

Ōmāpere Seawall

for

Clutterbuck & Petrie



Assessment of Environmental Effects

and

Application for Resource Consents

Northern Regional Council

October 2020



Ōmāpere Seawall

264 & 266 SH12 Foreshore, Ōmāpere

APPLICANTS:

264 SH12 Ōmāpere:

A.N. Petrie & H. Petrie

266 SH12 Ōmāpere:

M.J. Clutterbuck & P.L Harvey

**Assessment of Environmental Effects and
Application for Resource Consent**

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P.O. Box 185

Orewa

P: 09 428 0040

M: 021 627 193

E: coastal@daviscoastal.co.nz

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1.0 Introduction

The Applicant's properties are at 264 and 266 State Highway 12, Ōmāpere. They face onto the Hokianga Harbour, along a stretch of coastline characterised by a tall sandy dune scarp. Cliff retreat driven by erosion of the dune toe is threatening the backshore and the Applicant's properties. It is proposed to place a rock riprap seawall to protect the bank toe from further retreat, ensuring the Applicant's dwellings remain viable.

A timber foreshore access stair is proposed, to provide the Applicants with coastline access. Earthworks to reshape the bank slope will be undertaken and the slope re-planted with dune-binding species.

Application for Resource Consent is being sought for these Activities. A single application is being made on behalf of both parties. The proposed seawall will be a cohesive structure, armouring the beachfront of both Applicant's properties. However, two separate Resource Consents are sought, for the extent of structure seaward of each property.

The Applicants have instructed Davis Coastal Consultants to act for them in this matter and prepare this Application Report and Assessment of Environmental Effects.

1.1 *Resource Consents Sought*

A summary of the Consents sought is presented in Table 1.1.

All works occur above Mean High Water Springs, and this application therefore falls under the jurisdiction of the *Northland Regional Water and Soil Plan*. A separate Application will be made to the Far North District Council (FNDC) for additional Consents under the Far North District Plan.

In addition, the *Northland Regional Plan – Appeals Version* was published on the 29th July 2019, and updated in August 2020, and the relevant provisions having immediate legal effect have been addressed within this application pursuant to Section 86(3) of the Resource Management Act.

Resource Consent for Land Use that ‘*contravenes a Regional rule*’ is sought under Section 9 (2) of the Resource Management Act.

Application is made for Land Use Consents for Land Disturbance and Earthworks under the Northland Regional Water and Soil Plan (NRWSP). The works are defined as Discretionary Activities.

Application is also made under the Proposed Northland Regional Plan – Appeals Version for the construction of hard protection structures as a Discretionary Activity.

Overall, the proposal is considered to require Consent as a Discretionary Activity under the relevant Regional Plans.

Consent	RMA Clause	Plan	Clause	Activity Status
Land Disturbance within Riparian Management Zone – Earthworks more than 50m ³ /200m ²	9(2)	NRWSP	34.3.1	Discretionary
Land Disturbance adjacent to Site of Significance to Maori	9(2)	NRWSP	34.3.1	Discretionary
Vegetation Clearance in Riparian Management Zone – does not exceed 200m ²	9(2)	NRWSP	34.2c(ii)	Permitted
Land disturbance activities within the Riparian Management Zone – Environmental Standards	9(2)	NRWSP	34.1.3	Discretionary
Hard Protection Structures	9(2)	NRC Appeals Version	C1.1.22	Discretionary
Earthworks – within Coastal Riparian and foredune management area – 200m ² exposed earth at any time.	9(2)	NRC Appeals Version	C.8.3.1	Permitted

Table 1.1 – Summary of consents sought

1.2 Definitions

Within this report terminology for the intertidal and tidal area is consistent with those defined in the Resource Management Act:

Coastal Marine Area – CMA – *“means the foreshore, seabed, and coastal water, and the air space above the water -*

(a) of which the seaward boundary is the outer limits of the territorial sea:

(b) of which the landward boundary is the line of mean high water springs...”

Common Marine and Coastal Area – CMCA – *“means the marine and coastal area other than –*

(a) specified freehold land located in that area; and

(b) any area that is owned by the Crown...”

Mean High Water Springs – MHWS – *“the average of the heights of each pair of successive high waters during that period of about 24 hours in each semi-lunation (approximately every 14 days) when the range of tides is the greatest”*

Foreshore – *“means any land covered and uncovered by the flow and ebb of the tide at mean spring tides and, in relation to any such land that forms part of the bed of a river, does not include any area that is not part of the coastal marine area”*

Backshore – All land above Mean High Water Springs

2.0 Description of Existing Environment

2.1 Location

The site is located at Ōmāpere, on the eastern bank of the Hokianga Harbour, in Northland (Figure 2.1a). The Applicant's properties are located at 264 and 266 State Highway 12, Ōmāpere. They are bounded by State Highway 12 to the east and the Hokianga Harbour to the west (Figure 2.1b).

The subject properties are legally described as Lot 2 DP196729 (No 264) and Lot 1 DP310507 (No 266). Two parcels of Esplanade Reserve land are located seaward of the subject properties, legally described as Lot 5 DP196729 and Lot 2 DP91297. As discussed subsequently (Section 6.1.1) historic erosion is such that title to the most seaward Reserve (Lot 2 DP91297) has been divested and is now CMCA.

The proposed seawall is primarily located within these adjacent Reserve areas seaward of the subject residential properties, at approximate co-ordinates 1635250mE, 6068090mN on the New Zealand Transverse Mercator Projection.

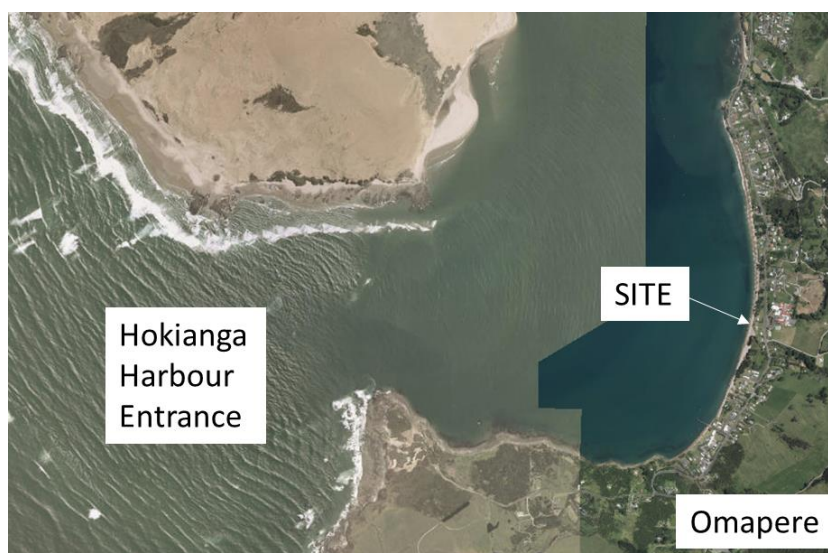


Figure 2.1a: Location Plan



Figure 2.1b: Applicant's properties and adjacent Esplanade Reserves

2.2 Wider Physical Environment

The Hokianga Harbour is the fourth largest harbour in New Zealand, located on Northland's west coast. The origins of the Hokianga Harbour are that of a drowned river valley, formed when sea levels rose to their current levels approximately 7,000 years ago. The upper harbour is characterised by a network of meandering river channels and tidal mudflats, with the main harbour basin having an elongated form orientated from south-west to north-east, approximately 2km wide. The landform of the harbour basin is dominated by the large dunes to the northern arm of the harbour spit. The entrance to the harbour is approximately 1km wide and characterised by strong tidal currents, the large waves of the open coast, and an entrance bar (additional information on the wider harbour processes is provided in Section 3.5).

The small coastal town of Ōmāpere borders the harbour's southern shore, approximately 2km upstream from the harbour entrance. It has a slightly embayed coastline that generally faces in a westerly direction. The coastal margin is characterised by a sandy beach with a higher rear dune system, typically modified with housing development above the dune. Dune vegetation tends to be predominately pine, overhanging grasses and small exotic and native plants, although there are some larger mature Pohutukawa towards the central embayment. The

landward area behind the coastal plain is a mixture of residential, rural and bushland, with a hilly topography.

2.2.1 Site Geology

Review of the 1:250,000 Geology Map of New Zealand provided online by GNS Science indicates the site is underlain by *“unconsolidated to poorly consolidated sand, peat, mud and shell deposits of the Karioitahi Group (estuarine, lacustrine, swamp, alluvial and colluvial)”*, with the deposit of these sediments running along the eastern bank of the Harbour (Figure 2.2.1). Landward of this (the orange geological units) are conglomerate and sandstone derived from the Northern Allocthon comprising the Waititi, the Otueka and the Waiwhatawhata Formations.

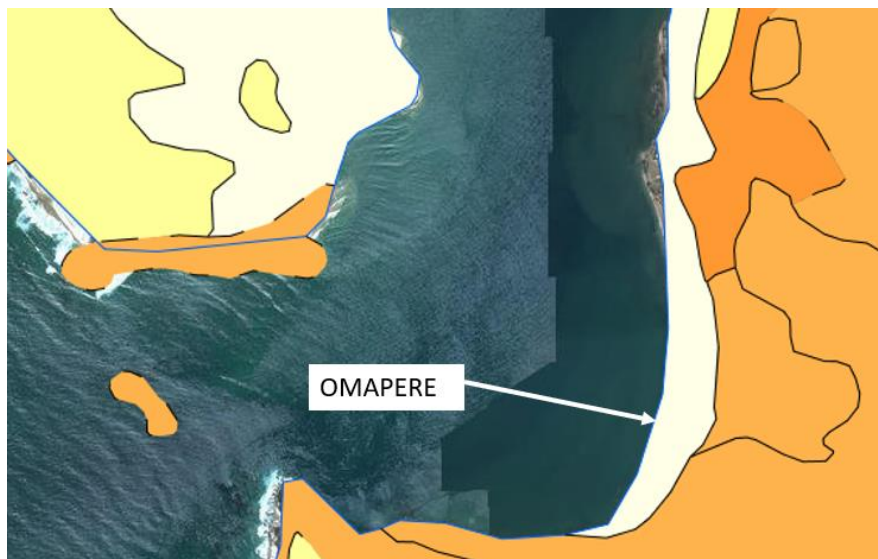


Figure 2.2.1: Excerpt from the Geology of the Auckland Urban Area – IGNS

2.2.2 Nearshore Bathymetry

Hydrographic Chart NZ4212 published by Land Information New Zealand (LINZ) provides information on the bathymetry of the mouth and inner basin of the Hokianga Harbour (Figure 2.2.2). The chart shows the area within the bounds of the Ōmāpere embayment as having a gently sloping seafloor from the coast at approximately 1:100 down to -5 Chart Datum (CD), with the main Harbour channel approximately 500m offshore having varying water depths approximately 8-10m below CD. Scour due to ebb tidal currents has deepened the channel at the mouth of the Harbour down to -20 - -25CD, with the channel located adjacent the southern head of the Harbour.

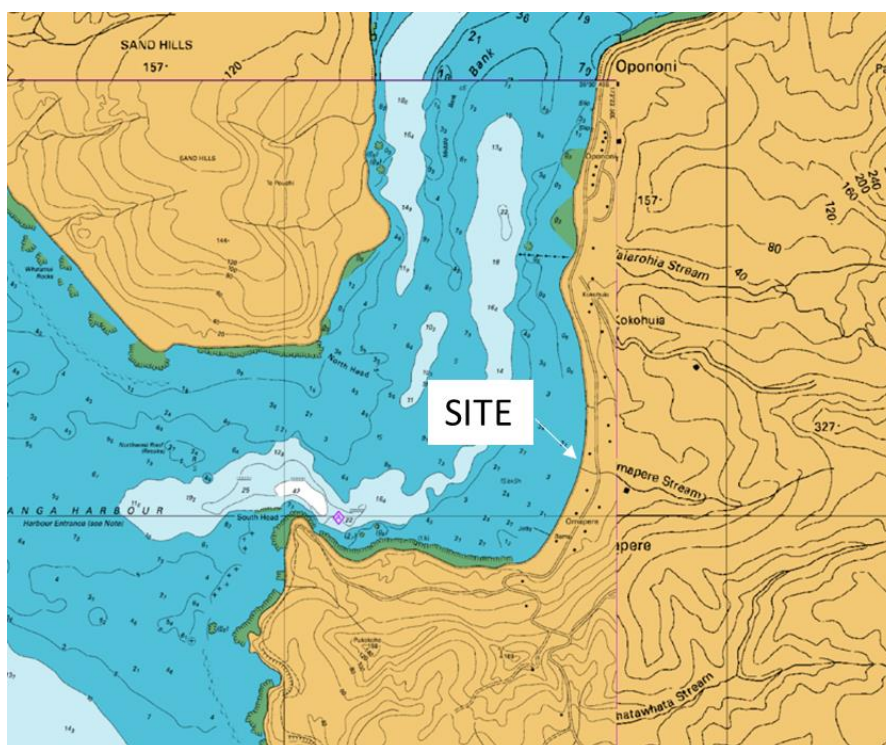


Figure 2.2.2: Excerpt from NZ Chart 4212 showing bathymetry of Harbour

2.3 Site Description

The two adjacent residential properties are generally grassed, with the dwellings developed on the modified backdune. This area is elevated above the adjacent Harbour, with the contours sloping gently from the road at RL 7 towards the dwellings at approximately RL 6. Contours rise seaward of the properties to the dune crest at approximately RL 7 – 8, before a steep dune scarp approximately 5m high leads to the foreshore at approximately RL 2.5 – 3.0. Geotechnical testing on the foreshore indicate the beach comprises a veneer approximately 2 – 2.5m deep, with a harder layer underneath varying from approximately RL 0.5 – 1.0 across the site.

Both of the dwellings are in close proximity to the scarp. The property at No 266 being closest with approximately 2-3m between parts of the dwelling and the headscarp of the dune (Photograph 2.3a).

There is relatively sparse vegetation on the site. The dune scarp has negligible vegetation, and a single semi-mature Pōhutukawa (*Metrocideros excelsa*) and a large mature pine are located on the headscarp seaward of No 264 (Photograph 2.3b).

A river (the 'Waihuka' stream) outlets onto the foreshore (Figure 2.3) immediately to the south of 266 SH12, with the body of the river heading inland in a south-easterly direction before being piped in a culvert under the road, and it is assumed this takes stormwater flows from the inland catchment. The dune scarp runs along the north-eastern bank of the river around two sides of No 266, and continues along the front of No 264.

In addition, a swale carrying overland flow runs from north to south at the landward side of No 266, and outlets into the adjacent river body upstream from the outlet in the beach face. On the southern bank of the river is a protruding sandspit, the more elevated areas of this spit have become vegetated in exotics including mature pines.

It is understood this area has significance to local iwi, with the following description of the Waihuka stream provided:

"Midway along Omapere bay is the Waihuka stream. There was once an ancient wahi tapu and a tauranga waka at its mouth. The wahi tapu was on a point of land on the northern bank, the tauranga was on its inland sand. Both were completely destroyed by flooding and rough tides in 1904. The foreshore further inland beyond where the wahi tapu and tauranga waka were in 1904, has also eroded. The human remains were gathered up and buried. Fewer human remains are now found. Among the artefacts recovered were unfinished adzes" (John Klaricich, Statement of Evidence, WAI2003)



Figure 2.3: Site plan with features shown



Photograph 2.3a: Dwelling at No 266 in proximity to cliff headscarp



Photograph 2.3b: River outlet, adjacent sand spit with vegetation including pines at elevated areas

2.4 Wider Built Environment

The bank at the seaward extent of the Applicant's dwellings is at present unarmoured. However, the wider Ōmāpere embayment has been reasonably modified through construction of armouring and water access structures. The location of some of these in relation to the site is shown below (Figure 2.4).

