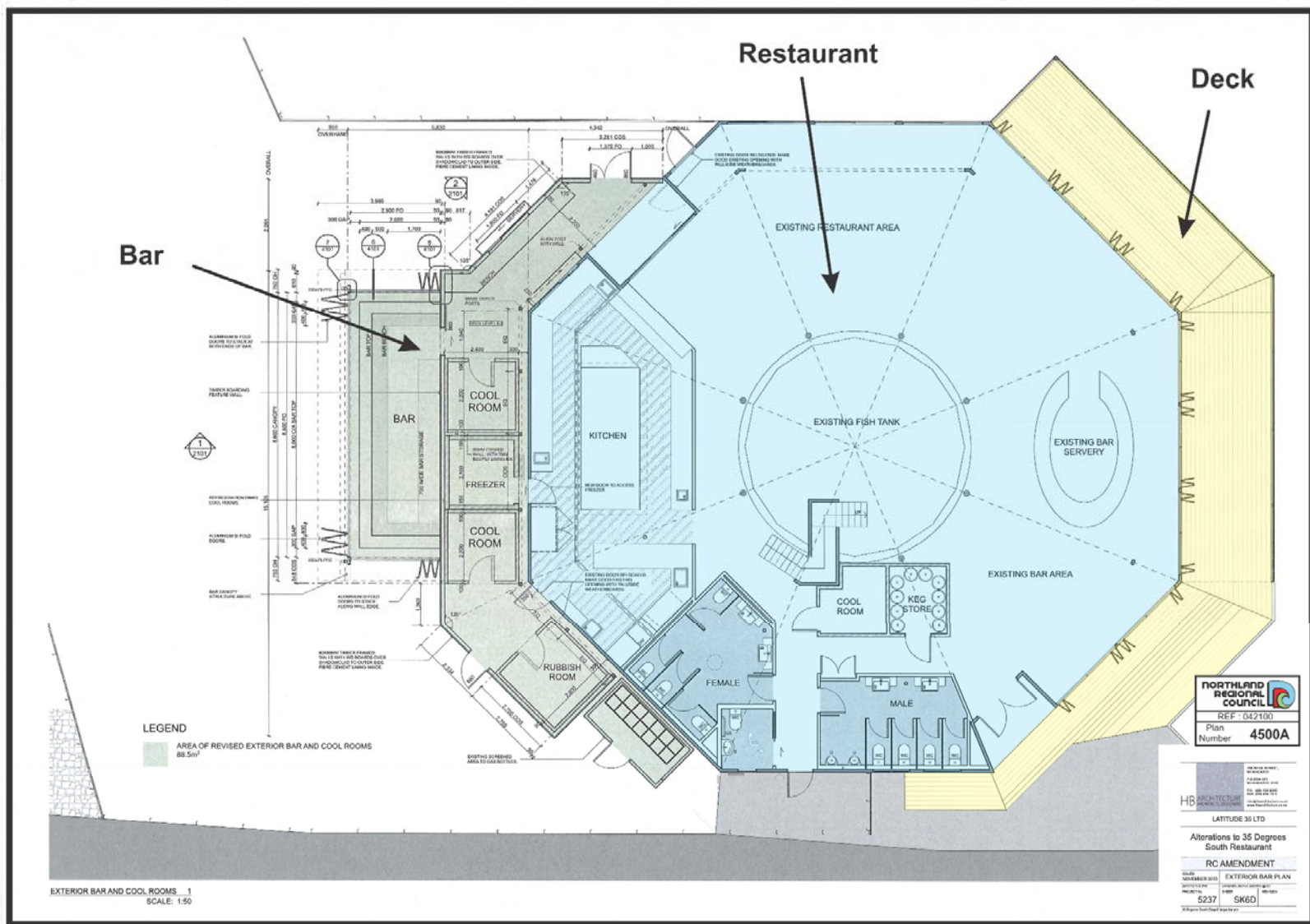
DREDGE MONITORING PROGRAMME

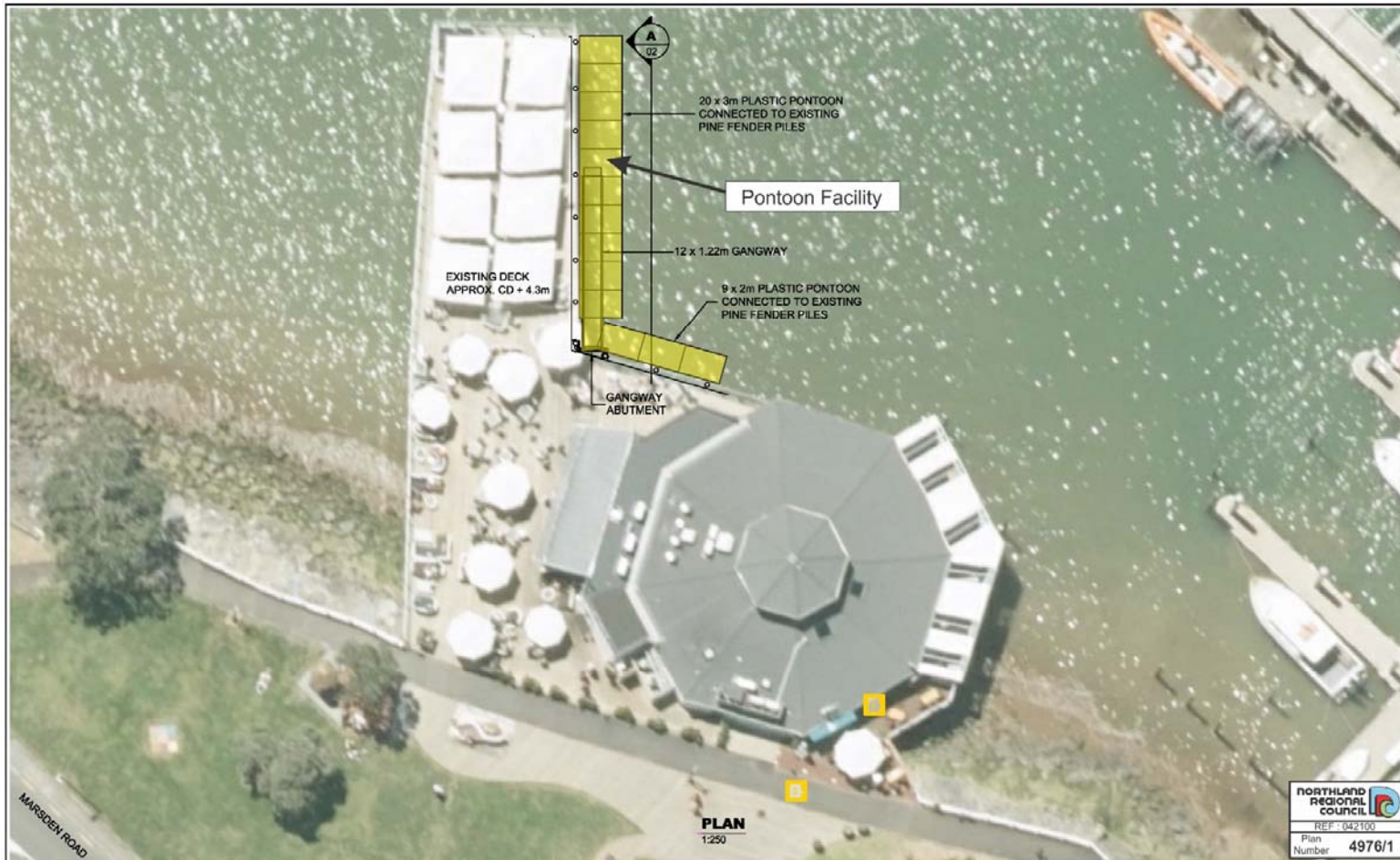
During dredging operations, daily inspections of the waters adjacent to the dredge excavation areas will be undertaken by the dredging contractor, or the Consent Holder's nominated agent, in order to identify any visually observable change in clarity (turbidity) of the receiving waters at or beyond 100 metres from the point of the dredging operations. Results of the daily inspections are to be recorded in a written log book by the Consent Holder or the Consent Holder's nominated agent, and submitted weekly to the council's assigned monitoring officer by email.

Should the visual inspection indicate any change in clarity at or beyond 100 metres from the point of the dredging operations, then the Consent Holder will implement the following monitoring programme to assess compliance with the relevant conditions of this consent.