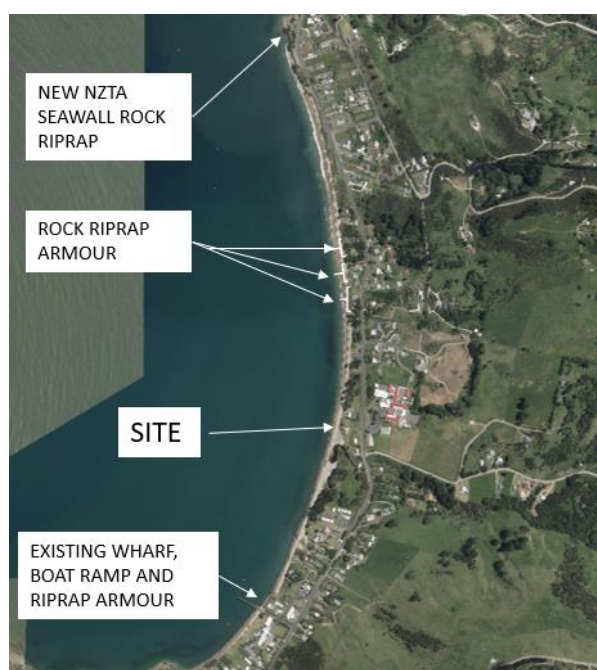


Figure 2.4: Wider built environment of Ōmāpere embayment

The armouring closest to the subject properties (approximately 450m south, 400m north) are predominantly rock riprap (Photograph 2.4a) or timber armouring structures, or a combination of both (Photograph 2.4b). Many properties have also built timber access stairs to the foreshore.

The most significant structure to the south (approximately 450m from the site) is located immediately north of the Copthorne Hotel, where a large riprap wall has been placed, in addition to what appears to be an area of reclaimed land. Seaward of the riprap wall a public boat ramp and jetty is located, with the timber jetty being approximately 90m long.



Photograph 2.4a: Riprap armouring north of site



Photograph 2.4b: Combination rock rip-rap and timber armouring

In addition to the private seawall structures, 2km of new seawall is currently under construction by the New Zealand Travel Agency (NZTA) extending from Kokohuia Point (approximately 1km north of the site) to Opononi township. It is understood the motivation for this armouring is to address the coastal erosion threatening the State Highway in areas between the two coastal townships (Photograph 2.4c).

Whilst the wall was still under construction at the time of the site investigation (November 2019), there appeared to be a large amount of small (gabion sized and smaller) rock present in the face of the seawall (Photograph 2.4d), which is highly likely to migrate out of the wall face and onto the adjacent beach as a result of wave action. This highlights the potential issues with rock wall construction, and also the necessity of strict control of rock size grading to ensure this issue is avoided.



Photograph 2.4c: NZTA seawall currently under construction



Photograph 2.4d: Small rock present in face of new NZTA seawall

3.0 Coastal Processes

3.1 *Wind*

Given the remoteness of the site, there is little readily available wind data for the Hokianga Harbour. Data from NIWA (2013) for four sites around Northland are shown below (Figure 3.1a), with the wind roses comprising mean annual wind frequencies from hourly observations. The closest site is that shown at Kaikohe, which is located approximately 50km inland of Ōmāpere, however the only coastal site is Cape Reinga (200km to the north), which is significantly more exposed.

This greater exposure is reflected in the strength of winds recorded at the Cape, with the south-westerly predominant and mean annual wind speeds are approximately 30km/hr. Kaikohe by comparison is far more sheltered, with a slight south-westerly predominance and mean annual speeds approximately 10km/hr.

A wind rose from the online wind app 'Windy' for Ōmāpere is provided below (Figure 3.1b), which is displaying average data from a number of forecast models across eight years from 2012-2019. There is a dominance of the south-westerly wind in the record, as would be expected for a site on the west coast. The most common speeds range from 0 – 32km/hr, with fewer instances of winds from 32-43km/hr coming from the west and south-west.

For the site at Ōmāpere inside the Harbour, the southern head of the harbour provides sheltering from the predominant south-westerly. The site is exposed to winds from the west through to the north.

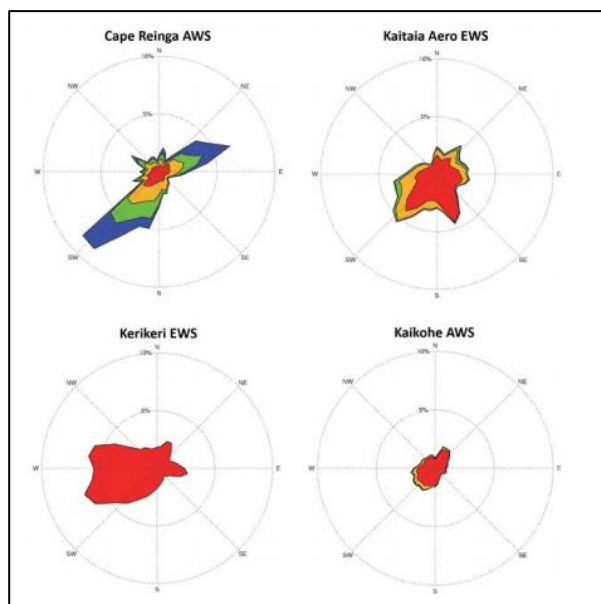


Figure 3.1a: Compiled wind roses for four Northland sites (ex NIWA, 2013)



Figure 3.1b: Wind record for Ōmāpere, 2012-2019, ex windy.app

3.2 Tides

Tidal data is published online by LINZ, with a tidal range provided for Ōmāpere as a Secondary Port (Table 3.2). The LINZ port tidal level is relative to Taranaki Chart Datum (TCD). MHWS for the Ōmāpere / Opononi coastline was also published in the regional flood hazard reporting by

the Northland Regional Council (2017), relevant to One Tree Point datum (OTP). This level has also been shown in the table below.

The local reference benchmark uses an MSL datum, with the underlying site topographic survey and all levels on the drawings provided relative to this MSL (ref: SM1026, Code DVQH ex LINZ). Clarification was sought from LINZ as to the appropriate conversion factor from TCD to local MSL. This communication is attached as Appendix F. LINZ provided MSL and MHWS for Ōmāpere, relative to New Zealand Vertical Datum (2016), and also to OTP. This value differs from that provided by the NRC, and is shown in the Table below. As the assumptions made in the NRC reporting are not known, and that it is also the same MHWS value used for all sites within the Hokianga Harbour, the value provided by LINZ in terms of OTP is considered more likely to be correct for Ōmāpere.

The relationship between MSL and MHWS has been used to represent MHWS in terms of MSL, and this range is provided in the table below and this MHWS adopted on the Drawings.

Port	MHWS	MHWN	MLWN	MLWS
Ōmāpere CD	2.9	2.3	0.8	0.1
Ōmāpere OTP (ex NRC, 2017)	1.66			
Ōmāpere OTP (ex LINZ, 2020)	1.38			
Ōmāpere MSL	1.2	0.6	-0.9	-1.6

Table 3.2: Summary of relevant tidal data published by LINZ, NRC (Tonkin & Taylor, 2017) and tidal range to MSL adopted at site

3.3 Extreme Water Levels

During storm events water levels become higher due to lower atmospheric pressure and the effect of onshore wind energy “pushing” water towards the coast and up harbours in an effect called storm surge. Storm tides can be defined as tides that include the effect of storm surge and these represent the highest range of water levels experienced in coastal regions in decadal

time scales. There are also other oceanic driven variations in the water level that affect extreme tidal levels that are captured in the tidal record.

In addition to storm tides, waves have the ability to raise the effective sea-level at the coastline. Wave set up can be considered as additional water level due to wind blowing onto the shore and waves breaking on shore “piling up” water and holding water level higher with the energy expended. This wide scale increase in the water level at the shoreline has the potential to result in direct inundation of the coastal margin. Water will flow from the sea towards all areas of the coast below the “set-up” water level until the area is inundated or the tide drops resulting in a lower water level.

A report prepared by Tonkin & Taylor (2017) for the Northland Regional Council (NRC) performed an in-depth study using hydrodynamic models calibrated against tide-gauges to calculate extreme water levels, including wave effects, along the Northland coastline. Joint probability modelling techniques were then applied to calculate the occurrence likelihood of the extreme sea-level elevations.

Data is provided for two Cells on this coastline, described as ‘Open coast’ and ‘Sheltered’. The Ōmāpere – Opononi coastline is located within the Harbour, and it is assumed the modelling work informing these calculations indicates that open coast waves are propagating through the Harbour entrance. Whilst the reporting does not provide location information on these cells, given that the site at Ōmāpere is approximately opposite the entrance to the Harbour, it is considered that the values provided for ‘Open coast’ are more likely to apply at this location.

The simulated extreme storm tide levels, and the storm tide level including wave set-up for Ōmāpere - Opononi are shown in the table below (Table 3.3). The levels provided in the reporting are relative to One Tree Point Vertical Datum 1964 (OTP1964). These levels have then been converted to the MSL datum (this requires a conversion of -0.23, say -0.2 from OTP1964)

Omapere & Opononi – Cell A	Current 1% AEP (m OTP)	Current 1% AEP (m MSL)
Storm tide	2.4	2.2
Static WL (including set-up)	2.8	2.6

Table 3.3: Predicted storm tide and wave setup extreme levels (ex TnT, 2017)

3.4 Wave Environment

The Hokianga Harbour is a semi-enclosed harbour environment, and the majority of the coastline of the Harbour is sheltered from the open ocean wave environment of the west coast. However, the site along the Ōmāpere coastline is immediately adjacent the mouth of the harbour. Accordingly, whilst some sheltering will be provided to the site as these large ocean waves are forced to break on the bars at the mouth of the Harbour, and then diffract into the wider Harbour basin, it is likely that a measure of this wave energy propagates across the harbour basin and impacts the site. This is evident in the aerial images of the Harbour, where the diffraction of wave energy entering the Harbour and then spreading into the bay is evident (Figure 3.4a).

In reporting produced by Tonkin & Taylor (2017) for the Northland Regional Council, wave data from a location approximately 5km offshore from Ahipara (approximately 45km north along the west coast from the Harbour entrance) was presented. Mean wave height and also the 1% Exceedance wave heights are provided below (Table 3.4), with the wave rose also shown (Figure 3.4b). The wave rose indicates a record entirely dominated by the south-westerly wave climate. This wave environment is expected to be very similar offshore from the Hokianga Harbour.



Figure 3.4a: Indicative wave fronts

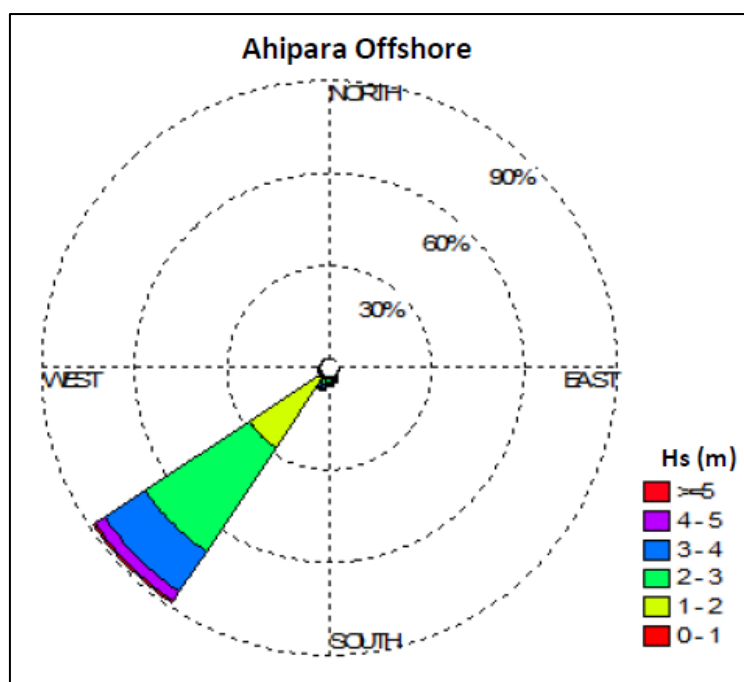


Figure 3.4b: Ahipara wave rose (T&T, 2017)

Wave Event	Hs (m)	Tp (s)
Mean	2.5	13
1% Exceedance	5.0	14

Table 3.4: Offshore wave Ahipara (T&T, 2017)

Depending on tidal state, this offshore wave will likely be forced to break and lose energy as it passes through the Harbour entrance. Waves will then be re-generated again across the 4km fetch across the Harbour basin. This reduction in wave energy through diffraction into the Harbour has not been quantified. However, wave action impacting the base of the dune will occur only on the upper part of the tidal cycle and will be depth limited. At high tides when waves are reaching the upper foreshore, the offshore wave will be reduced by shallow water depth. This reduction will increase during periods of high sand levels on the beach. Observation of the beach indicated a nearshore wave environment dominated by plunging breakers on the steeper upper foreshore (Photograph 3.4), with run-up locally raising water level inbetween beach cusps (see 3.4.1 below).



Photograph 3.4: Plunging breakers

Existing level at the foreshore at the base of the dune was approximately RL 3. MHWS (at RL 1.2 as above) is seaward of the base of the dune and therefore waves are not reaching the scarp. However, during periods of low sand levels on the beach, by projecting the flatter gradient lower intertidal area landward to the base of the dune, sand level could decrease to approximately RL 1.5 – 2.

Assuming a wave period of 7-10s, and calculating incident wave length on this basis, wave height will be limited to approximately 80% of the water depth at a location $\frac{1}{2}$ of the wavelength offshore from where the still water level intersects the foreshore (Figure 3.4c). Assuming a storm tide event with water level of RL 2.2 (given an AEP of 1% as above), the assumed significant wave height for the site during this extreme event is approximately 0.4 – 0.7m.

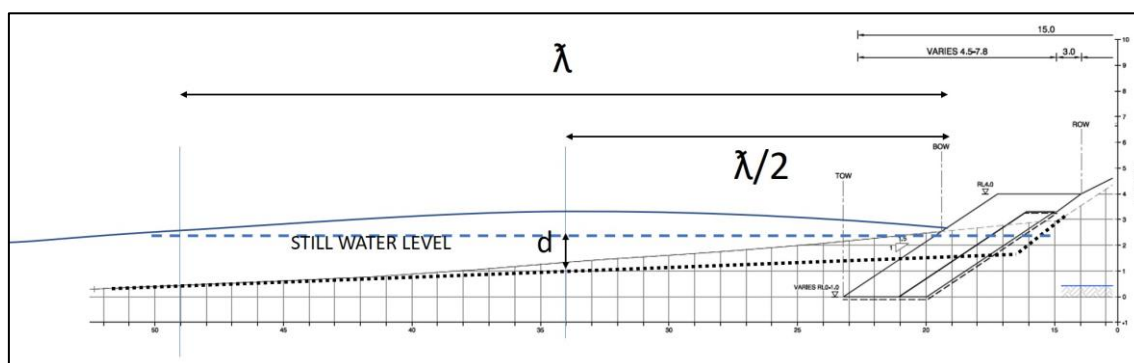


Figure 3.4c: Indicative water depth for depth limited wave height

3.4.1 Beach Cusps

A network of beach cusps are present on the shoreline at Ōmāpere, most evident along the 800m of beach north of the site to the northern headland of the Ōmāpere embayment (Figure 3.4.1). These features are approximately 30m across, and are typically described as *“regularly spaced crescentic morphological patterns formed in the swash zone of a beach. They consist of seaward-pointing horns with steep lateral slopes separated by a gentler sloping embayment”* (Dodd et al, 2008).

There are two primary theories as to the formation of these features; the ‘standing edge wave theory’ is based on a near shoreline interaction between waves approaching the shore and waves set up perpendicular to the shoreline called edge waves, and then wave interactions resulting in preferential erosion; and the ‘self-organisation theory’ which is based on positive feedback between beach morphology and the flow of water creating small relief patterns, which then experience preferential erosion / accretion in a positive feedback loop, forming the cusps.

Whilst determining the origin of these cusps is not important for this project, these features do provide information on the nearshore beach processes. That is, there is reasonable agreement that the conditions associated with cusp generation are *“usually associated with reflective wave conditions, relatively steep beach gradients, and normally incident waves, which can be either plunging or surging”* (Dodd et al, 2008). This indicates that the nearshore processes acting on the beach are dominated by the wave climate outlined above, that is the deep water waves propagating through the mouth of the harbour and approaching at approximately shore-normal, that is, the angle of wave approach is at 90° to the general angle of the coastline. Further, and as follows from this shore normal wave approach, there is relatively limited longshore transport otherwise these features would tend to be infilled and flattened. That these features are less prominent at the site is hypothesised to be due to a greater shadowing of the southern end of the Ōmāpere embayment to the offshore wave energy entering through the Harbour mouth.



Figure 3.4.1: Beach cusp formations

3.5 Coastal Erosion

At a wider Harbour level, the morphology and areas of erosion is the result of a complex interplay between the effects of tidal flows, waves, and sediment movement. Over time, eroding coastlines tend to become orientated in response to the dominant wave approach, and the shape of the Ōmāpere embayment (Figure 3.5a) suggests a response to the westerly wave entering the mouth of the harbour and propagating directly across the harbour basin. The ebb tidal currents in the Harbour are also likely to be capable of transporting sand off-site, once mobilised by wave energy. The morphology of high steep dune scarps along the embayment suggests a coastline undergoing progressive retreat.

Areas of erosion were also present further north, along the Opononi coastline, which is sheltered from the westerly wave environment. This erosion is likely driven by other factors, including potentially areas of historic reclamation during formation of State Highway 12 in close proximity to the coastline.

Also evident is a large volume of sand on the eastern face of the northern arm of the Harbour, assumed to have been deposited by aeolian transport from the predominant wind. There is evidence of relatively extensive forestry activity to the northern sandspit, which has the potential to affect the sediment balance in the harbour. A change in the supply of sediment to the beach system, leading to lower sand levels more often, may also be driving the progressive retreat of the dune.



Figure 3.5a: Wider harbour coastline

The bare face of the scarp at the site indicates this has been retreating too rapidly for vegetation to establish. The unconsolidated/poorly consolidated sediments comprising the dune are readily eroded by wave action, which based on foreshore contours appears to be only acting at the toe of the dune. In addition to the sandy sediments exposed at the base of the scarp, approximately half way up the dune scarp are older more consolidated sediments (Photograph 3.5a), which are not typically expected in the equilibrium profile of a sandy beach. This is evidence the erosion is progressive rather than part of a natural fluctuation.

The general erosive model for these dune coastlines is the wave action at the toe of the dune scarp erodes and transports these sediments, leaving the upper dune over-steep and prone to failure. This material fails with the talus deposited on the foreshore. This material provides

temporary support to the scarp, however it will tend to be reasonably rapidly eroded once again leaving the toe exposed to wave attack. There is the added complication at the site of the fluvial impacts from the river to the south. The outlet of the river will tend to migrate over time with sand levels on the beach; at times it will angle more to the south away from the site and this is evident in historic aerials, however at the time of the site visit (November 2019, Photograph 3.5b) it was travelling north along the face of the dunes and providing an additional source of scour at the base of the dune scarp. The river scour also reduces the dune height at the upper foreshore, enabling more frequent runup scour. The extent of the erosion present on the cliffs to the north, outside the area of effect of the river scour, indicates that there are two drivers to cliff retreat and it is not purely a fluvial process occurring when the river flows are discharging along the base of the dunes.



Photograph 3.5a: Dune scarp seaward of No 266 SH12



Photograph 3.5b: Dune scarp seaward of No 264 showing older more consolidated dune sediments

A potential source of retreat data is historic aerial imagery. However, this requires that retreat be of a scale significant enough to be measurable beyond the margins of error involved in the georectification process. Nine images were obtained over a time period from 1942 – 2019, which provides nearly 80 years of historical data. These images were georectified, and then a seaward line of vegetation marked on each image. Comparing the change in this line between images allows interpretation of the change in coastline position over this period (Figure 3.5b). The trends in the data show that along the coastline to the north of the site, where this is remote from the fluvial influence of the river outlet, historic erosion rate is approximately 0.4m/yr. To the south, where there is a combination of wave driven and fluvial erosion, historic erosion rate is approximately 0.5m/yr. With the exception of a period of accretion in the main dune face between 1942-1968, the remainder of the mapped coastlines are showing progressive retreat. This is consistent with observations of the dune face made above. These measured retreats are similar to the 0.3m/yr quoted in the assessment of historic shoreline positions along the beaches of the Omapere / Opononi coastline (Tonkin & Taylor, 2017).



Figure 3.5b: Coastal vegetation lines from historic aerial imagery

The trend of progressive retreat in the historic aerial data is also set out in the Coastal Erosion Hazard Zone Assessment completed by NRC (Tonkin & Taylor, 2017). This reporting used both historic aerals and beach profile data to predict potential future shoreline positions. Two Coastal Erosion Hazard Zones (CEHZ's) were defined in this reporting:

- CEHZ1 – Predicted future shoreline at 2065 with a 66% probability of being exceeded, considered to be a 'likely' CEHZ
- CEHZ2 – Predicted future shoreline at 2115 with a 5% probability of being exceeded, considered to be a 'potential' CEHZ

These CEHZ lines for the subject sites are shown below (Figure 3.5c). As can be seen, both dwellings are predicted to be significantly threatened by 2065, with the coastline predicted to have retreated behind the dwellings by 2115. These predictions are consistent with the erosion scarp at the site, and the erosion being experienced at present being a progressive retreat of the coastline rather than natural fluctuations of a beach around an equilibrium profile.



Figure 3.5c: CEHZ 1 and 2 with respect to the subject properties, plotted from NRC GIS

3.6 *Sea Level Rise*

The Ministry for the Environment (MfE) guidance on sea-level rise (December 2017) adopts a risk-based approach to coastal development, with a range of sea-level rise values specified depending on the type of development proposed. It sets out the sea-level rise projection scenarios to 2150, which cover a range of possible future sea levels:

- A low emissions, effective mitigation scenario (RCP 2.6)
- An intermediate-low emissions scenario (RCP 4.5)
- A high emissions, no mitigation scenario (RCP 8.5)
- A higher, more extreme H+ scenario (RCP 8.5 H+), for stress-testing adaptation plans / major new development at the coast

These scenarios and the resultant sea level projections are shown below (Figure 3.6).

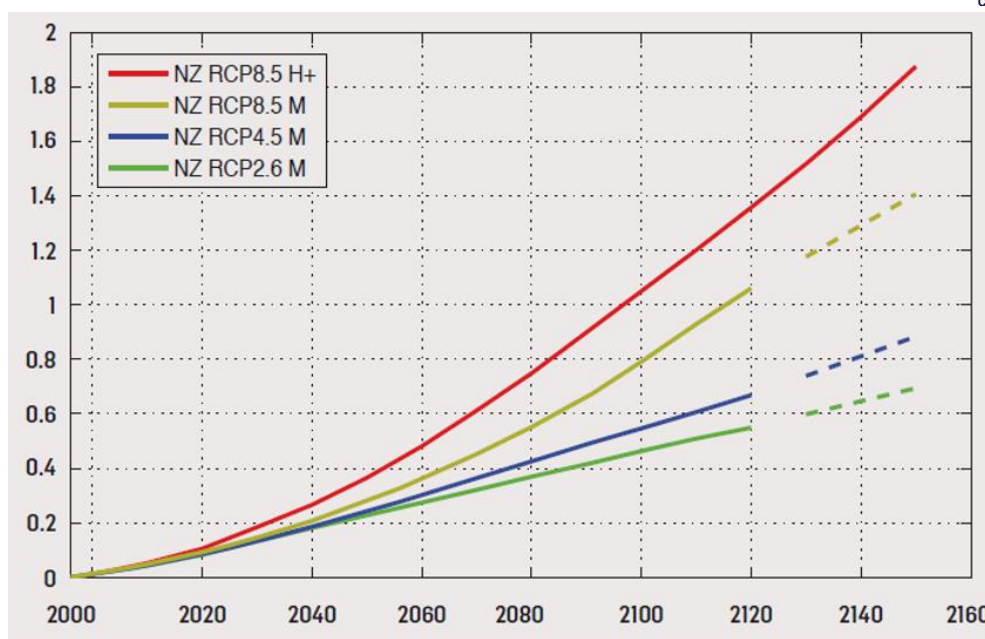


Figure 3.6: Sea-level rise projections for various Concentration Pathways – ex MfE, 2017

The MfE guidance defines Asset Category C as comprising “*land-use planning controls for existing coastal development and assets planning*”. It recommends a transitional response of 1.0m of sea-level rise for the next 100 years out to 2120. This is in accordance with the RCP8.5 emissions scenario, which is considered sufficiently precautionary.

The maximum period for a Coastal Permit Resource Consent is 35 years. Based on using the RCP 8.5 emissions scenarios, this would suggest that allowance for a sea-level rise of 300-400mm over the Consent Period of the structure would be in accordance with these guidelines. However, consideration is also made of the potential effects of sea level rise over the 100-year time scale, and this is discussed further in Section 8.5.2.

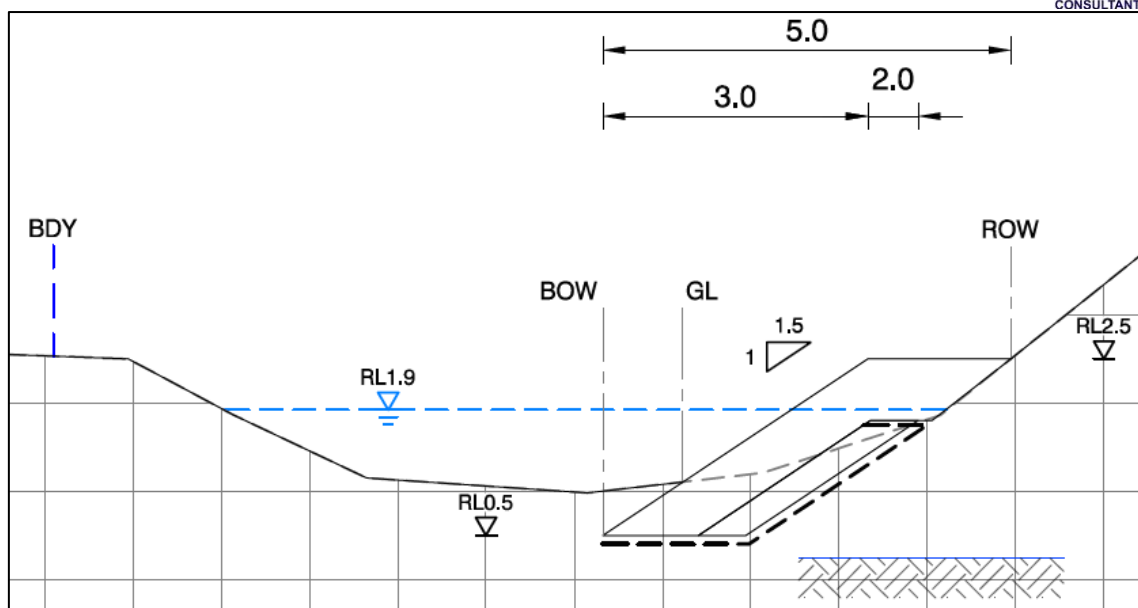


Figure 4.2b: Typical section through Type 1 wall at riverbank

Type 2 Wall:

This section of wall is approximately 109m long and is to armour the toe of the main dune scarp, seaward of the properties at No 266 and No 264. The wall will comprise a double armour layer of imported 600-800mm rock, a double underlayer of 200-300mm rock, and a geotextile (Figure 4.2c). It will be founded with a toe detail approximately 500mm into underlying harder material, which varies across the site from RL 0 – 1.0. Crest height of the wall is RL 4.0, with the face of the wall sloping at 1(vertical):1.5(horizontal).

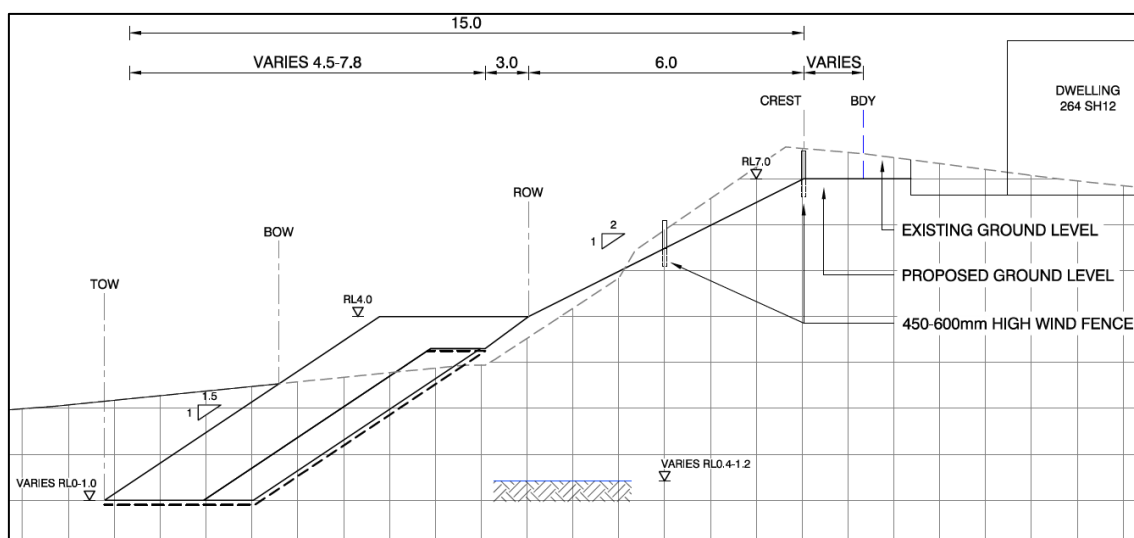


Figure 4.2c: Typical section through Type 2 wall

4.2 Timber Stair

A 12.5m long x 1.5m wide timber stairway is proposed to provide access from the Applicant's properties to the foreshore. It will be placed on the boundary between No 264 and No 266.

The structure will consist of 2 flights with a central landing (Figure 4.2), with 170mm risers and 310mm treads. The stair will be supported on timber piles and run perpendicular to the coastal margin. The stair will be placed over the top of the new rock wall, and will necessitate placement of some foundation piles through the underlying geotextile for the seawall. To prevent this causing issues with loss of fines the likely methodology will be to place stair piles following placement of the geotextile, prior to the armour rock. This will allow small holes to be cut in a continuous geotextile layer to allow pile placement.

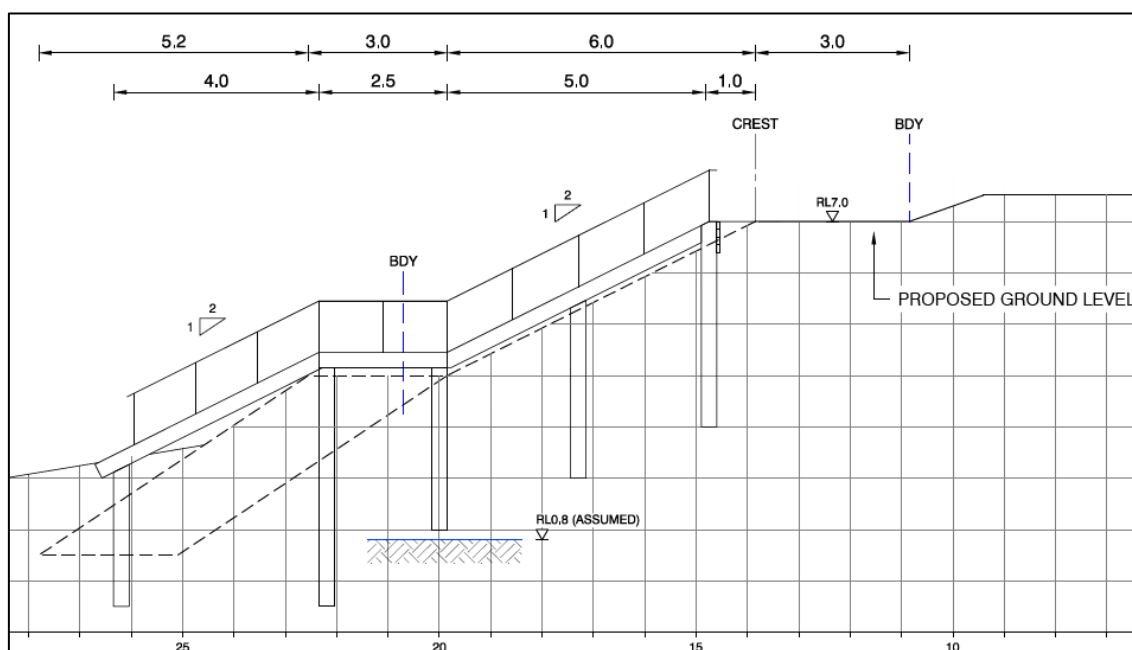


Figure 4.2: Typical section through Type 2 wall

4.3 Earthworks

Following construction of the seawall, the over-steep dune scarp above the wall will be lowered and re-graded to allow establishment of dune planting. This will comprise grading the dune from RL 4.0 at the seawall crest, at a 1(ver):2(horiz) slope, up to RL 7.0 at the dune crest. This material will be re-distributed to the foreshore below the new seawall. Apart from some dune sands at the upper cliff, the majority of the material will comprise cemented sand material (as can be

seen in Photograph 3.5b). This material will be track rolled to assist in breaking it down into smaller sand particles for better integration with the sand of the foreshore. This process evidently occurs naturally as this material has been undergoing erosion, and no evidence of eroded blocks remaining in situ for long periods of time has been seen on site.