Clarity measurements, using Secchi disc methods are to be taken at the boundary of the down-current edge of the mixing zone within the area of changed clarity. The same measurements are to be taken at least 50 metres up-current from the dredging activity to be used as control measurements for comparison with the down-current effect measurements. Three measurements are to be undertaken at each upstream and downstream location and the median used to assess compliance with the water quality standards stated and identified in the consent. Water samples shall also be collected at the edge of the mixing zone and at the control sites for analysis of suspended solids (TSS) and turbidity (NTU) for analysis for compliance against the standards in Condition 36. Results of this monitoring are to be reported to the council's assigned monitoring officer in writing within one week of the occurrence of monitoring.







SHOREWISE
ENGINEERING CONSULTANTS

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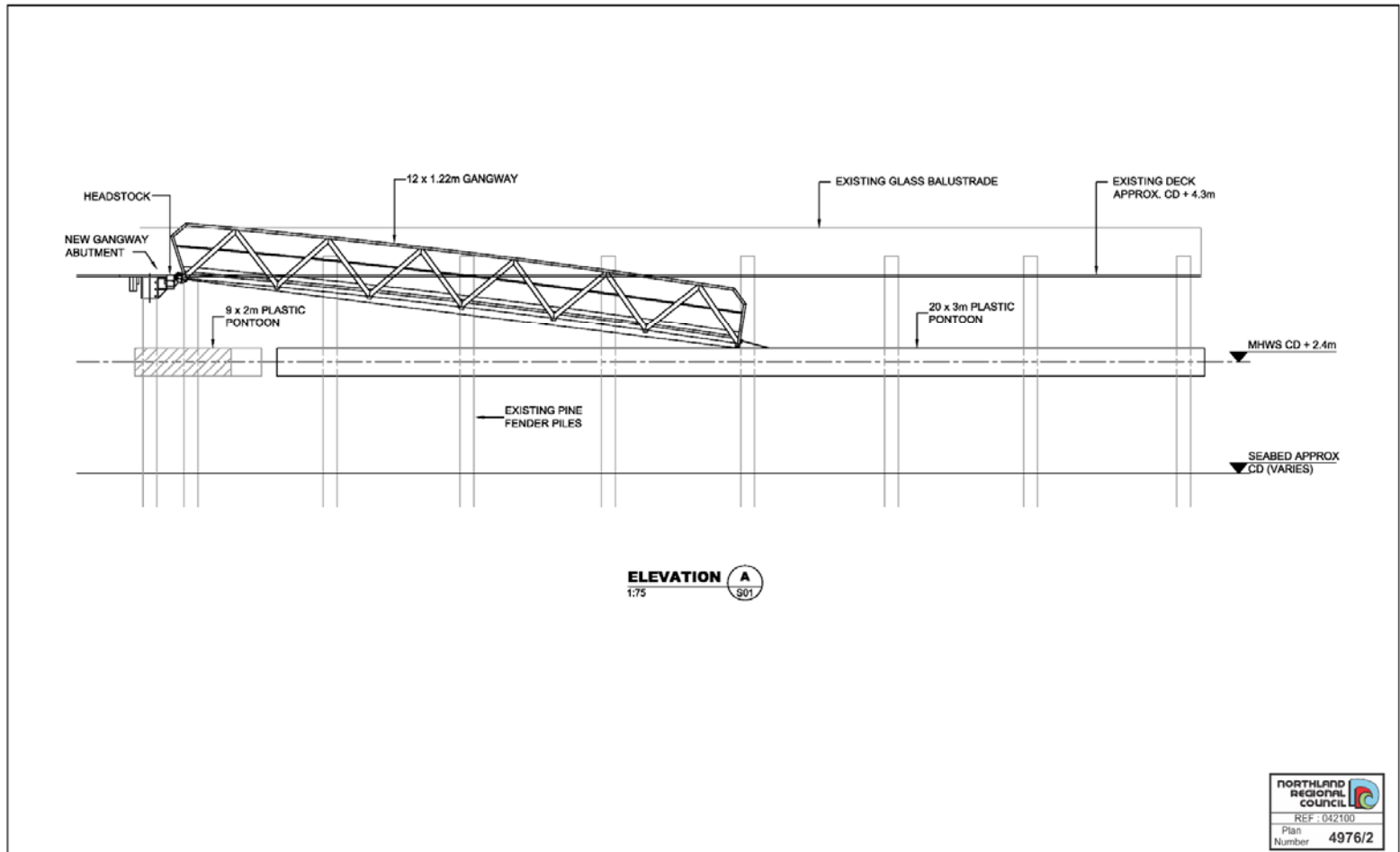
CLIENT
STF MARINE

REV	DETAILS	DATE
1		
2		
3		
4		
5		

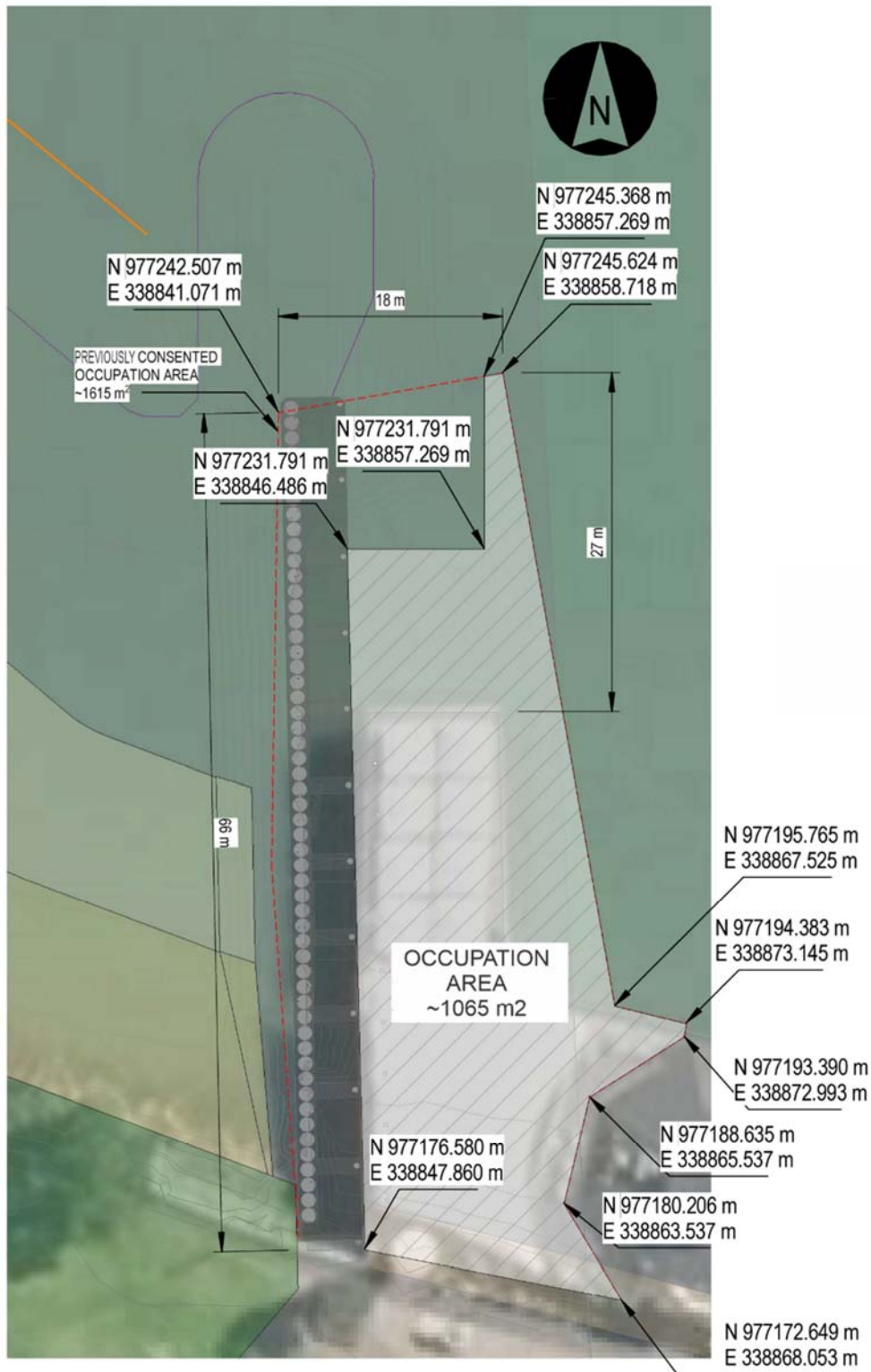
PROJECT
THE DECK PAIHIA
- PROPOSED NEW PONTOONS
SHEET DESCRIPTION
GENERAL ARRANGEMENT PLAN

STATUS		
DRAWN BY	APPROVED BY	SHT
WS	RB	A3
PROJECT NO.	SHEET NO.	REV
20-0055	01	

NORTHLAND
REGIONAL
COUNCIL
REF: 042100
Plan
Number
4976/1



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		-	-	-	THE DECK PAIHIA	DRAWN BY	APPROVED BY	SHT
					- PROPOSED NEW PONTOONS	WS	RB	A3
					SHEET DESCRIPTION	PROJECT NO.	SHEET NO.	REV
					GENERAL ARRANGEMENT ELEVATION	20-0055	02	



COORDINATES IN Mt. EDEN 2000



Occupation Area
for a
Deck and Associated Facilities
Paihia, BOI

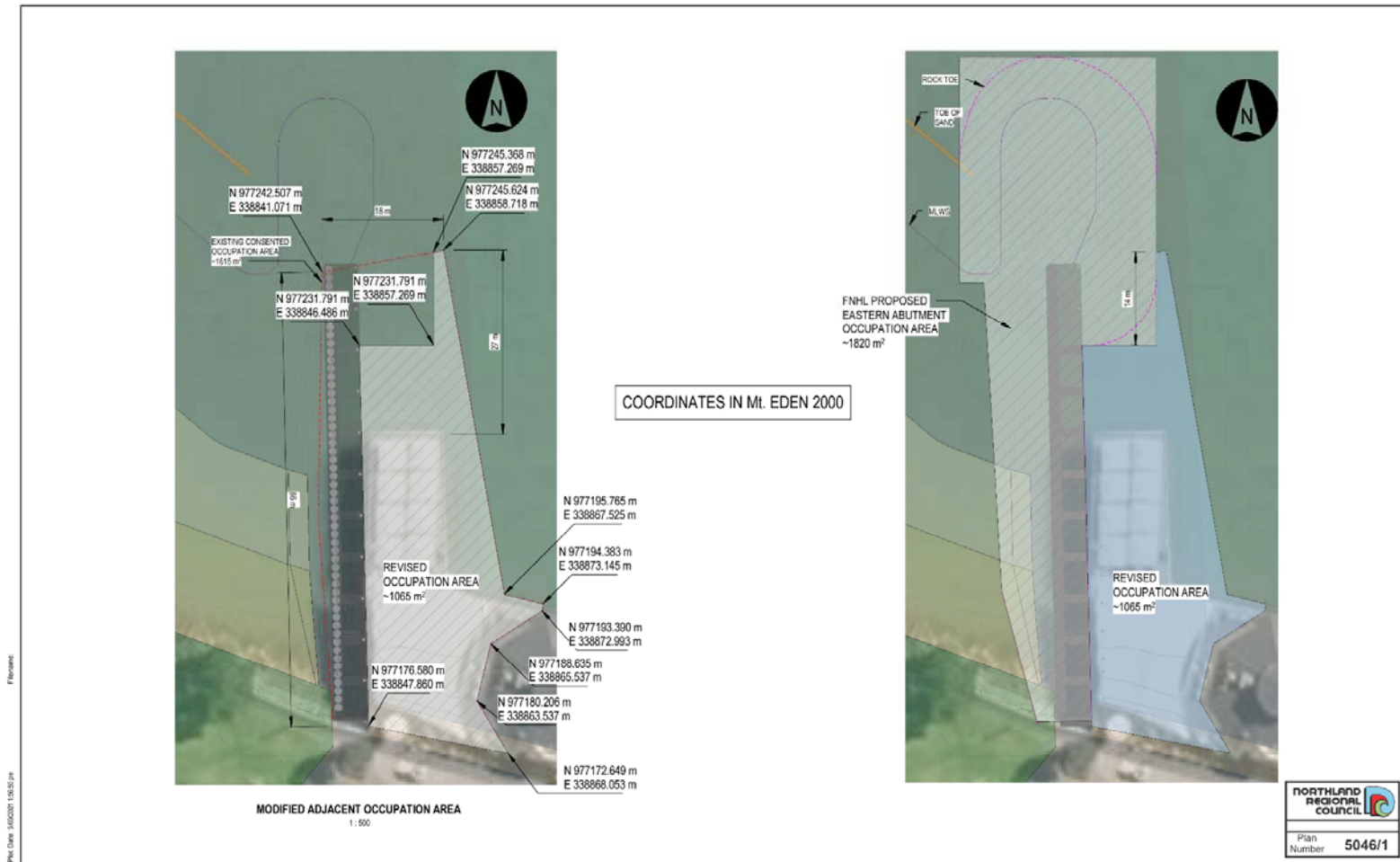
Scale: N.T.S.

Drawn: PMAX 09/21

REF: 42100

Plan Number.

5042



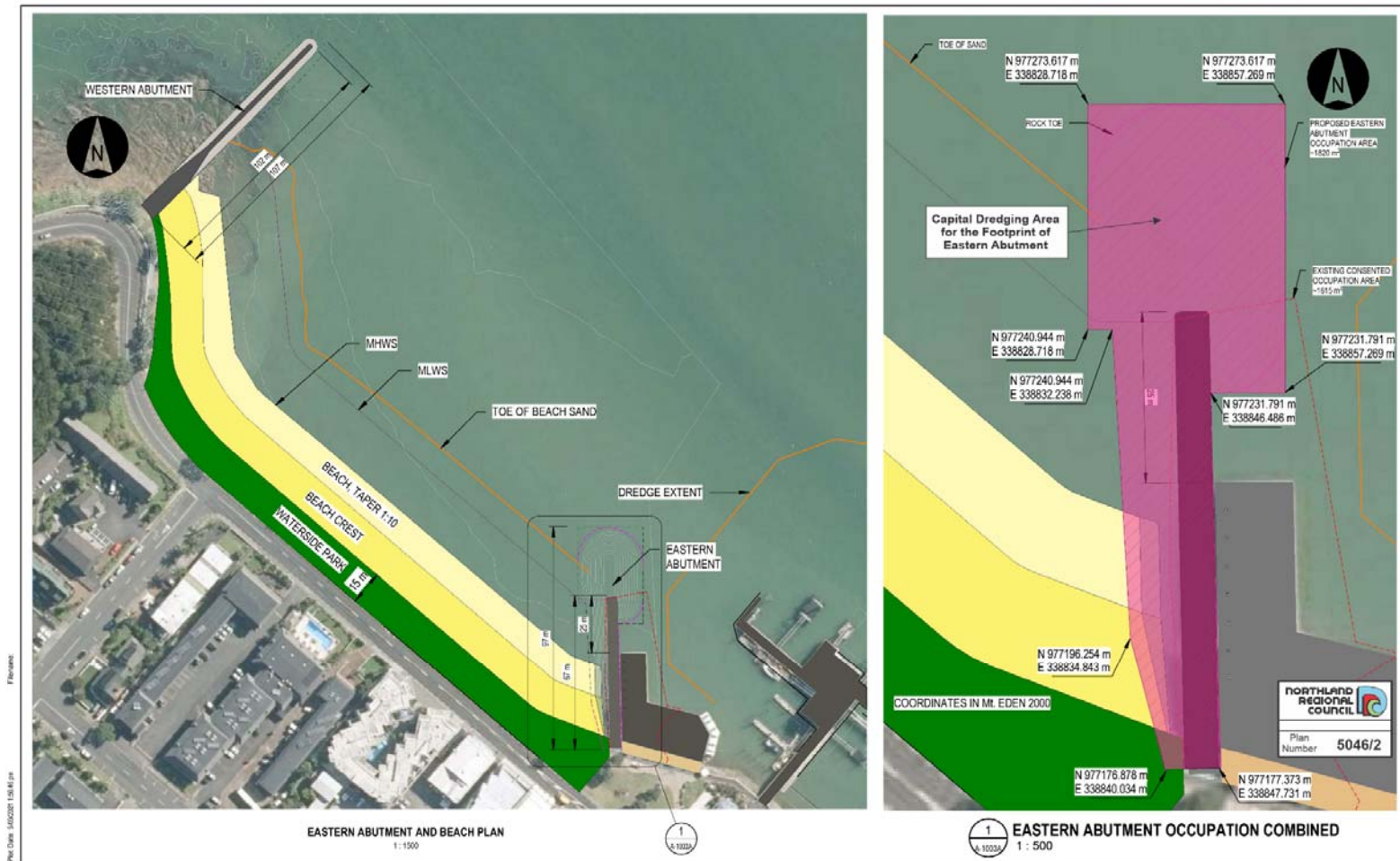
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LANDSCAPE ARCHITECTURE
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REV	DETAILS	DATE	PROJECT	STATUS		
0	ISSUED FOR CONSENT	09/09/2021	20-0057 PAIHIA WATERFRONT	FOR CONSENT		
			SHEET DESCRIPTION	DRAWN BY	APPROVED BY	SHT
			MODIFIED ADJACENT OCCUPATION AREAS	MW	RB	A3
				PROJECT NO.	SHEET NO.	REV
				20-0057	A-1003C	0