A summary of the indicative cut and fill areas and volumes is provided below (Table 4.3). These volumes are provided for an indication of scale only, as none of this material will be removed off-site.

Zone	Area (m ²)	Cut (m ³)	Fill (m ³)	Net (m ³)
Conservation (Reserve)	700	530	220	310 cut
Residential	50	10	20	10 fill
Total	750	540	240	300 cut

Table 4.3: Summary table for earthworks to upper dune

4.4 Dune Revegetation

Existing dune vegetation is generally sparse, and this will be removed by the re-grading outlined above. Extensive re-vegetation of the re-graded dune is proposed, over an area of 720m² (Figure 4.4a, labelled 'A') from the top of the seawall to the dune crest, comprising the planting of sand-binding dune species spinifex (*Spinifex Sericeus*) and pīngao (*Ficinia Spiralis*). Once established these species will assist in sand retention on the upper dune, and reduce the risk of dune blowouts above the seawall. Rear of the dune crest, planting on the back dune (labelled 'B') will comprise a 1.5m wide strip of bracken (*Pteridium Esculentum*) and Pohuehue (*Muehlenbeckia Complexa*), covering 180m² of the site.

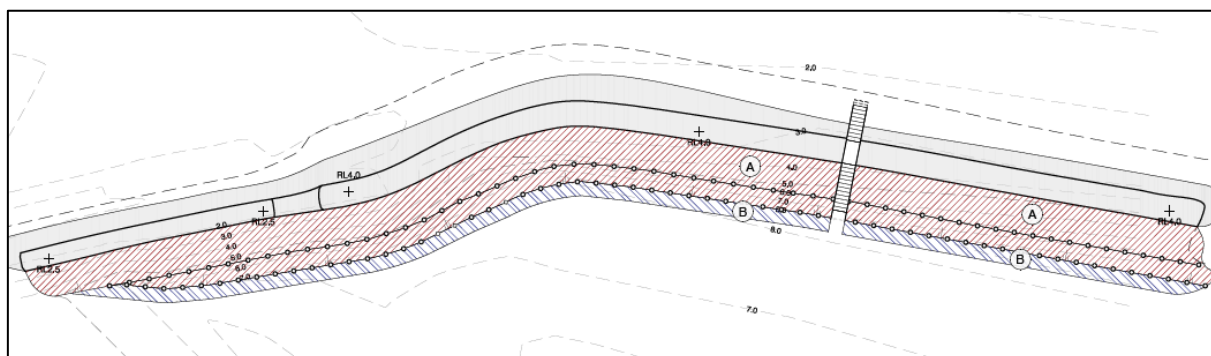


Figure 4.4a: Layout plan of proposed vegetation and wind fences

To assist in establishment of the dune planting, two lines of wind fencing are proposed. One line of fencing will be located approximately half-way up the slope above the seawall, with the second line of fencing located at the dune crest. The fencing will comprise 100Ø x 1.2m timber posts at 2.0m centres, founded approximately 600mm below ground, with sand-coloured wind cloth running between the piles (Figure 4.4b).

The fencing will remain in place until the Spinifex and Pīngao have established and formed a suitable ground cover to the slope. This is estimated to be approximately 2-5 years.

It is proposed that maintenance conditions be imposed on the planting, with the format of this as follows (or similar):

“Within the first planting season following the completion of all earthworks, planting as shown on the Davis Coastal Consultants ‘Planting Plan’ File No 1918 / Sheet No 07 / Rev – dated 12.08.2020 will be undertaken. Following this all new plantings shall be maintained for a minimum of three years and any new plantings that die or decline over this three year period shall be replaced. The replacement plants shall be of the same species, grade and size as the original specimens and planted no later than the following planting season (May to August)”.

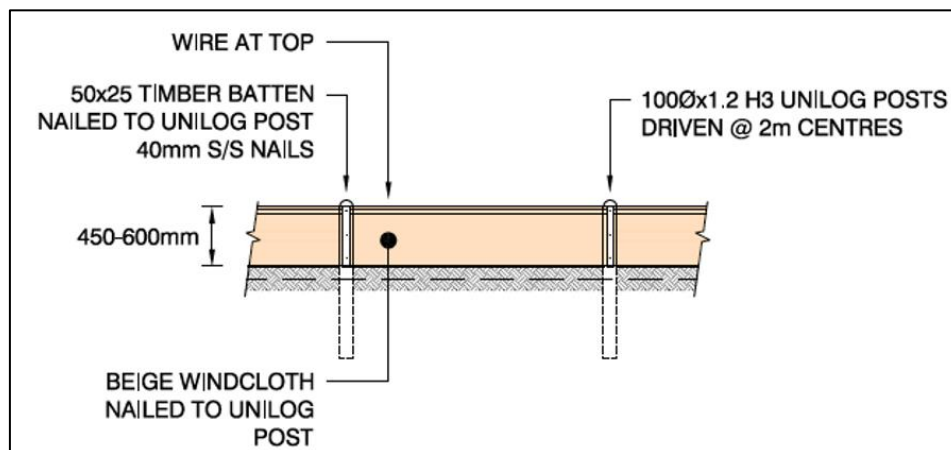


Figure 4.4b: Proposed wind fence typical detail

4.5 Construction Access and Methodology

Access to the CMA will be obtained using a landward access across the Applicant's property at No 266. A Contractor's Area will be set up at 266 SH12, at the head of the cliffs, with all rock delivered to site stored in this location.

The expected construction methodology for the works is:

- Establish excavator (12-15t) to site and establish fenced compound at 266 SH12 (see Figure 4.5), at the head of the cliffs
- Armour rock to be delivered to site via truck and placed within temporary storage area
- Form construction access to CMA down dune scarp as shown, orientating the access away from the predominant SW wind to reduce risk of blowout during construction
- Excavator to access and exit CMA using this access, with the machine to be removed from the CMA prior to the subsequent high tide
- Work to construct the riprap wall will likely be undertaken in sections, with exposure of the bank limited to the extent of wall able to be completed in a tidal cycle
- Excavate existing beach sand down to foundation level, shape toe of dune to design slope
- Place geotextile, followed by the underlayer(s) and armour layer(s)
- Complete each section, before starting new section, leaving geotextile extending past placed rock to allow for overlap between geotextile sheets

- At a minimum geotextile will be placed over any exposed backshore material prior to the subsequent high tide
- Piling for timber stairs to be undertaken before rock is placed, through geotextile
- Piles will be drilled and driven, not concreted
- Timber stairs to be built following rock placement
- Shape dune above seawall following seawall construction, with wind fencing installed immediately following works. Planting to be undertaken in the first planting season following wall construction

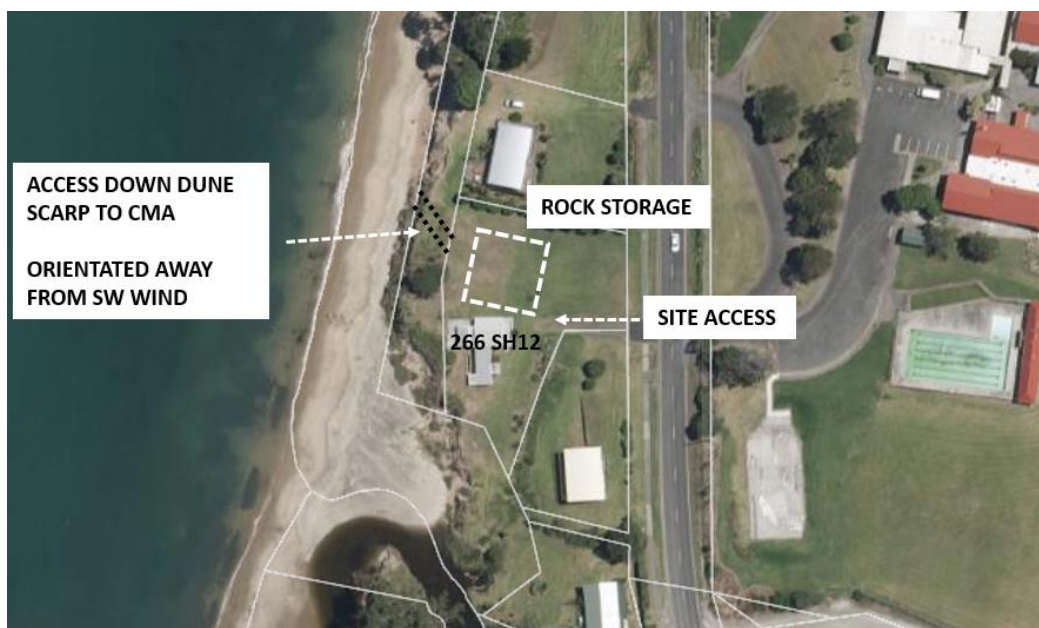


Figure 4.5: Extent of contractor's area and access

4.6 *Extent of Consent*

The proposed structures are to be covered under two separate Resource Consents. The extent of the structures covered by each Consent is set out below (Table 4.6, Figure 4.6).

In general, the Owners of each property will hold Consent for all structures located directly adjacent their property boundaries on the seaward land. Where the wall extends onto land adjacent neighbouring properties at 268 and 270 SH12, the Applicant at 266 SH12 will hold Consent for this section of wall. Boundary marks will be placed on the crest of the seawall by a Registered Surveyor following completion of works to define the extent of Consent.

Property	Extent of Structures
264 SH12	43m length seawall to RL4.0, Part Share of Timber Stair
266 SH12	66m length seawall to RL4.0, 33m length seawall to RL 2.5, Part Share of Timber Stair

Table 4.6: Extent of Consent

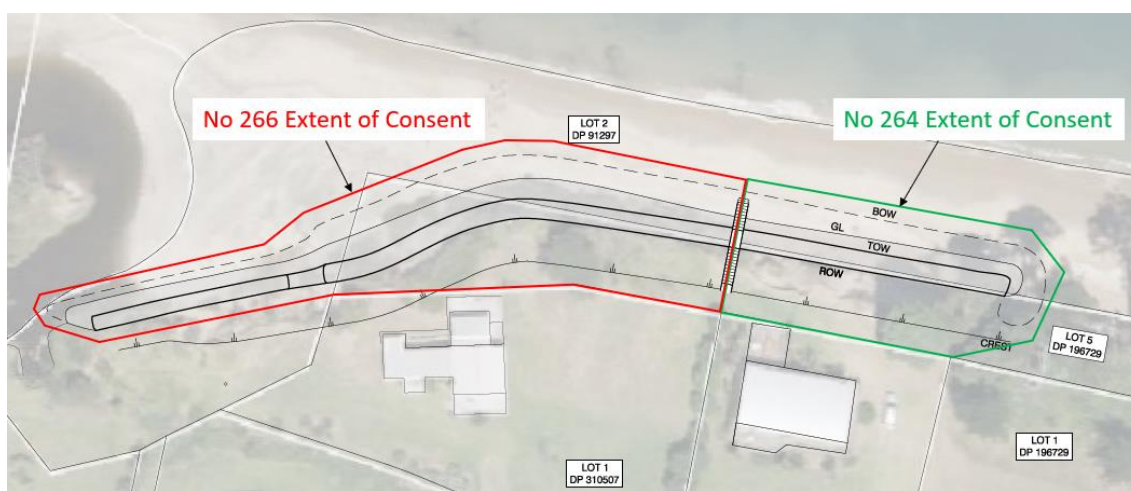


Figure 4.6: Indicative extent of Consent for each Applicant

5.0 Options Assessment

5.1 Overview

The options considered comprise whether armouring should be placed or not, whether 'soft engineering' solutions might be appropriate, and the type of armouring.

5.2 *Do Nothing – Allow Retreat of the Coastline*

When considering a proposal for any form of coastal protection structure, it is a statutory requirement that the option to 'Do Nothing' and allow the coastline to retreat naturally is considered.

The morphology of the steep dune scarp at the site, with older more consolidated sediments exposed, is indicative of a coastline undergoing progressive retreat. This is confirmed by the trend in the historic aerial images, and also the predicted future coastline positions in the NRC's erosion hazard modelling.

The process of erosion and retreat of coastal cliffs is a natural process. However, there is valuable coastal land and development at the head of the cliffs. The threat this ongoing retreat poses to property is prompting measures to attempt to prevent this ongoing retreat elsewhere on the coastline – see for example the NZTA seawall protecting the State Highway (2km north of the site).

It is also understood from preliminary consultation with the local hapū management committee that ongoing erosion of the riverbank on the northern side of the river occasionally releases koiwi (human remains) from a historic burial site (wāhi tapu) in this area. This may continue to occur should ongoing retreat and erosion of this area be unaddressed.

Assuming the 'Do Nothing' option is adopted, the following issues are considered likely:

- Loss of the dwelling at No 266 SH12 within the next 50 years
- Threatening of the dwelling at No 264 within the next 50 years

This option would likely require both Applicants to re-locate the existing dwellings to a landward location, likely landward of the CEHZ2 2115 hazard line. Were this a beach in dynamic equilibrium, and the observed erosion considered to be a temporary state, there would be a much stronger argument for a managed re-alignment of the dwellings. The typical approach on these coastlines is to define the area of fluctuation based on historic data, make allowances for future retreat due to potentially increased erosion due to sea-level rise, allow an additional buffer, and set dwellings landward of that point. In part that work has been done by the defining of these Hazard Zones. However, this would not address the issue of the progressively retreating coastline. At some point in the future, the property owners would later be presented with the same issues they are currently facing, and a decision would again need to be made about the protection of the sections. The Applicants are in effect making that decision at this point, prior to the loss of a large amount of their property. Therefore, relocation is not considered as a practicable long-term management option.

The existing NZTA seawall to the north demonstrates that the management approach at a government level to the threatening of major infrastructure on this coastline will be to provide armouring to protect these assets, as opposed to re-locating them landward. North of the site approximately 300m (Figure 5.2), there are places where the retreating coastal scarp is within 25m of State Highway 12. Based on the erosion rates measured earlier, and assuming no increase in erosion rate due to sea-level rise, this road will be threatened by the retreating cliffline within approximately 50 years. Therefore, over this time period the extent of armouring on the subject coastline is expected to increase significantly.

Given the proximity of the cliff at site to the Applicant's dwellings, and the progressive erosion observed, the option to 'Do Nothing' is not considered to be practicable, and is not an acceptable option for the property owners. Therefore, there is a requirement to address the retreating coastal cliff.



Figure 5.2: Proximity of dune scarp to SH12 300m north of site

5.3 'Soft' Protection Solutions

Soft engineering options including beach renourishment and planting were also considered when determining an appropriate response to a coastal hazard threat.

The placement of sand renourishment as an erosion response would typically involve the importing of sand and placement of this material against the dune scarp. This placed sand would provide a temporary barrier to the dune scarp, and planting could be sought to be established to retain it in position. However due to the relatively wide nature of the subject embayment, this material would be located in an artificially seaward position than the adjacent un-nourished coastline. Due to wave action it is likely that it would be preferentially remobilised and then

transported by tidal currents to the wider beach system. The speed at which this would occur would be dependent on the frequency of storms and high tide events, however once transported erosion of the dune scarp would continue. Typically private property owners do not possess the resources to continually move sand as a 'soft' engineering response, and it is considered this management option is not practicable.

The placement of groynes as 'headland' control structures would likely be required to assist in retention of the new renourished material. At a minimum two groynes would be required, one to train river flows at the western end of the site and one at the eastern end of the site (seaward of No 264). These would need to be reasonably large shore-perpendicular structures approximately 1m above beach level would form an impediment to the easy pedestrian access across the beach face. Whilst the net direction of longshore transport is not known at the site, there is the potential for interruption of longshore transport with these structures, which could result in an unacceptable increase in erosion on the adjacent shoreline to the north or south. In addition, this type of response to the erosion hazard is not being adopted elsewhere on the coastline and accordingly it could be considered out of step with the 'character' of the coastline.