Plan Date: 19/02/2021 15:06:29

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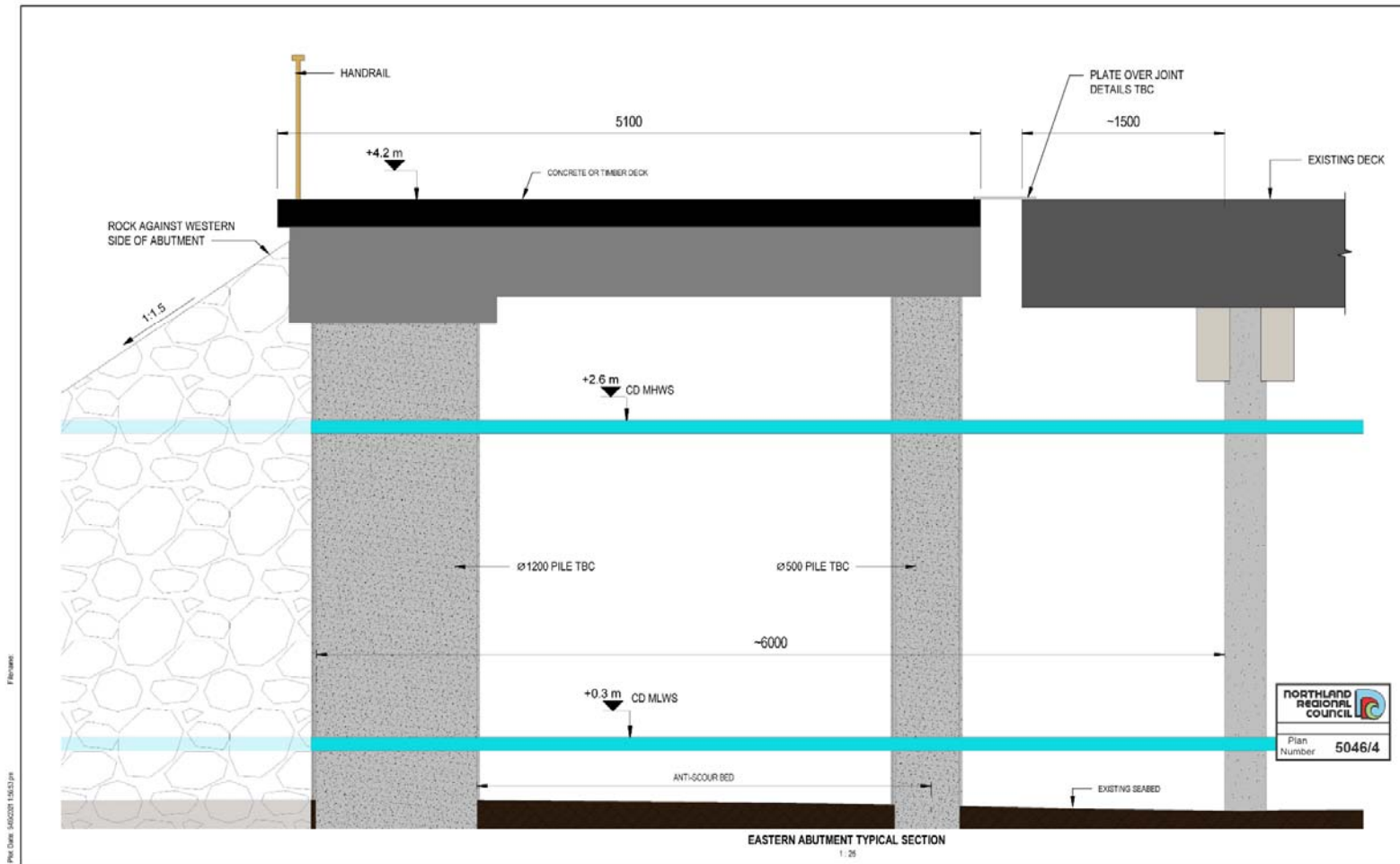
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REV.	DETAILS	DATE
0	ISSUED FOR REVIEW	19/04/2021
1	ISSUED FOR REVIEW	07/05/2021
2	RE-ISSUED FOR REVIEW	21/07/2021
3	ISSUED FOR CONSENT	30/08/2021

PROJECT	STATUS
20-0057 PAIHIA WATERFRONT	FOR CONSENT
SHEET DESCRIPTION	DRAWN BY
EASTERN ABUTMENT AND BEACH AREAS	MV
	APPROVED BY
	RB
	SHT
	A3
	PROJECT NO.
	SHEET NO.
	REV
	20-0057
	A-1003A
	3

PROJECT	STATUS
20-0057 PAIHIA WATERFRONT	FOR CONSENT
SHEET DESCRIPTION	DRAWN BY
EASTERN ABUTMENT AND BEACH AREAS	MV
	APPROVED BY
	RB
	SHT
	A3
	PROJECT NO.
	SHEET NO.
	REV
	20-0057
	A-1003A
	3



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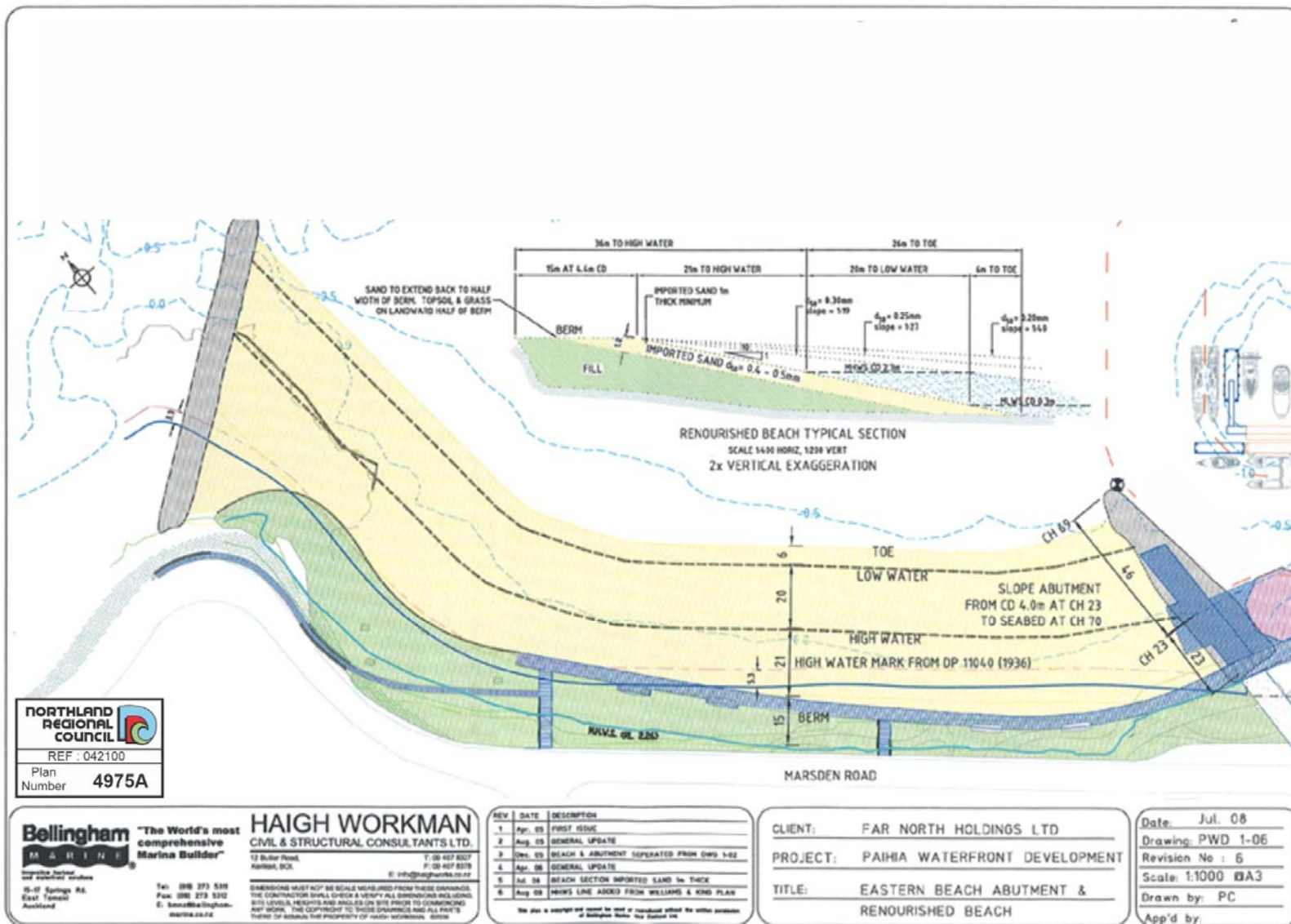
CLIENT