Planting of dunes with native sand-binding species helps to retain sand within planted areas, protecting the dunes from blow-outs and providing a buffer to erosion during storm events. Sand-binding species such as Spinifex and Pīngao are particularly useful at growing the dune toe in areas of dune fluctuation. However, they are unlikely to be similarly successful on a retreating coast. Due to the height of the dune scarp, planting would need to be undertaken in conjunction with the renourishment (and groynes), rather than being an appropriate solution by itself to address the progressive erosion. Planting of any disturbed dune areas is to be undertaken as part of the proposal but cannot be considered a suitable erosion mitigation option on its own.

5.4 *Hard Protection Armouring Discussion*

It is evident that retreat of the coastal dune is driven by the action of erosion processes at the toe of the bank. It has been demonstrated above that the option to 'Do Nothing' is not appropriate given the progressive nature of the retreat, and also that 'softer' engineering measures such as renourishment or planting are not appropriate on their own. Accordingly, to address the erosion some form of toe armouring is required.

All of the walls on the subject coastline, with the exception of the timber wall with rock toe to the north, are rock riprap walls. The construction of a rock riprap seawall on a relatively remote coastline such as that at Omapere in the Hokianga Harbour has the following advantages:

- The rock for the wall is a relatively easy construction material to source, with a number of potential quarries in reasonably close proximity to the site
- The construction techniques are relatively simple, with a quality wall able to be constructed by a relatively inexperienced contractor provided sufficient engineer supervision is available
- The rock wall is a relatively flexible structure, able to accommodate slow settling or lowering of the underlying firmer material without risking failure
- It is a similar type of structure to the existing types of seawall on the coastline
- The rock wall can be readily extended along the riverbank edge to provide protection from these flows
- Providing there is a suitable source of rock in proximity to the site, these type of seawall are relatively cost effective when undertaking a reasonable length of wall (such as that proposed)

Alternative styles of armouring are not considered to provide any additional benefit and accordingly a riprap wall is proposed at the site.

6.0 Statutory Assessment

6.1 Resource Management Act 1991

6.1.1 Section 88 of the RMA

Pursuant to Section 88 of the RMA, an application for Resource Consent shall include an assessment of any actual or potential effects that the activity may have on the environment, and the ways in which any adverse effects would be avoided, remedied or mitigated.

Section 88 stipulates that an assessment of effects shall be of a detail that corresponds with the scale and significance of the actual or potential effects that the activity may have on the environment and shall be prepared in accordance with the Fourth Schedule. An assessment of the effects of the proposal is contained within Section 8.0 of this report.

6.1.2 Reserve Land and Marine and Coastal Area Act 2011 Discussion

The subject residential properties are located landward of two Reserve parcels, being Lot 5 DP196729 (landward) and Lot 2 DP 91297 (seaward). Part 2 Section 11(4) of the Marine and Coastal Area Act 2011 sets out that

“Whenever, after the commencement of this Act, whether as a result of erosion or other natural occurrence, any land owned by the Crown or a local authority becomes part of the common marine and coastal area, the title of the Crown or the local authority as owner of that land is, by this section, divested...”

Pursuant to this Section, whenever land that is part of these Reserves becomes ‘part of the common marine and coastal area’, that is, becomes inundated below MHWS, then this part of the title is divested and it permanently becomes CMCA. This interpretation has been discussed previously with FNDC (see Appendix E). They provided the following comment:

“Lot 2 DP 91297 is completely under water and is now part of the Common Marine and Coastal Area. The title is completely divested.

Lot 5 DP 196729 is partially under water and that portion is lost to the Common Marine and Coastal Area. The title is divested for that portion of land now below MHWS" (Kay Meekings, Property Legalisation Officer, email comms 05.08.2019)

This interpretation has been shown below (Figure 6.1.2). It is confirmed that it is likely that during times of low sand level the seaward Reserve lot is below MHWS and accordingly it is now CMCA. During these times of low sand level, if MHWS was at the base of the dune scarp part of Lot 5 DP 196729 would also therefore be divested. This is most evident seaward in the portion of Reserve seaward of the dwelling at Lot 1 DP 310507. However, the majority of the Reserve land in Lot 5 DP 196729 remains above MHWS and is still held in title.



Figure 6.1.2: Indicative Reserve land seaward of properties

This has the following implications for the subject proposal:

- Landowner Approval (in addition to Resource Consent) must be sought from FNDC for the extent of seawall and stair access located on Lot 5 DP 196729

This process has been initiated in conjunction with lodging the Consent.

6.1.3 Extent of CMA and MHWS Discussion

The line of MHWS is defined in the Act as the statutory boundary of the CMA. Uses and Activities are subject to Rules and Plans for the CMA up to the line of MHWS, and terrestrial Rules and Plans landward of that line. Defining the extent of the CMA at the site is important as it determines the relevant infringements for the structure. The Act defines the CMA as being:

*“the foreshore, seabed, and coastal water, and the air space above the water ...
(b) of which the landward boundary is the line of mean high water springs...”*

On sandy beaches, where the level of the beach is in constant flux, this can result in varying positions of MHWS (and the CMA) over time. As noted in Baker and Watkins (1991), *“from a beach monitoring survey carried out over a 12 month period at Takapuna and Milford Beaches in Auckland, which cannot be classed as fully exposed, it was found that the position of MHWM typically varied by 9 metres and at one position by 17.5 metres due to changes in the beach profile”*.

A survey of the site was undertaken in September 2019. Based on the MHWS level provided by LINZ at Ōmāpere (1.2 MSL), and the sand levels at the time of this survey, MHWS was located approximately 8-10m seaward of the toe of the wall (Figure 6.1.3), meaning the wall is outside the CMA. Conversely, if a survey was undertaken at a time of lower sand level, part of the wall could be located inside the CMA. However, it is important to define a CMA location in order to determine the relevant Plans for assessment.

It is proposed to adopt the surveyed level of MHWS (in September 2019) as the most current data on CMA location, and define the relevant Plans on this basis.

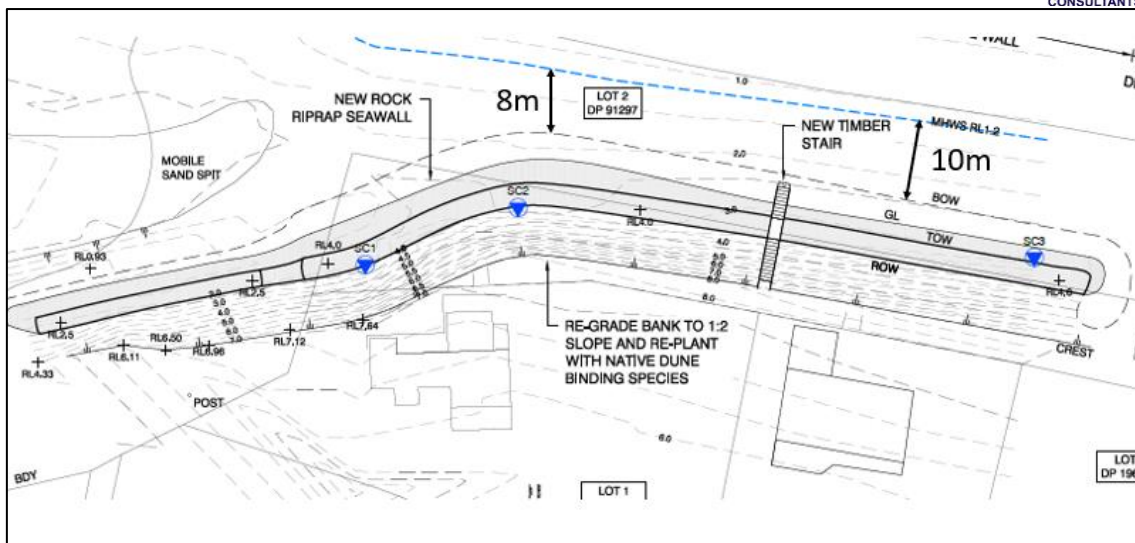


Figure 6.1.3: Location of MHWS seaward of wall

This has the following implications for the subject proposal:

- The Northland Regional Plan – Coastal is not relevant, as the site is above MHWS
- The Far North District Plan is the primary relevant Plan requiring consideration
- The Northland Regional Soil and Water Plan requires consideration
- The Proposed Regional Plan for Northland – Appeals Version requires consideration
- Consultation under the Marine and Coastal Area Act (2011) is not required (see Section 6.2)

6.1.4 Section 104 of the RMA

The application is subject to an assessment under Section 104 and Part 2. Section 104 lists those matters to which the Council shall have regard and provides, in particular, that:

- (1) *When considering an application for resource consent and any submissions received, the consent authority... must have regard to –*
 - (a) *Any actual and potential effects on the environment of allowing the activity;*
and
 - (b) *Any relevant provisions of –*
 - (i) *A national policy statement:*
 - (ii) *A New Zealand coastal policy statement: (not relevant)*

- (iii) A regional policy statement or proposed regional policy statement;*
- (iv) A plan or proposed plan; and*
- (c) Any other matters the Consent Authority considers relevant and reasonably necessary to determine the application.*
- (d) When forming an opinion for the purposes of subsection (1)(a), a Consent Authority may disregard an adverse effect of the activity on the environment if the plan permits an activity with that effect...*

This report considers the matters set out in Part 2 of the RMA, and assesses the application against the New Zealand Coastal Policy Statement (NZCPS), and the relevant parts of the Northland Regional Policy Statement. The application has also been considered with respect to the detailed tests in the Northland Regional Soil and Water Plan, and the Proposed Northland Regional Plan – Appeals Version. Additionally, an Assessment of Environmental Effects is undertaken in Section 8.0.

On the basis of this assessment, it was determined that the adverse effects on the environment will be minor and no more than minor. In addition, it was also demonstrated that the application is not contrary to the Objectives and Policies of all the relevant Plans.

6.1.5 Part 2 Assessment

In the context of this application for a Land Use Consent, where the Objectives and Policies of the Regional Plan was prepared having regard to Part 2 of the RMA, it can be assumed they capture all relevant planning considerations. These Plans also provide a clear framework for assessing all relevant and potential effects, and there is therefore no need to go beyond these provisions and look to Part 2. An assessment against Part 2 would not add anything to the evaluative exercise.

6.1.6 Consents Sought

This application for Resource Consent is required under the Resource Management Act 1991. Section 9 of the Act places restrictions on the use of land.

Land-Use Consent – Section 9

The Act states that under Section 9 (2) that:

*“No person may use land in a manner that contravenes a regional rule unless the use –
(a) Is expressly allowed by a resource consent...”*

The works contravene rules relating to land disturbance, hard protection structures, natural hazards and building within identified setbacks and management zones within the Regional Plan. Therefore, Resource Consent is sought to undertake these works under Sections 9 (2) of the RMA.

6.1.7 Section 95A-95E - Notification Assessment – Attached as Appendix B

A full notification is undertaken in Appendix B, with the result summarised below.

It is considered that the proposal is able to be processed on a non-notified basis, without the requirement for limited notification on any person, or public notification on the wider community, because:

- The proposal will have less than minor adverse effects on the environment, including visual amenity or coastal character effects and effects on coastal processes;
- No persons will be adversely affected by the proposal, having regard to the scope of the proposed works and the measuring of these works against the tests provided in the relevant planning documents
- The primary adjacent properties to the works are owned by the Applicants who are seeking to provide a cohesive approach to addressing the erosion issue at the site
- The potential effects on other adjacent neighbours (not party to the application) are less than minor
- The proposal is not considered to give rise to any special circumstances that would warrant public notification.

6.1.8 Section 221 Consent Notice on Certificate of Title

In June 2000, a subdivision was undertaken that involved the creation of six new lots (Figure 6.1.8). Of these, one is Esplanade Reserve (Lot 5 DP 196729) and one is an Accessway (Lot 6 DP 196729). As part of this subdivision, a Consent Notice was issued by the Far North District Council pursuant to Section 221 of the RMA 1991.

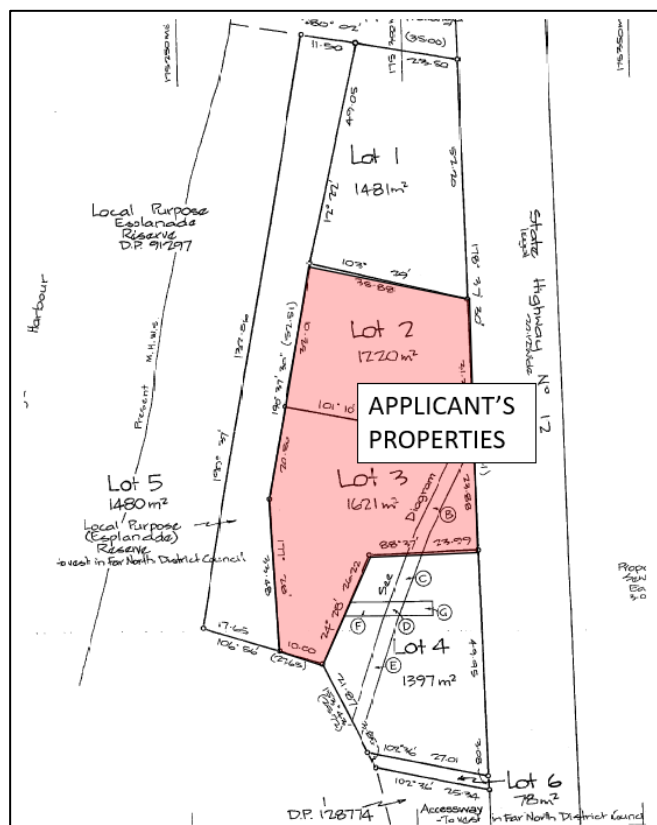


Figure 6.1.8: Subdivision Plan at time of Consent Notice (2000)

This Consent Notice sets out the following;

- "Any building erected is to be re-locatable for coastal hazard reasons
- No buildings shall be erected closer than 40 metres from mean high water springs as shown on the Haigh Consultants report dated 18 December 1996.
- Any dwelling erected will be made subject to section 36 of the Building Act 1991 stating that Council will accept no liability for any loss or damage to any building as part of any adverse coastal process
- Parts of the sites may contain fill and require specific engineering design for foundations"

The approach to addressing the potential coastal hazard at the site, at the time of subdivision, was to place this notice on the title of the subdivided lots. This was with the aim of ensuring that any new building would be located outside the area of the natural hazard, which at this point was taken to be *“40 metres from mean highwater springs”* (per Haigh Consultants, 18 December 2006).

This is a valid approach to mitigating the hazard, which would require the Applicants to re-locate their dwellings landward outside the hazard zone, as they become threatened by ongoing retreat of the coastal dune. In the case of No 264 the dwelling predates the subdivision. No provision has been made to make this a relocatable building. However as discussed above (Section 5.1), the progressive retreat of the coastal dune will continue and this will result in a progressive loss of amenity (and coastal property) for the Applicants. This is considered by the Applicants to be an unacceptable management approach and accordingly they are seeking an alternative approach to mitigate this hazard.

This alternative approach is to seek to make adequate provision to *“protect the land, building work, or other property...from the natural hazard”* (Section 71 of the Building Act 2004, which superseded the Building Act 1991 and updated the natural hazard provisions to Sections 71-72).

This will be accomplished through provision of the toe protection wall, re-shaping to the over-steep upper dune scarp, and replanting with native sand binding species.

6.2 Marine and Coastal Area (Takutai Moana) Act 2011

The MACA was passed in 2011, and repealed the Foreshore and Seabed Act 2004. The MACA created a no-ownership regime over the CMCA and introduced mechanisms to recognise customary rights of Māori in that area. These mechanisms include ‘protected customary rights’ (PCR’s) and ‘customary marine title’ (CMT).

Pursuant to Section 62 of the Act, in the period before the Crown has determined whether an application for CMT is successful, any applicant for Resource Consent is required to notify and seek the views of an applicant for CMT in the relevant area. However, as discussed earlier (Section 6.1.1), the location of the CMA (and therefore the CMCA) has been defined seaward of the proposal. Accordingly, no consultation has been undertaken with MACA Applicants.

6.3 New Zealand Coastal Policy Statement (NZCPS)

The purpose of the NZCPS is to state Policies in order to achieve the purpose of the RMA, in relation to the coastal environment of New Zealand. The proposal is considered to be consistent with the relevant NZCPS Objectives and Policies listed below:

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

- *recognising the characteristics and qualities that contribute to natural character,*
- *natural features and landscape values and their location and distribution;*
- *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.*

Objective 2 seeks the preservation of Natural Character in the coastal environment. The effect of the proposal on the Natural Character of the coastline is assessed in Section 8.1. There is the potential for tension to occur between this Objective and the desire of the Applicants to protect their property from ongoing cliff retreat.

Whilst there are no seawall structures immediately adjacent to the proposed structure, along the wider coastline there are numerous examples of armouring being undertaken to protect landward development (see Section 2.4). As noted above, the proximity of State Highway 12 to the retreating coastline has resulted in construction of a significant length of rock riprap armouring approximately 1km north of the site. Observation of additional areas inbetween this armouring and the site where erosion is ongoing (and in reasonable proximity to the Highway) indicate additional armouring to protect this major road is likely in the future.

Subdivision of the site has already occurred. With the inferred Consent decision the sites are not land where subdivision, development and use for residential housing is inappropriate.

The establishment of toe armouring at the site will allow the re-vegetation of the upper dune (approximately half the total dune height) with native dune binding species. This is considered a positive outcome for the Character of the site.

Objective 5 – To ensure that coastal hazard risks taking account of climate change, are managed by:

- *locating new development away from areas prone to such risks;*
- *considering responses, including managed retreat, for existing development in this situation*
- *protecting or restoring natural defences to coastal hazards*

The properties are existing dwellings and sites, and as such there is not the opportunity of locating this development away from the area at risk of erosion. The potential relocation of the dwellings at threat has been considered in Section 5.0, however due to the progressive erosion and loss of amenity that this would require, this option is highly undesirable to the Applicants.

The use of ‘softer’ engineering solutions such as re-nourishment would require additional control structures to maintain it in position. The re-grading of the upper bank and establishment of dune vegetation planting will minimise the risk of dune blowouts in the upper dune, and will assist in binding sand above the wall. However planting alone will not be sufficient to address the eroding dune.

Accordingly, the proposal is considered not to be inconsistent with this Objective, due to the constraints of the site and wider coastal management approach that is being applied along the Ōmāpere / Opononi coastline.

Objective 6 – To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use and development, recognising that:

- *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 social, economic and cultural wellbeing of people and communities;*

- *functionally some uses and developments can only be located on the coast or in the coastal marine area...”*

The proposed seawall has a functional need to be located within the coastal environment, in order to provide the armouring required to prevent ongoing erosion of the bank. There is no alternative more landward alignment for the wall, given steep landward dune and that dune retreat is being driven by erosion of the dune toe.

Policy 27 of the NZCPS addresses coastal hazards and provides guidance on hard protection structures:

1. In areas of significant existing development likely to be affected by coastal hazards, the range of options for reducing coastal hazard risk that should be assessed includes:

- a. promoting and identifying long-term sustainable risk reduction approaches including the relocation or removal of existing development or structures at risk;*
- b. identifying the consequences of potential strategic options relative to the option of “do-nothing”;*
- c. recognising that hard protection structures may be the only practical means to protect existing infrastructure of national or regional importance, to sustain the potential of built physical resources to meet the reasonably foreseeable needs of future generations;*
- d. recognising and considering the environmental and social costs of permitting hard protection structures to protect private property; and*
- e. identifying and planning for transition mechanisms and timeframes for moving to more sustainable approaches.*

2. In evaluating options under (1):

- a. focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions;*
- b. take into account the nature of the coastal hazard risk and how it might change over at least a 100-year timeframe, including the expected effects of climate change; and*
- c. evaluate the likely costs and benefits of any proposed coastal hazard risk reduction options.*

3. *Where hard protection structures are considered to be necessary, ensure that the form and location of any structures are designed to minimise adverse effects on the coastal environment.*
4. *Hard protection structures, where considered necessary to protect private assets, should not be located on public land if there is no significant public or environmental benefit in doing so.*

A Guidance Note has been provided (December 2017) on both Objective 5 (the coastal hazard objective) and the four Policies that address coastal hazards (Policies 24-27). As outlined in this guidance note:

“the overarching goal of the coastal hazard objective and policies is to manage coastal hazard risks so that the likelihood of them causing social, cultural, environmental and economic harm is not increased. This includes harm arising from responses to those coastal hazards, such as the addition of hard protection structures. The adoption of long-term risk-reduction approaches is strongly encouraged”

To determine the appropriateness of a hard protection structure at this section of coastline, it has been demonstrated in Section 5.0, that the ‘soft’ protection options such as planting and renourishment are not appropriate to deal with the progressive erosion hazard at site.

The option of ‘*Managed Retreat*’ has also been considered. If the beach state was providing evidence that the current erosion trend was part of a longer-term fluctuation around an equilibrium profile, then there would be a strong case for a managed retreat at the site comprising relocation of the existing dwellings at threat. Once these were moved landward the duneline could continue retreating, reach its maximum eroded position, before (at some point in the future) beginning to accrete again. However, the material exposed in the dune scarp is old, consolidated sedimentary material, rather than dune sands. This extent of erosion is occurring landward of any potential equilibrium profile, and based on the historical dataset it has been progressive for at least the last 60 years. The exact effects of sea-level rise on future dune retreat are potentially uncertain, although likely to result in an increase in the rate of erosion of these sandy shorelines. A re-location of dwellings to a more landward location does not prevent a progressive loss of land for the Applicants from the combined effect of this progressive erosion and likely future increase. Accordingly it has been determined that this

option is not appropriate, and the Applicants are seeking to reduce the long-term hazard risk by providing toe protection to the coastal dune.

Policy 27(4) sets out that hard protection structures should not be located on public land if there is no significant public or environmental benefit in doing so. It is therefore important to consider whether it is practicable to establish an armouring measure to prevent cliff retreat located entirely on private property. The dwellings are located on raised ground at the head of the cliffs, with the existing property boundaries located at or in close proximity (2m approx.) to the headscarp of the cliffs. In order to prevent erosion the armouring needs to be located at the toe of the dune.

Establishing erosion protection inside the Applicant's property would require relocating the dwellings, allowing the dune line to retreat, and then constructing the armouring as currently designed.

It is noted that pursuant to the Marine and Coastal Area Act 2011 (see Section 6.1.6) the local Authority has been divested of title to the seaward Reserve (Lot 2 DP 91297) and this area is now CMCA. In addition, at times of low sand level, the landward Reserve (Lot 5 DP 196729) is partially under water and that part of the title is also now CMCA. The extent of remaining public land in this area comprises predominantly a steep dune scarp that is unsuitable and unavailable for access. This remaining public land will be imminently lost by ongoing cliff retreat, therefore the additional public value that will be gained by requiring this approach is considered to be negligible.

On balance, due to the constraints of the site, progressive nature of erosion, and management approach being adopted elsewhere on the wider coastline, the establishment of a hard protection structure across the two sites is considered not to be inconsistent with the provisions of the NZCPS 2010.

6.4 Northland Regional Policy Statement

The aim of the Northland Regional Policy Statement (NRPS) is to promote sustainable management of Northland's natural and physical resources, in accordance with the purpose and principles of the Resource Management Act 1991 (RMA).

The proposal is considered to be consistent with the relevant NRPS Objectives listed below:

Objective 3.13 – “The risks and impacts of natural hazard events...on people, communities, property...are minimised by...

(e) Enabling appropriate hazard mitigation measures to be created to protect existing vulnerable development...”

The existing dwellings and property are located within an area undergoing progressive retreat, and the close proximity of the cliff scarp to the dwellings mean they are considered highly vulnerable to erosion over the next 50 years. An options assessment has been undertaken and the construction of toe armouring to prevent ongoing retreat demonstrated to be the most suitable option at the site. This is considered therefore an appropriate mitigation measure, being a similar type of structure to that already existing on the subject coastline.

Objective 3.14 – “...protect from inappropriate subdivision, use and development

(a) the qualities and characteristics that make up the natural character of the coastal environment, and the natural character of freshwater bodies and their margin...”

As identified by the Northland Regional Plan, the characteristics that make up the Natural Character of the coastal environment within the Hokianga Harbour have been identified as wide-scale values of a relatively untouched landscape, with few human structures, with outstanding features including large headland dunes and large areas of native bushland. The subject site is set within an area of localised development within the harbour, remote from these specifically identified features. The Character of the coastline bordering Ōmāpere / Opononi is considered somewhat compromised, due to the development of existing coastal protection structures. The sites are already subdivided and development for residential use, which is not changing as a result of the proposal. The current proposal is rather a consequence of the existing use of these

sections established at the time of the subdivision. As noted above, the Character of the Harbour is established by large scale features, observed from distance. The relatively small scale structure at the toe of the dune will not affect these wider scale landforms and values. Further, the visual effect of the wall from distance will be significantly mitigated by the revegetation planting to the upper dune.

6.5 Northland Regional Soil and Water Plan

6.5.1 Regional Soil and Water Plan Zoning

The Northland Regional Soil and Water Plan (NRSWP) manages the effects of land use activities on water and soil in Northland above the line of MHWS. The relevant area is identified as a Riparian Management Zone, which extends from MHWS at the seaward extent to 20m landward of the 'top of the bank' where the dominant slope is greater than 15 degrees, as it is at the site (Figure 6.5.1a). This encompasses the entirety of the work proposed at the site, with this line extending to approximately the rear of the existing dwellings (Figure 6.5.1b).

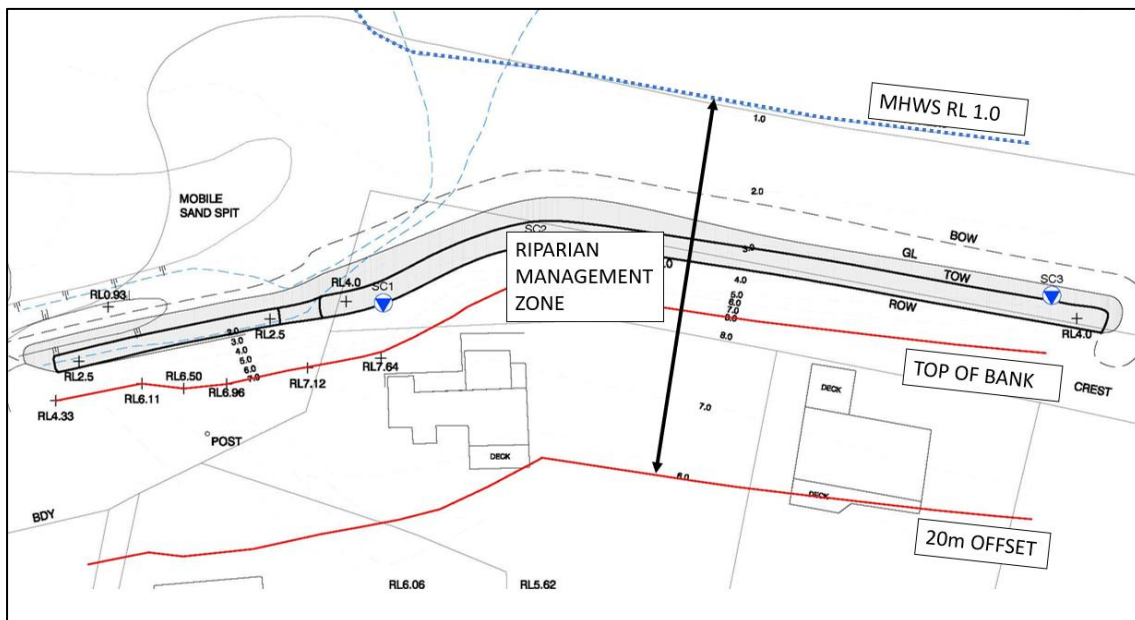


Figure 6.5.1a: Riparian Management Zone – ex Northland Soil and Water Plan

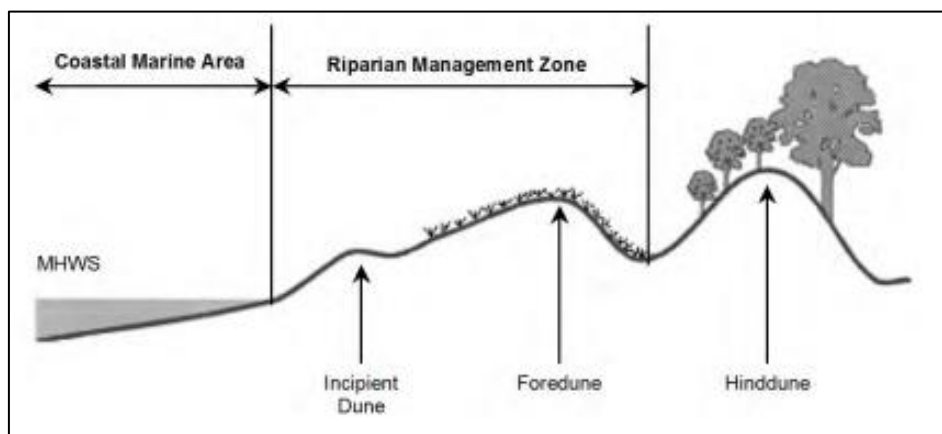


Figure 6.5.1b: Riparian Management Zone overlaid on site aerial

6.5.2 Regional Soil and Water Plan Activity Status

Consent under Section 9 (2) RMA – Land Disturbance within a Riparian Management Zone

Rule 34.3.1 of the NRSWP defines that earthworks activities not complying with the Permitted Rules are a Discretionary Activity, that is, earthworks exceeding an area of 200m² and/or a volume of 50m³. Earthworks totalling 750m² and 300m³ (net) are proposed (more detail provided in Section 4.3). Therefore, these earthworks within the Riparian Management Zone are defined as a Discretionary Activity.

In addition, Rule 34.1.3 of the Permitted Rules states that earthworks in the Riparian Management Zone also must comply with the General Environmental Standards of Section 32. Where these do not, Rule 34.3.1 defines these as a Discretionary Activity. Standard 32.1.6 states *“the activity shall not interfere with...any other sites known to the local iwi which are of spiritual or cultural significance to Maori...”*. The site is in close proximity to a Site of Cultural Significance to Maori, and therefore the proposed land disturbance is considered as a Discretionary Activity.

6.5.3 Regional Soil and Water Plan Statutory Assessment

Land disturbance associated with the proposed Seawall does not comply with General Environmental Standard 32.1.6 in that *“the activity shall not interfere with or destroy any waahi tapu, as defined in the Definitions, urupa or any other sites known to the local iwi which are of spiritual or cultural significance to Maori, which have been identified to the Council...”*. As

detailed below, the site is defined as a Site of Cultural Significance to Maori under the District Plan as a “*tauranga waka; ancestral place*”.

Pre-lodgement consultation has been undertaken by the Applicants with a representative of the local hapū management committee, who represent Ngāti Korokoro, Ngāti Wharara and Te Pouka. It is understood from this initial consultation that a burial site is located immediately south of the seawall, where issues have arisen with koiwi (human bones) being exposed in the retreating dune scarp. Consultation with this party is expected to be ongoing through the Resource Consent process and any further feedback on the proposal will be provided to the Consent Authority when it is received.

Assessment Criteria associated with land disturbance activities are provided in Section 36.4, which generally require Applicants to demonstrate potential for effects on sedimentation, loss of vegetation, and timing and scale of works. A summary of responses to these criteria is provided below.

The land disturbance activity comprises re-shaping of a coastal dune. Following construction of the seawall, approximately 3-4m of the upper dune will remain over-steep above the structure, along approximately 100m of the coastline. This will be re-shaped using an excavator to a more stable 1(vert):2(horiz) batter, and will primarily comprise reducing the height of the upper dune and respreading this material to the foreshore immediately seaward of the new wall. The works will be undertaken immediately following construction of the seawall, and due to the simplicity of the work will be quick to undertake (approximately 1-2 days), with no material needing to be removed from site.

The work is to be undertaken on a coastal dune immediately adjacent to the coastal area. The material to be disturbed comprises unconsolidated dune sands, and more consolidated cemented sandstone. This material is already exposed in the dune scarp, and due to the presence of the seawall is not at risk of further wave attack during the earthworks. As this material is essentially sand, the risk of exacerbated sedimentation of the adjacent Harbour due to mobilised silt is considered to be very low (Criteria 36.4b).

Significant re-vegetation of the re-shaped dune is proposed, which is not currently practicable due to the progressive erosion. This planting will be undertaken in the first planting season following the works. To assist in the establishment of this vegetation two lines of temporary wind fencing are proposed which will assist in minimising mortality of these plants as they establish on the exposed dune face and reduce the risk of dune blowouts as these plants are establishing (Criteria 36.4e). The fencing will remain in place until the plants have established a comprehensive cover to the upper dune, estimated to be approximately 2-5 years.

A full assessment of the proposal against these criteria has been undertaken in Appendix C1 and the work demonstrated to be consistent with these criteria.