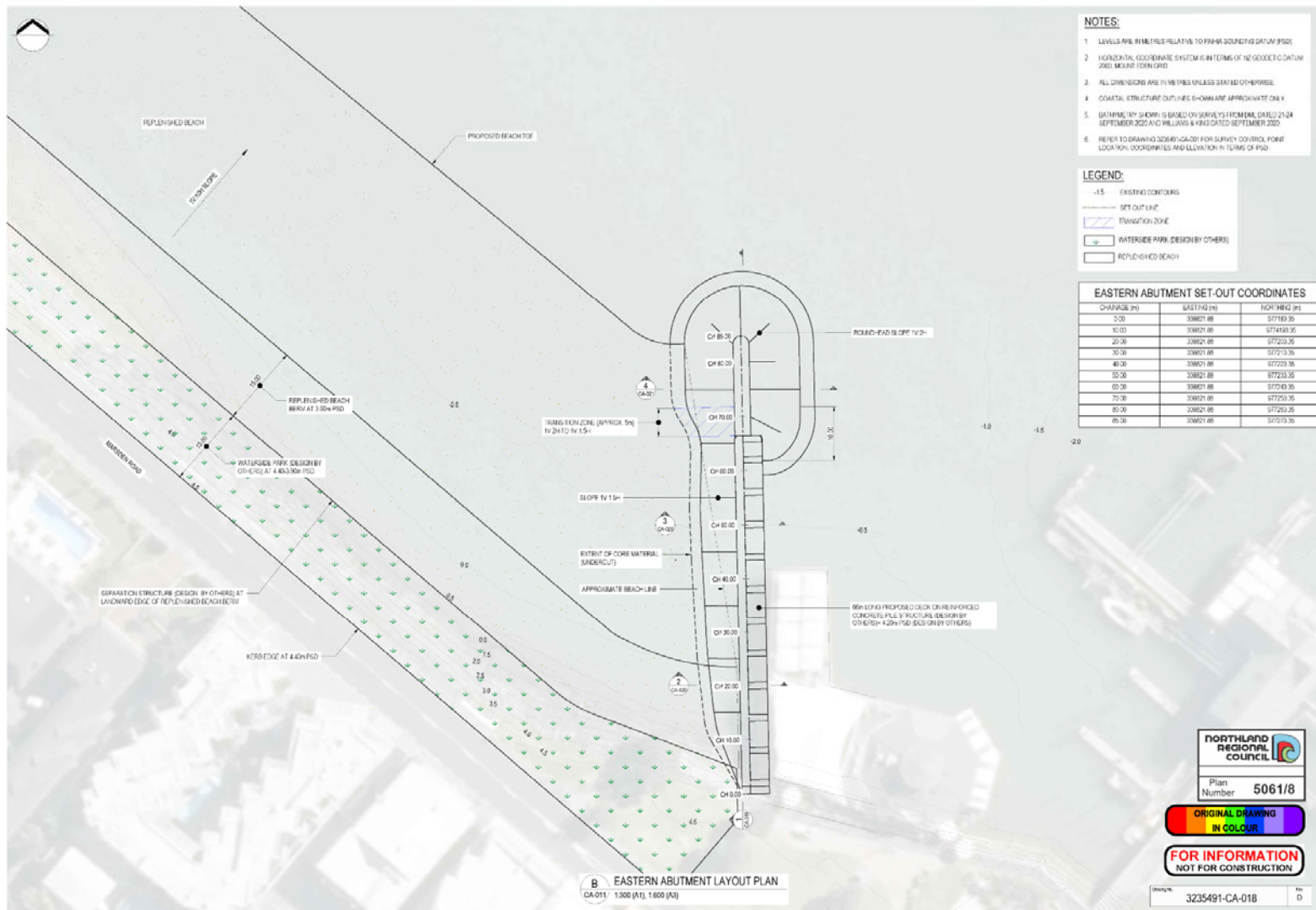
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REV.	DETAILS	DATE
0	ISSUED FOR REVIEW	21/07/2021
1	ISSUED FOR CONSENT	30/08/2021

PROJECT	20-0057 PAIHIA WATERFRONT
SHEET DESCRIPTION	EASTERN ABUTMENT TYPICAL SECTION

STATUS		
FOR CONSENT		
DRAWN BY	APPROVED BY	SHT
MW	RB	A3
PROJECT NO.	SHEET NO.	REV
20-0057	A-1005	1



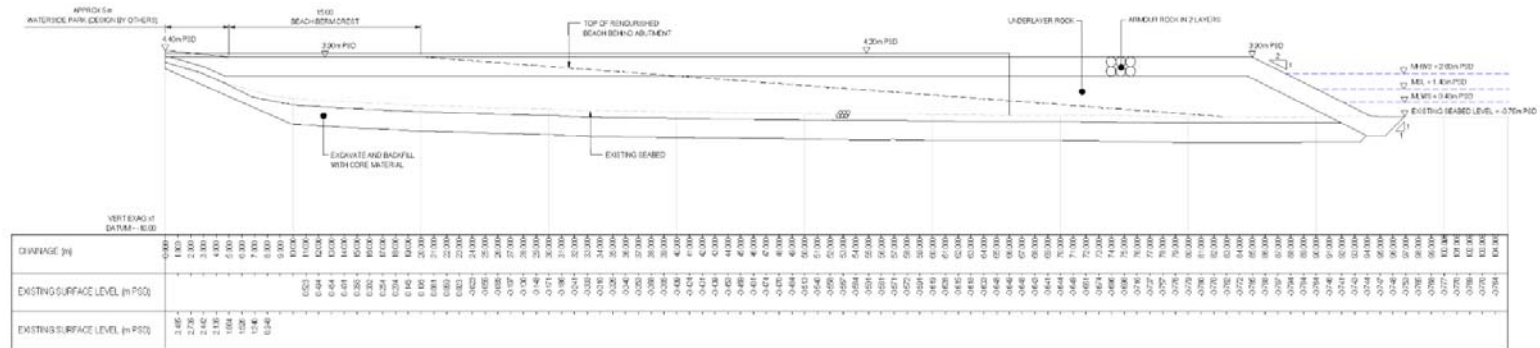


NOTES:

1. LEVELS ARE IN METRES RELATIVE TO PIMA SQUADRON DATUM (PSD).
2. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
3. BATHYMETRY ISOWALS BASED ON SURVEYS FROM 1924 TO 1926 AND 1928 TO 1930.
4. TO BE REACH ACCORDANCE WITH THE ROCK SPECIFICATION (DRAWING 3235-41-CA-03 AND 3235-41-CA-05).
5. GEOTEXTILE AS SHOWN ON DRAWING 3235-41-CA-03 AND 3235-41-CA-05.
6. EXISTING ROCK ISWALL TO BE REMOVED PRIOR TO CONSTRUCTION OF THE ABUTMENT AND EXISTING ROCK TO BE REUSED WHERE POSSIBLE.

LEGEND:

- EXISTING BEAMED
- BEACH LINE



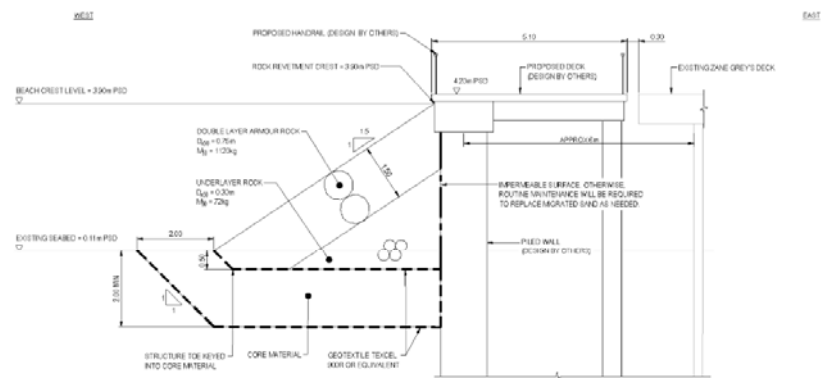
1 EASTERN ABUTMENT LONG SECTION
CA-019 1:100 (A1), 1:500 (A2)



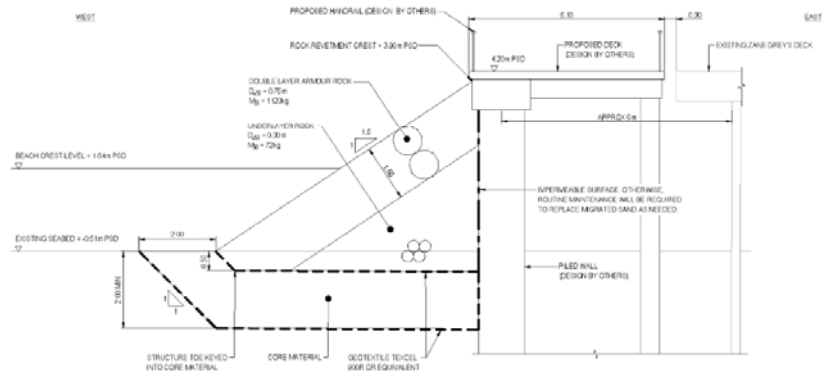
Plan Number 5061/9



Drawing No. 3235-491-CA-019 Rev. D



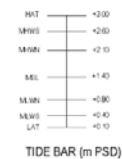
2 EASTERN ABUTMENT CROSS SECTION AT CHAINAGE 20.00m
CA019 1:50 (A1), 1:100 (A2)



3 EASTERN ABUTMENT CROSS SECTION AT CHAINAGE 50.00m
CA019 1:50 (A1), 1:100 (A2)

NOTES:

- LEVELS ARE IN METRES RELATIVE TO PAPA SOUNDING DATUM (PSD)
- ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE
- TO BE READ IN ACCORDANCE WITH THE ROCK SPECIFICATION (DWS 323441-CA-035 AND 323441-CA-036)
- AS SYMMETRY SHOWN IS BASED ON THE DRL SURVEY DATED 21/04/2018 (BSC 200)
- THE CROSS SECTION WILL VARY ALONG THE LENGTH OF THE ABUTMENT



LEGEND:

EXISTING SEABED



ORIGINAL DRAWING
IN COLOUR

FOR INFORMATION
NOT FOR CONSTRUCTION

3235491-CA-020

ARMOUR ROCK SPECIFICATION

GENERAL

THIS SPECIFICATION SHALL BE READ IN CONJUNCTION WITH THE STANDARD CRMA 000 THE ROCK MANUAL. THE USE OF MINERAL ROCK IN ENGINEERING, 2007 AND ALL MATERIALS AND WORKMANSHIP SHALL COMPLY WITH THE STANDARD UNLESS EXPRESSLY NOTED OTHERWISE.

THE CONTRACTOR SHALL PREPARE A METHOD STATEMENT FOR THE ENGINEER'S REVIEW INCLUDING SOURCES OF MATERIALS AND QUARRYING HOW THE SPECIFIED ROCK GRADING WILL BE ACHIEVED. HANDLING, TRANSPORT AND STOCKPILING OF ROCK, WORK SEQUENCE, ROCK PLACEMENT AND TOLERANCES, EXPERIENCE OF KEY PERSONNEL, DRAINAGE INSPECTIONS, INCLUDING SAFETY AND LEGISLATIVE REQUIREMENTS, EMERGENCY PLANS FOR STORM AND NATURAL HAZARD EVENTS, WEATHER AND CLIMATE, FORECASTING AND WARNING SYSTEMS, SURVEY TECHNIQUES, PROCEDURES FOR SAMPLING AND TESTING PROCEDURES, HEALTH AND SAFETY AND ENVIRONMENTAL MATTERS. THE WORK METHOD STATEMENT SHALL ADDRESS THE SPECIFIED TOLERANCES FOR THE MATERIALS TO BE PLACED, THE ADAPT AND WEATHER GRADING AND CONDITIONS, THE OPERATING KNIFE, VIBRATOR, TAMPING, AND THE MEASURES TO CONTAIN MATERIALS DURING CONSTRUCTION AND TO PREVENT LOSS OF MATERIALS IN ADVERSE CONDITIONS.

THE CONTRACTOR SHALL NOMINATE AT THE TIME OF TENDER, THE SOURCE AND MATERIAL TYPE FOR THE ROCK. SOURCE TESTING AND GRADING IS REQUIRED FOR EACH OF THE TESTS DESCRIBED BELOW UNDER ROCK QUALITY AND ROCK GRADING AND RESULTS TO BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO THE COMMENCEMENT OF WORK. TESTS TO BE UNDERTAKEN AT AN ADEQUATE LABORATORY.

THE CONTRACTOR SHALL CONDUCT A TRIAL TO DEMONSTRATE HOW THE PROPOSED WORK METHODS AND RESOURCES WILL PERFORM IN THE BREAKWATER BRINGING IT INTO ACCORDANCE WITH THE SPECIFICATION. THE TRIAL SHALL EXTEND OVER THE FULL LAYER HEIGHT IN A SINGLE PASS AND A MINIMUM WIDTH OF 10M. PROVIDED THE TRIAL MEETS THE SPECIFICATION, THE TRIAL PAVEMENT MAY BE INCORPORATED INTO THE PERMANENT WORKS.

THE CONTRACTOR SHALL CARRY OUT PRE AND POST WORK SURVEYS, MEASUREMENT SURVEYS TO SUPPORT PROGRESS PAYMENT APPLICATIONS, SURVEYS TO MONITOR SETTLEMENT OF ROCK STRUCTURE, BELOW AND ABOVE WATER AND INTERMEDIATE SURVEYS (ONAL COMPUTATIONS OF EACH FACE OF WORK). SURVEY OF ROCK BE CARRIED OUT USING A COMBINATION OF GPS SURVEY SYSTEMS, ROBOTS TO CONSTRUCTION EQUIPMENT. NARROW BEAM SONAR SOUNDING OR SMALL BEAM SONAR SOUNDING MAY BE USED. THE PROPOSED SURVEY SYSTEMS TO BE INCLUDED IN THE CONTRACTORS WORK METHOD STATEMENT FOR REVIEW BY THE ENGINEER.

ROCK QUALITY: ARMOUR ROCK AND UNDERLAYER

EACH TEST SPECIFIED BELOW SHALL COMPRISE A MINIMUM OF THREE SAMPLES.