6.6 Proposed Northland Regional Plan – Appeals Version

At present, a cohesive Proposed Northland Regional Plan (PNRP), which combines the individual plans (Coastal, Soil and Water, Air Quality) is proposed and in the Appeals stage. This plan is not yet Operative, however a Statutory assessment against the 'Appeals Version' of August 2020 has been presented below.

6.6.1 Proposed Northland Regional Plan Zoning

The seawall and access structure are above the MHWS line, and also above the 'Cross-River Coastal Marine Area Boundary' as shown on the PNRP maps (Figure 6.6.1). Therefore many of the new protection elements in relation to the CMA (such as Significant Ecological Areas) are not relevant to the proposal.



Figure 6.6.1: Site and indicative Coastal Marine Area Boundary (red line)

6.6.2 Proposed Regional Plan Activity Status

Consent under Section 9(2) RMA – ‘CMCA Structures’

Rule C1.1.22 of the Appeals Version of the Northland Regional Plan defines the “*erection, reconstruction, placement, alteration, extension, maintenance, repair, removal or, demolition of a hard protection structure and the occupation of the common marine and coastal area by the hard protection structure...and the use of the hard protection structure*’ as a Discretionary Activity.

Rule C1.1.22 addresses hard protection structures within the CMA, and as the seawall is outside the CMA it may be considered this rule does not apply. However the note associated with the rule states “*for the avoidance of doubt it covers RMA activities associated with the erection, placement, replacement, alteration, extension, maintenance, repair, removal or demolition of a hard protection structure (s9(2))*”. As Section 9 of the RMA only relates to restrictions on use of land, then it is interpreted that this rule applies to the proposal. Accordingly it is addressed within this application, which is defined based on the note above as a Discretionary Activity.

Rule C8.3.4 of the Appeals Version of the Northland Regional Plan defines the “*Earthworks outside the bed of a river or lake, a wetland, or the coastal marine area, and any associated*

damming and diversion of stormwater and discharge of stormwater onto or into land where it may enter water, that are not a permitted or controlled activity under another rule in section C.8.3 of this Plan” as a discretionary activity. Therefore, earthworks exceeding 200m² within the Coastal Dune and Riparian Management zone are defined as a Discretionary Activity.

6.6.3 Proposed Regional Plan Statutory Assessment

Policies for Hard Protection Structures are provided by the PNRP under Sections D.6.1 and D.6.2. The proposed works have been assessed against these in Appendix C2 and demonstrated to be consistent with these Plan provisions.

Policy D4.26 of the PNRP provides Criteria to be adhered to when considering earthworks activities. These are very similar to the issues raised and addressed under the Regional Soil and Water Plan above (Section 6.5) and accordingly these are not assessed again under the PNRP.

7.0 Consultation

7.1 *Mana Whenua / Customary Marine Title Applicant Consultation*

The proposed works are outside the CMA and therefore not subject to the provisions of the MACA 2011 with respect to consultation with CMT Applicants. This consultation has not been undertaken.

However, due to the identified significance of the site to local iwi, and the proposed undertaking of earthworks at the coastal margin, the Applicant has made contact with a representative from the local hapū management committee, who represent Ngāti Korokoro, Ngāti Wharara and Te Pouka.

The project was discussed, although no formal feedback was received. This correspondence is attached (Appendix D). It is understood that there is a wāhi tapu comprising a historic burial reserve adjacent to the Waihuka stream, on the subject northern side of the river, and that koiwi (human remains) have been periodically exposed by the ongoing erosion. Due to the importance of the site it is expected that consultation will be ongoing with the local hapū. The contact person, Alan Hessel, has advised that Council can also contact them directly regarding the proposal (094058832, gildahessel@xtra.co.nz)

Any resulting feedback or reporting will be provided to the Consent Authority as it is available.

8.0 Assessment of Environmental Effects (Schedule 4)

8.1 Preservation of Natural Character

The majority of the wider Hokianga Harbour is identified as an area of High Natural Character under the PNRP (Figure 8.1). The Plan describes the Harbour Character as having:

“Largely indigenous cover and infauna. Commercial fishing methods constrained to some degree in the Harbour. Few obvious human structures within the Harbour (apart from navigation marks)”.

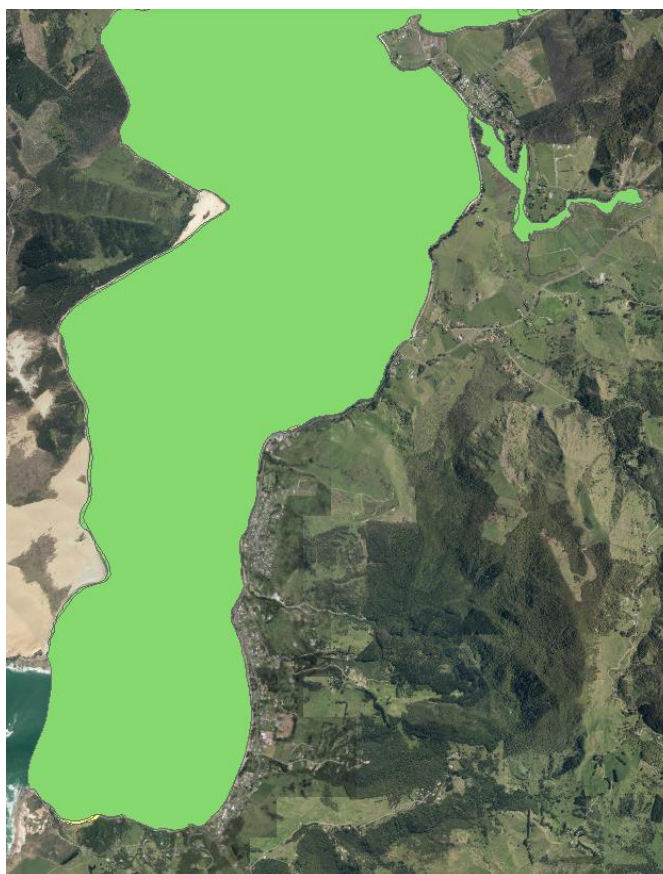


Figure 8.1: Mapped area of High Natural Character, ex PNRP

At a more localised scale, the 4km stretch of coastline between the coastal settlements of Ōmāpere and Opononi has had a moderate degree of human modification and built development. The townships of Ōmāpere and Opononi were areas of historic early settlement on the banks of the Hokianga. This has intensified over time, with these small rural coastal

villages generally established directly adjacent the coastal margin, with the hinterland primarily farmland with sparse dwellings. The State Highway, constructed in the mid 1930's, runs parallel to the line of the coast and can be seen in the foreground below (Photograph 8.1a); in places dwellings are located seaward of the highway, in other places the highway is directly adjacent the coast.

The development of this coast has resulted in associated coastal armouring and foreshore access structures, which are varying in quality. An armoured section of coastline is visible in the image below, with the northern extent of the coastline in this image now armoured, as the shot was taken prior to construction of the NZTA seawall. These structures have been outlined in Section 2.4 above, and consist of a range of rock revetment and rock riprap walls, and also a large seawall and jetty south of the site (Photograph 8.1b).



Photograph 8.1a: Existing built character north of site ex www.barfoot.co.nz (accessed Feb 2020)



Photograph 8.1b: Existing built character south of site ex www.barfoot.co.nz (accessed Feb 2020)

Elements contributing to the Natural Character of the site are the high coastal dune scarp and sandy foreshore. There is relatively little mature native vegetation on the site, with a generally sparsely vegetated dune crest, the exception being a semi-mature Pōhutukawa located at the northern extent of No 264.

There is tension between the preservation of the Natural Character of the coastline, and the desire of the Applicants to protect their properties from ongoing coastal erosion. The protection of private property from ongoing retreat of the coastal margin has resulted in the construction of a number of existing seawall structures as highlighted above. These structures to an extent compromise the Natural Character of the immediate Ōmāpere/Opononi coastline. As set out earlier, ongoing retreat of this coastal dune is likely to result in increasing pressure on the adjacent development. The existing management approach (for both private property and national infrastructure) has been to address the erosion with armouring rather than shift the property/asset out of the hazard zone, and this proposal is consistent with this management approach.

Applications for coastal armouring are more likely to be appropriate when they are located in areas where armouring exists already, and they are able to maintain a cohesive style. Whilst there are no armouring structures immediately adjacent to the site, there are a number of existing built structures on the coastline north and south. The proposed armouring provides toe protection to the dune only, rather than seeking to armour the entire dune face. This allows

development of a planted dune above the seawall which is considered a positive mitigating factor for the proposal. In addition, the semi-mature Pōhutukawa will be retained and allowed to reach maturity which is another positive mitigating factor. The vegetation will directly mitigate visual effects of the structure by obscuring parts of the seawall, but it will also represent a positive outcome for the wider Natural Character values.

Development within this section of coastline, at the local scale proposed, in an area that is already modified, doesn't detract from the wider scale Character values of the Harbour outlined above. As a consequence, the potential effects on Natural Character of the proposed armouring are considered to be minor.

8.2 Cultural / Historic Heritage

The FNDP identifies an area encompassing the southern extent of No 266, the outlet of the stream, and some of the adjacent headland south of the stream, as a 'Site of Cultural Significance to Māori' (Figure 8.2). The site is scheduled as "*Te Paraoa - tauranga waka; ancestral place*". Further information on the Waihuka stream and its' cultural significance was found online:

"Midway along Omapere bay is the Waihuka stream. There was once an ancient wahi tapu and a tauranga waka at its mouth. The wahi tapu was on a point of land on the northern bank, the tauranga was on its inland side. Both were completely destroyed by flooding and rough tides in 1904. The foreshore further inland beyond where the wahi tapu and tauranga waka were in 1904, has also eroded. The human remains were gathered up and buried. Fewer human remains are now found. Among the artefacts recovered were unfinished adzes." (WAI 2003, Second Statement of Evidence of John Klaricich, dated 18th March 2014)

As discussed, the Applicant has made contact with a representative from the local hapū management committee, who represent Ngāti Korokoro, Ngāti Wharara and Te Pouka, to discuss the project. It is understood that this hapū is best placed to provide advice on potential effects to cultural heritage of the proposed works. The Applicants intend that this consultation will be an ongoing process, however no formal feedback has been received at this point. It is understood that there is a wāhi tapu comprising a historic burial reserve adjacent to the

Waihuka stream, on the subject northern side of the river, and that koiwi (human remains) have been periodically exposed by the ongoing erosion. Due to the importance of the site it is expected that consultation will be ongoing with the local hapū. The contact person, Alan Hessel, has advised that Council can also contact them directly regarding the proposal.

Any information or reporting arising from this consultation will be provided to the Consent Authority as it is available.

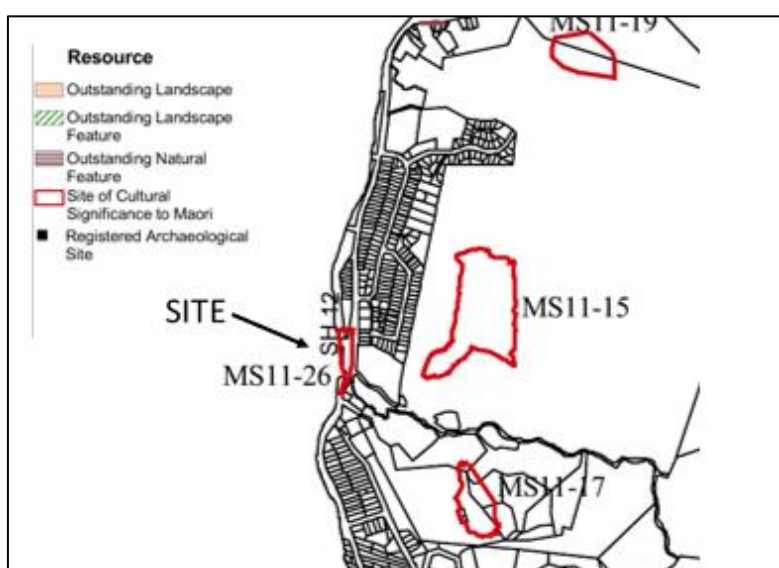


Figure 8.2: Site in proximity to 'Site of Cultural Significance to Māori'

It is expected that standard Resource Consent conditions will be imposed dictating Archaeological Discovery protocols. These protocols will likely dictate that all site works in the vicinity of the discovery should cease; a site supervisor should secure the area to ensure that artefacts or remains are untouched; and that the site supervisor would notify Mana Whenua, the New Zealand Historic Places Trust, Department of Conservation, and both the local (FNDC) and regional (NRC) Councils.

8.3 Visual Impact

Three potential viewing audiences of the seawall structure can be defined:

- (a) View for local residents overlooking the site
- (b) View for recreational users of the beach
- (c) View for boat users of the Hokianga

(a) View for local residents overlooking the site

The site extends across the base of the dune scarp seaward of No 264 – 266, and south up the bank of the stream outlet, seaward of No 268 and No 270 (Figure 8.3). These two properties to the south are the closest dwellings to the site and consideration of the potential visual effects of the new structure on these properties needs consideration.

Images have been obtained of the seaward view from both of these properties (Photograph 8.3a - No 268, Photograph 8.3b - No 270). The indicative arc of the photos has been marked up on Figure 8.3a. As can be seen from both properties, there are expansive views looking to the west across to the harbour mouth, to the raised rock cliff and vegetated headland at the southern arm of the harbour, and the large dunes at the northern arm of the harbour.

In the foreground, the raised dune ridge is evident, with the mature pine trees dominating on the dune south of the river outlet, and the grass / pampas evident on the northern dune. As can be seen, with the exception of the river outlet, the raised northern dune ridge entirely obscures the interface at the base of the dune and the foreshore. It is at this location where the proposed seawall is to be located.

The property at No 270, is most likely to be able to see the seawall, with a view looking down the alignment of the river. As can be seen from the photograph, where the approximate end of the structure has been marked, only the low end to the structure at this upstream end is potentially visible. The bulk of the seawall will be hidden behind the raised dune ridge and not visible for this property.

The property at No 268 has a greater level of visual obstruction of the seawall alignment by the dune ridge and as can be seen in the image is unable to see any part of the foreshore.



Figure 8.3a: Adjacent properties and indicative locations of photos



Photograph 8.3a: View from adjacent dwelling at 268 SH 12 (www.bayleys.co.nz, accessed 22/09/20)



Photograph 8.3b: View from adjacent dwelling at 270 SH 12 (ex www.bookabach.co.nz, accessed 15/10/19)

Accordingly, as evidenced by the above images, the potential visual effect of the new wall on these adjacent properties is considered to be less than minor.

(b) View for recreational users of the beach

The two closest public access points to the site (Figure 8.3b), are 220m north at Lucy Baxter Reserve, and 500m south at Freese Park, just north of the boat ramp and jetty. Public access is difficult at Lucy Baxter Reserve due to the height of the dune scarp and lack of any public access structure. However, due to the concentration of dwellings along this coast, pedestrian traffic is likely along the beach, especially during the warmer summer months. The seawall will be visible to users of the beachfront in this area. However, given the reasonable extent of coastal modification already present along the beachfront, and that most beach users will be traversing a reasonable length of beach between access points, encountering a number of different seawalls, this additional length of seawall is considered to be consistent with the experience of

these users. The establishment of a significant area of natural dune vegetation is considered to be a positive aspect of the proposal for these users.



Figure 8.3b: Indicative public access points to foreshore

(c) View for boat users of the Hokianga

There is a public access boat ramp located approximately 650m south from the site, within the centre of Ōmāpere township. An additional public boat ramp is at Opononi, opposite the Opononi hotel, 3km north from the site. As such boat traffic past the site is likely to be relatively frequent when conditions permit.

The harbour is likely to be frequented by recreational boat users, for fishing, seafood collection and water sport activities in the summer months. Ferries also frequent the harbour, taking passengers to dune-boarding activities on the sand dunes opposite Opononi.

Typical expected boat traffic navigational paths are outlined below (Figure 8.3c). Nearshore boat access is likely to be relatively unusual in the harbour, with most boat traffic heading to and from

the harbour mouth, to the boat ramp at Ōmāpere or Opononi, and keeping to the deeper channel. As such, typical viewing distances for boat users will be in the range of 400 to 650m.

The seawall, of which majority will be buried under the beach front, will extend to RL4.0. At sand level at the time of the site investigation, this would result in a structure approximately 1.5m high at the base of the dune. At the viewing distances outlined above, and with the establishment of the dune planting to the upper dune, a structure of this scale is unlikely to be readily discernible from the backing dune.