- ARMOUR ROCK AND UNDERLAYER SHALL BE HARD, DENSE, COMPACT, GRAINED OR NATURAL STONE FREE FROM VISIBLY OBSERVABLE OR CHEMICALLY DETECTABLE IMPURITIES, DUST, CLAY, ORGANIC MATTER AND CONSIDERABLE FINE MATERIAL. THE STONE SHALL BE FREE FROM FRACTURES AND CRACKS AND SHALL NOT DISINTEGRATE ON EXPOSURE TO WEATHERING.
- ROCK SHALL BE CRUSHED, ANGULAR SHIPPED MATERIAL, CONFORMING WITH THE REQUIREMENTS OF THE SPECIFICATION. FROM SOURCE MINOR SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER. UNCONFINED COMPRESSIVE STRENGTH SHALL BE A MINIMUM OF 30MPa WHEN TESTED IN ACCORDANCE WITH NZS 4476, UNLESS OTHERWISE SPECIFIED. EACH TEST SHALL COMPRISE A MINIMUM OF THREE SAMPLES.
- THE MINIMUM DRY DENSITY (SSD) OF ARMOUR ROCK AND UNDERLAYER FOR THE BREAKWATERS SHALL BE 2.45 t/m³ WHEN TESTED IN ACCORDANCE WITH NZS 4476.
- THE MINIMUM DRY DENSITY (SSD) OF ARMOUR ROCK AND UNDERLAYER FOR THE EASTERN ADJUTMENT SHALL BE 2.35 t/m³ WHEN TESTED IN ACCORDANCE WITH NZS 4476.
- THE ARMOUR ROCK AND UNDERLAYER SHALL HAVE A WATER ABSORPTION LESS THAN 10% IN ACCORDANCE WITH NZS 3311.
- ARMOUR ROCK AND UNDERLAYER RESISTANCE TO ABRASION - LOS ANGELES ABRASION NOT MORE THAN 25% LOSS IN WEIGHT IN ACCORDANCE WITH NZS 4476.
- THE QUARRY STONE USED FOR ARMOUR ROCK AND UNDERLAYER SHALL HAVE A QUALITY INDEX OF A, B, C, OR D, WHEN TESTED IN ACCORDANCE WITH NZS 4476.
- QUARRY STONE USED FOR ARMOUR ROCK AND UNDERLAYER SHALL HAVE A CRUSHING RESISTANCE NOT LESS THAN 100N TO PRODUCE A MAXIMUM OF 10% FINES WHEN TESTED IN ACCORDANCE WITH NZS 4476.

ROCK GRADING

1. QUARRY RUN CORE

QUARRY RUN MATERIAL FOR USE IN THE BREAKWATER CORE SHALL BE CAPABLE OF ACHIEVING A RELATIVELY HIGH DENSITY WITHOUT COMACTION WHEN ENVELOPED UNDER WATER.

QUARRY RUN SHALL BE FINELY GRADED DOWN TO SAND, WITH MATERIAL SMALLER THAN 75mm NOT TO EXCEED 10% OF TOTAL WEIGHT. THE TARGET GRADING IS:

QUARRY RUN GRADING						
ROCK SIZE (mm)	10	20	75	150	400	500
% PASSING	0	4	10	34	75	97

THE CONTRACTOR SHALL DEVELOP A QUARRY RUN GRADING WITH UPPER AND LOWER LIMITS AND SUBMIT TO THE ENGINEER FOR REVIEW PRIOR TO ROCK PRODUCTION.

2. UNDERLAYER, ARMOUR AND ARCHITECTURAL ROCK

THE MASS DISTRIBUTION AND THE MEDIAN MASS SHALL BE DETERMINED IN ACCORDANCE WITH SECTION 4.3 OF CRMA 000, THE ROCK MANUAL, AND SHALL CONFORM TO THE FOLLOWING TABLE:

ROCK GRADING								
M ₅₀	D ₅₀	GRADING CLASS DERIVATION	LAYER THICKNESS	ELL	NLL	NLL	NLL	RL
80	90	RD	0.6	5.0	5.0	5.0	5.0	5.0
WESTERN UNDERWATER, NORTHERN BREAKWATER, WESTERN ADJUTMENT, EASTERN ADJUTMENT								
110	0.75	ARMOUR	1.50	30	540	550	550	250
75	0.00	UNDERLAYER	VARIES	15	20	100	100	220

WHERE M₅₀ IS THE MEDIAN MASS, M = 500 × D₅₀

D₅₀ IS THE NOMINAL DIAMETER CONSIDERING THE ROCK AS AN EQUIVALENT CUBE

D IS THE MEAN SIZE AND USED FOR ON SITE MEASUREMENT, CONSIDERATION TO BE CONFIRMED ON COMPARISON OF ROCK SUPPLY

THE CONTRACTOR SHALL DEVELOP GRADINGS WITH UPPER AND LOWER LIMITS BASED ON DATA IN THE ROCK GRADING TABLE AND SUBMIT TO THE ENGINEER FOR REVIEW PRIOR TO ROCK PRODUCTION.

- EXTREME LOWER LIMIT (ELL): THE MASS BELOW WHICH NO MORE THAN 1% PASSING BY MASS IS PERMITTED FOR M₅₀ GREATER THAN 300mm, 2% FOR M₅₀ LESS THAN 300mm.
- NOMINAL LOWER LIMIT (NLL): THE MASS BELOW WHICH NO MORE THAN 1% PASSING BY MASS IS PERMITTED.
- NOMINAL UPPER LIMIT (NLL): THE MASS BELOW WHICH NO LESS THAN 1% PASSING BY MASS IS PERMITTED.
- EXTREME UPPER LIMIT (ELL): THE MASS BELOW WHICH NO LESS THAN 1% PASSING BY MASS IS PERMITTED.

SAMPLING AND TESTING SHALL BE ACCORDING TO CRMA 000, THE ROCK MANUAL, USING AT LEAST 50 PIECES TAKEN AT RANDOM FROM STOCKPILES GREATER IN MASS THAN THE ELL.

ROCK SHAPE

- ALL ROCK SHALL BE ESSENTIALLY CUBIC OR SUBCUBIC WITH ELONGATED OR FLAT PLATE OF ROCK BEING UNDESIRABLE. QUARRY STONE USED FOR ARMOUR, UNDERLAYER AND ARCHITECTURAL ROCK SHALL HAVE A LENGTH (L) TO WIDTH (W) RATIO OF LESS THAN 1.5. FIFTY PERCENT (50%) OF STONES SHALL NOT HAVE A LENGTH GREATER THAN L.
- SAMPLING AND TESTING SHALL BE ACCORDING TO CRMA 000, THE ROCK MANUAL, USING AT LEAST 50 PIECES TAKEN AT RANDOM FROM STOCKPILES GREATER IN MASS THAN THE ELL.
- BLOCKS OF QUARRY STONE (HEAVY GRADINGS) SHOWING CLEAR SIGNS OF SIGNIFICANT EDGE OR CORNER ROUNDOFF OR OF SURFACE ROUNDOFF SHALL NOT BE ACCEPTED.

TEST FREQUENCY

- ROCK PROPERTIES AND GRADING TO BE UNDERTAKEN AND SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO WORK COMMENCEMENT.
- ROCK PROPERTIES AND GRADING TO BE REPEATED IF MATERIAL SOURCE CHANGES.
- THE CONTRACTOR SHALL CARRY OUT TESTING IN ACCORDANCE WITH THE FOLLOWING TABLE. THE ENGINEER MAY CARRY OUT CHECK TESTING. THE CONTRACTOR SHALL BE REQUIRED TO COORDINATE:

SOURCE TESTING BEFORE CONSTRUCTION

MATERIAL	TEST	FREQUENCY
QUARRY RUN CORE, ARCHITECTURAL ROCK, UNDERLAYER AND ARMOUR ROCK	DENSITY GRADING, RESISTANCE TO WEATHERING, RESISTANCE TO CRUSHING, RESISTANCE TO ABRASION, DROP TEST, ABSORPTION, UNCONFINED COMPRESSIVE STRENGTH	DENSITY ONE SET (20 TESTS) PER SET PER MATERIAL TYPE AND SOURCE. ALL REMAINING ONE SET (20 TESTS) PER SET PER MATERIAL TYPE AND SOURCE.

NO ROCK SHALL BE PLACED UNTIL ALL THE TEST RESULTS HAVE BEEN SUBMITTED TO AND REVIEWED BY THE ENGINEER.

TESTS AND INSPECTIONS DURING CONSTRUCTION

MATERIAL	TEST	FREQUENCY
QUARRY RUN CORE	DENSITY, WATER ABSORPTION AND LA ABRASION	1 TEST PER 7,000m ³
	GRADING AND SHAPE	1 TEST PER 3,000m ³
	DENSITY, WATER ABSORPTION AND LA ABRASION	1 TEST PER 7,000m ³
	GRADING AND SHAPE	1 TEST PER 3,000m ³
ARMOUR AND ARCHITECTURAL ROCK	DENSITY, WATER ABSORPTION AND LA ABRASION	1 TEST PER 7,000m ³
	GRADING AND SHAPE	1 TEST PER 3,000m ³
	DENSITY, WATER ABSORPTION AND LA ABRASION	1 TEST PER 7,000m ³
	GRADING AND SHAPE	1 TEST PER 3,000m ³
UNDERLAYER	DENSITY, WATER ABSORPTION AND LA ABRASION	1 TEST PER 7,000m ³
TRIMMED CORE, ARCHITECTURAL ROCK, ARMOUR AND UNDERLAYER	LINE AND LEVEL OF EACH LAYER	1 TEST PER 100m ² LONGITUDINALLY AND AT TRANSVERSE AND 1 TEST PER 3m SLOPE TRANSVERSELY AND AT ANGLE CHANGES

THE CONTRACTOR SHALL ALLOW FOR THE COSTS OF SAMPLING AND TESTING AS DESCRIBED ABOVE. TESTING SHALL BE CARRIED OUT BY AN ADEQUATE ACCREDITED LABORATORY AND THE RESULTS SHALL BE SUBMITTED TO THE ENGINEER AND REVIEWED PRIOR TO ANY CONSTRUCTION.

CONSTRUCTION

- PLACING OF EACH LAYER SHALL COMMENCE AT THE TOE AND SHALL PROCEED UPWARDS TOWARDS THE TOP, CONSTRUCTING THE FULL LAYER THICKNESS IN A SINGLE PASS.
- ROCK SHALL BE PLACED TO:
 - ACHIEVE A WELL KEVED, DENSELY PACKED STRUCTURE AND SUBMIT TO THE ENGINEER FOR REVIEW PRIOR TO CONSTRUCTION. WHERE THE CONTRACTOR USES ARMOUR ROCK DENSITY TESTS SPECIFIED THEY SHALL SPECIFY THE REVISED ROCK QUANTITY AND ADJUST THE TARGET PLACED DENSITY PRO-RATA.
 - ACHIEVE EFFECTIVE INTERLOCKING, SO THAT EACH ROCK IS SECURELY HELD IN PLACE BY ITS NEIGHBOURS AND DOES NOT EXPOSE ANY STRUCTURAL WEAKNESS. FOR STABILITY PRIOR TO PLACING FURTHER STONES.
 - ACHIEVE A FINISHED LAYER AT LEAST TWO ROCKS THICK UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
 - ADJUST FORMING, WITHIN THE OVERALL THICKNESS OF THE LAYER, SEPARATE LAYERS IN THE PLANE PARALLEL TO THE SLOPE OF THE UNDERLYING MATERIAL.
 - MINIMIZE ANY DISTURBANCE TO ALREADY PLACED ROCK.
 - AVOID DAMAGE TO ANY EXISTING STRUCTURES.
- UNDERLAYER AND ARMOUR ROCK SHALL BE PLACED AS SOON AS PRACTICABLE TO PROTECT THE UNDERLYING MATERIAL. MATERIAL EXPOSED BY WAVE ACTION OR ANY OTHER CAUSE SHALL BE MADE GOOD BY THE CONTRACTOR. AT THE CONTRACTOR'S CONVENIENCE BEFORE PLACING THE APPROPRIATE PROTECTIVE LAYER.
- UNDERLAYER ROCK SHALL BE DEPOSITED CAREFULLY SO THAT GEOTECHNICAL FABRICS NOT IN CONTACT. WHERE GEOTECHNICAL IS PRESENT ROCK SHALL NOT BE DEPOSITED. UNWARRANTED HEIGHT OF THE UNDERLAYER ROCK SHALL BE LIMITED TO 100mm. THE CONTRACTOR SHALL BE PERMITTED TO USE ROCK TRAYS FOR PLACEMENT OF THE UNDERLAYER.
- ARMOUR AND ARCHITECTURAL ROCK SHALL BE INDIVIDUALLY PLACED, PILE BY PILE INTO THE STRUCTURE TO ACHIEVE A MINIMUM POINT SUPPORT AND BE SUBMIT TO THE LINE AND LEVEL OF THE DRAWINGS. THE STONE SHALL BE DEPOSITED CAREFULLY SO THAT THE GEOTECHNICAL FABRIC IS NOT PUNCTURED. THE DROP TEST BREAKAGE INDEX BASED ON SAMPLING AND TESTING AS DESCRIBED IN CRMA 000 SHALL BE LESS THAN 10.

TOLERANCES

- HORIZONTAL TOLERANCE FOR THE BREAKWATER AXIS AND FOOTPRINT TO BE ±300mm.
- THE VERTICAL TOLERANCES FOLLOW ACCORDING TO ROCK CLASS AND LOCATION:

LEVEL OF PLACING	QUARRY RUN CORE	UNDERLAYER, ARMOUR AND ARCHITECTURAL ROCK	
		ON INDIVIDUAL MEASUREMENTS (N)	DESIGN PROFILE TO ACTUAL MEAN PROFILE (N)
ABOVE CHART DATUM (BY CG)	± 0.20m	± 0.30m ± 0.40m	± 0.35m ± 0.40m ± 0.25m ± 0.40m
BELOW CHART DATUM (BY CG)	± 0.20m -0.30m	± 0.50m ± 0.40m	± 0.45m ± 0.40m -0.40m ± 0.40m

NOTWITHSTANDING THE TOLERANCES ABOVE, THE FOLLOWING SHALL APPLY TO ARMOUR LAYERS:

- THE TOLERANCES ON TWO CONSECUTIVE MEAN ACTUAL PROFILES SHALL NOT BE NEGATIVE.
- NOTWITHSTANDING ANY ACCUMULATION OF POSITIVE TOLERANCES ON UNDERLYING LAYERS, THE THICKNESS OF THE LAYER SHALL NOT BE LESS THAN 10% OF THE NOMINAL THICKNESS SHOWN ON THE DRAWINGS WHEN CALCULATED USING MEAN PROFILES.
- THE ACTUAL MEAN PROFILE IS THE LINE TAKEN AT THE BOTTOM OF THE SLOPE AND AT THE TOP OF THE SLOPE.



Plan Number 5061/12



3235491-CA-025

1

ARMOUR ROCK SPECIFICATION

GEOTEXTILE

1. GEOTEXTILE TO BE TEXCEL 800R OR EQUIVALENT
2. THE GEOTEXTILE FABRIC SHALL BE PLACED AT THE LOCATIONS SHOWN ON THE DRAWINGS. THE SITE SHALL BE PREPARED BY CLEARING AND GRADING THE AREA REQUIRED. ALL SHARP OBJECTS AND STONES SHALL BE REMOVED. GEOTEXTILES SHALL BE PLACED JUST AHEAD OF ASSOCIATED ADVANCING CONSTRUCTION WORK AND BE COVERED BY THE UNDERLAYER WITHIN 48 HOURS OF BEING PLACED AND WITHOUT PUNCTURES OR TEARS
3. GEOTEXTILE SHALL BE STABILISED AGAINST ULTRAVIOLET LIGHT AND SHALL NOT BE PERMANENTLY IMPAIRED BY TEMPORARY EXPOSURE TO DIRECT SUNLIGHT DURING CONSTRUCTION. GEOTEXTILE SHALL BE SUPPLIED IN ROLLS AT LEAST 4 M WIDE
4. THE GEOTEXTILE SHALL BE KEPT IN ITS PROTECTIVE WRAPPING ON THE SITE AND STORED OUT OF DIRECT SUNLIGHT SO IT IS NOT EXPOSED TO ULTRAVIOLET LIGHT PRIOR TO INSTALLATION. GEOTEXTILE THAT IS NOT IMMEDIATELY COVERED AFTER INSTALLATION SHALL BE COVERED WITH AN APPROVED MATERIAL OF SUFFICIENT THICKNESS TO PROTECT IT FROM ULTRAVIOLET LIGHT. GEOTEXTILE THAT IS DAMAGED SHALL BE REJECTED AND REMOVED FROM SITE
5. THE LAP WIDTH OF ADJACENT STRIPS OF GEOTEXTILE SHALL DEPEND ON THE METHOD OF JOINTING AS FOLLOWS:

JOINT METHOD	MINIMUM LAP WIDTH (mm)
FACTORY STITCHED	150
LAP ONLY	1000

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REGIONAL
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Plan
Number

5061/13

FOR INFORMATION

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Drawing No.

3235491-CA-026

Rev.

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