The access stairs will extend to the head of the dune, approximately RL 7.0, however they are a narrow, natural timber structure, approximately 1.5m wide, and the timber will tend to 'silver' off over time giving it a relatively recessive appearance.

In the context of the wider coastline including armouring structures, a jetty, boat ramp and other modification of the coastal margin, the proposed seawall and stair is considered to be of a similar type and scale to existing structures in the area, and therefore consistent with the visual effect of this stretch of coastline. The wall is not considered to markedly alter the view of the Bay, for boat users viewing the wall.



Figure 8.3c: Typical Boat Movements

8.4 *Public Access to and along the CMA*

Primary points of public access to the CMA are shown above (Figure 8.3b), which indicate relatively few points of ready access to the foreshore for beach users along the Ōmāpere embayment. In addition, there is a small Reserve strip located between the boundary of 270 and 268 State Highway 12 (Figure 8.4a). This Reserve access was provided as part of the subdivision in 2000 (DP 196729). This access is available for pedestrian use, although it is not clearly marked and with no defined path to the foreshore it is unlikely that it is used frequently. The approximate location of this access is shown below (Photograph 8.4) although we note this has not been surveyed so is indicative only. Any users of this access seeking to access the beach would not be affected by the wall. As noted above due to the concentration of dwellings along this coast, pedestrian traffic is likely along the beach, especially during the warmer summer months.



Figure 8.4a: Indicative pedestrian access located between 270 and 268 SH12



Photograph 8.4: Indicative location of public access to Reserve

Part 2 of the RMA sets out that the '*maintenance and enhancement of public access to and along the coastal marine area*' is a Matter of National Importance. Accordingly, where any structure is proposed that occupies space both within (and in the case of the proposal adjacent to) the CMA the potential effects on ready public access require consideration.

The wall will occupy a total footprint at the base of the dune of approximately 8m, however when sand levels on the beach are high, the majority of this structure will be buried. Therefore, it is sand level on the beach that exerts the primary control on how the new wall affects access. At sand level at the time of survey, approximately 5m of wall footprint was located above the foreshore (Figure 8.4b). With MHWS at RL 1.8, approximately 8m of high tide beach remains seaward of the structure and available for pedestrian access.

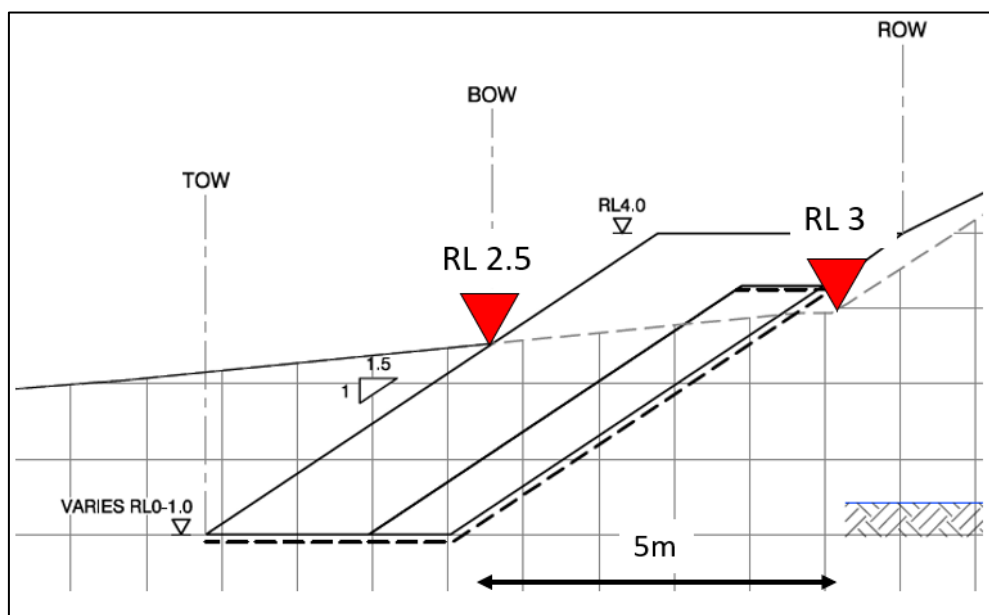


Figure 8.4b: Indicative area of occupation of structure – current sand level

8.5 Ecology and Natural Environment

The area of the proposed seawall, foreshore access stair and dune re-shaping is considered to be of relatively low ecological value. This is primarily due to the progressive erosion of the dune scarp preventing the development of any vegetation on the face of the dune. The sandy sediments of the foreshore are likely to provide habitat for small benthic species.

The existing foreshore sand will be excavated down to the design founding depth for the new wall. This has the potential to disturb any small organisms occupying this area. However, benthic communities occupying these dynamic beach features are considered relatively resilient, used to the dynamic influences of the coastal environment such as erosion and fluctuation in surface level. Following industry standards for noise, and ensuring no hydrocarbons / hydraulic fuel and the like are released to the surrounding environment by construction traffic can localise the effects of this disturbance.

The re-shaping of the rear dune will enable the establishment of a significant area of native dune vegetation species, approximately 900m² of upper dune and dune crest will be re-vegetated with spinifex, pingao, bracken and pohuehue. This will provide a natural dune habitat where one does not exist at present, and is considered a significant positive benefit to the ecology of the site.

The siting of the contractor's area, and movement of traffic delivering rocks to the site, is remote from the CMA. This contractor's area will be located on one of the Applicant's property, which is a flat grassed site (see Section 4.4.1). A temporary access will be formed down the dune face, and construction plant will comprise an excavator and a tracked dumper for transporting rock to the foreshore. Works will be undertaken on the foreshore as tidal level allows, with all machinery removed from the CMA prior to the subsequent high tide.

The proposed works are not considered to have an ongoing effect on the ecology of the foreshore.

8.6 *Effects on Coastal Processes*

8.6.1 Coastal Erosion

The rock riprap wall has been designed to address the existing erosion hazard at the site currently threatening the backshore dwellings. The most vulnerable areas are located at the interface of the dune scarp with the foreshore, which is where erosion processes are concentrated. There is good evidence elsewhere on the coastline (see Photograph 2.4a) of even relatively rudimentary rock walls (at approximately RL 3.5 – 4.0) preventing progressive retreat of the dune. This provides good calibration as to both a wall crest height that is effective (at current sea level), and also the specification of wall (rock size, number of layers) that is likely to be required.

The seawall crest height for the main wall, where it is armouring the dune toe, has been set at RL 4.0. This provides 1.8m of freeboard above the current 1% AEP storm tide level, and 1.4m freeboard above the 1% AEP storm tide including wave set-up. At the existing walls north of the

site, evidence of overtopping (dead kikuyu) was evident at RL 3.6, however it was not where the crest height was RL 3.7 – 3.8. This provides indication the proposed crest height is of the right order and of a similar scale to other existing structures on the coastline.

As can be seen below (Figure 8.6.1a) the geotextile fines barrier behind the wall extends to approximately RL 3.3. This is because it is not practicable to effectively pin the backing geotextile behind the armour layer, where it would be visible and detract from amenity. Providing a geotextile to a higher elevation (say RL 4.0) would effectively require an increase in both wall footprint and crest height, such that the wall underlayer reached this level. This is not considered to be necessary, given demonstrated reasonable performance of lower specification structures on the subject coastline. Given the height of the geotextile level above both MHWS and the more extreme water levels, this 700mm section of wall above the geotextile is considered likely to be subject to swash and uprush only, rather than inundation below the static water level. Given the proposal to establish dune planting to the upper slope, these species are likely to send shoots down into the gaps between this top armour layer and assist in retention of sand in this location. Accordingly, the risk of large-scale erosion of dune sands from behind this upper armour, above the geotextile level, is considered to be low.

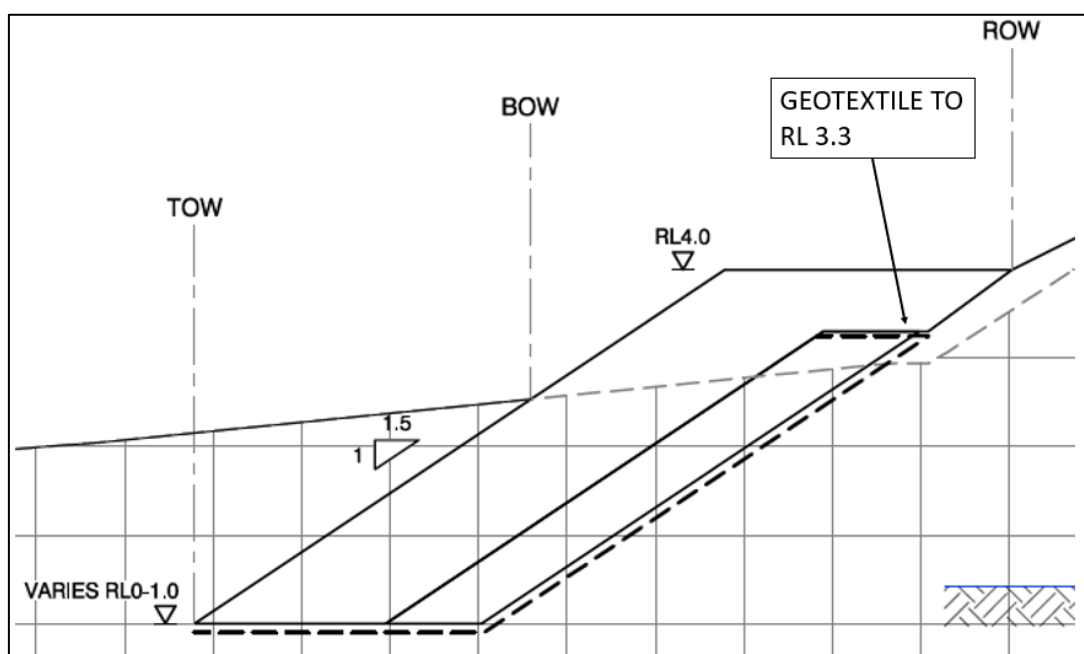


Figure 8.6.1: Indicative section showing geotextile level

The wall toe will be excavated approximately 500mm into underlying harder material, to prevent potential foundation undermining. This allows for the entire loss of the existing beach in front

of the structure (approximately 1.5m deep at time of survey), and lowering of 500mm of the underlying material, before the seawall is at risk of undermining. This is considered a suitably conservative allowance.

At the northern wall end, an end detail will be placed that comprises returning the main wall face at 90° into the backing dune. The wall will return a maximum of 4m into the dune face. Based on an indicative historic retreat of 0.4m, this allows for 10 years of dune line retreat before the wall end is threatened by the retreating coastline. Providing embedment greater than this into the existing over-steep dune would threaten collapse of the adjacent dune and is not considered to be practicable. Should the dune line retreat over the lifetime of the structure such that outflanking of the wall is threatened, it would be far simpler to increase the embedment at the end of the wall another 2-4m into the existing dune material at that time. The interaction with the southern wall end and the fluvial processes is discussed in more detail below (Section 8.6.2).

Potential end effects of this return wall end, adjacent the unarmoured dune, need consideration. Wall end effects can be caused in five primary ways.

- a) Groyne effect
- b) Return flow of over-topping and uprush
- c) Waves acting at an angle to the wall
- d) Rip currents and differential head
- e) Deflection of Swash

Groyne Effect

The proposed wall does not extend far enough down the beach profile to create a groyne effect. This would require a structure protruding further into the zone of typical sediment transport in order for any longshore movement of sediment to be disrupted by the groyne. Observation of similar scale structures on the shoreline to the north do not appear to be preferentially trapping sand at one side of the structure. Further evidence for the general lack of longshore transport is indicated by the beach cusps present on the beach, as these are only formed on beaches where incident wave energy is shore normal.

Return Flow of overtopping and uprush

Where water overtops a wall it can concentrate and scour an exit path, often at the end of the structure or at a point of weakness. However, the proposed riprap wall is permeable and overtopping will percolate back through the wall without significant concentrate. Accordingly this effect is not considered to result in additional scour.

Waves and or Swash Acting at an angle to the wall

This phenomenon can create longshore transport of sediment by resulting in a component of wave energy or swash current acting in a shore parallel direction. The wave environment at Ōmāpere is considered to be dominated by the south-westerly the deep water ocean waves, reducing in energy and spreading as they pass through the mouth of the harbour. This effect is evident in the aerial images (Figure 3.4). These waves are approaching at approximately shore perpendicular, which is also perpendicular to the alignment of the seawall. Whilst there is evidently very localised variations in longshore sediment movement, with wave fronts impacting the 'horns' of the beach cusps and diverging, at the wider embayment scale there does not appear to be any wave driven longshore sediment movement. As a result negative effects due to waves/swash approaching at an oblique angle to the wall face are considered to be negligible.

Rip Currents/Differential Head

The cause of rip currents within surf beaches is the subject of much study and some conjecture. The case of rip currents high on the beach face, where the actions are primarily of swash not wave action, is atypical of most rip currents. Swash moving up the beach impacting on a wall face will gain elevation when compared to swash moving up the unarmoured adjacent beach face (Figure 8.6.1b).

For example if the beach is at 1:10 and the wall at 1:2 when the water has flowed 1m past the toe of the wall the water elevation of swash on the wall will be 500mm, while the water elevation on the beach will be 100mm. This is a simplified illustration of the actions for explanation. Greater turbulence and potentially permeability of the wall will change the parameters but the principle holds and the situation creates a differential of head. The net differential in head will

create a component of flow in a shore parallel direction towards the end of the wall. The accelerated greater volume of flow preferentially scours the adjacent unprotected bank causing additional scour at the end of the wall. Similarly, a greater return current is created scouring the foreshore in a rip current type action.

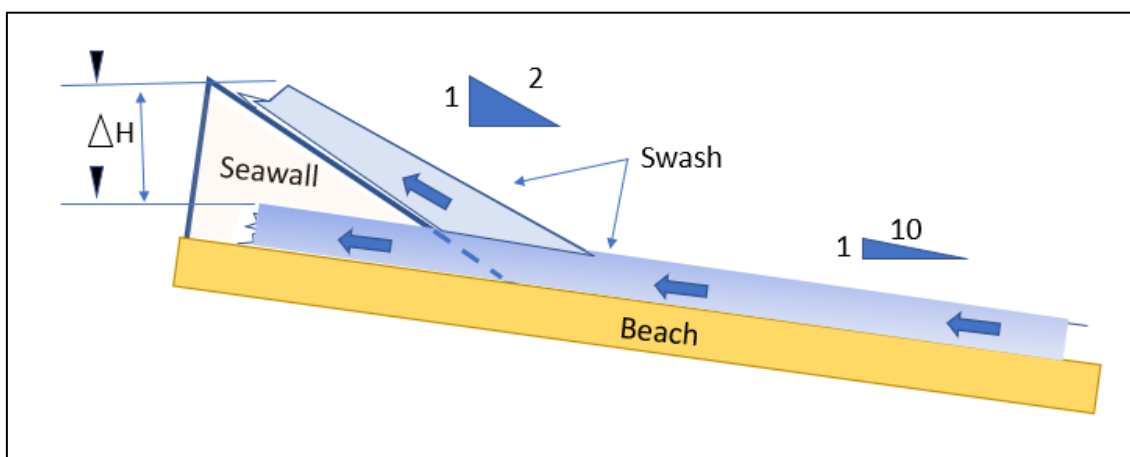


Figure 8.6.1b: Head differential at wall end

The placement of the new structure at the toe of the dune, as high as practicable up the beach profile, minimises the risk of this occurring.

Deflection of swash and wave energy by end of wall

This is a special or localised case of a wall being at an angle to the beach face. Where swash acts on the end of the wall it is deflected and channelled along the wall face to the adjoining bank. The return current then also tends to scour more as described above. The wall as proposed is located on an alignment that is directly perpendicular to the dominant angle of wave attack and accordingly there is low risk of deflection of swash and wave energy along the wall. Incoming energy will tend to be deflected directly back out to sea given the shore normal incident angle.

8.6.2 Fluvial Processes

The design intent with the Type 1 wall, extending along the bank of the Waihuka stream, is to protect against fluvial driven erosion on this bank, and also to provide a suitable end detail to the wall that is not at risk of outflanking due to fluvial processes. This allows for a lower crest height (RL 2.5). The upstream wall end has been taken past the point where scour of the river

bank is evident, terminating just downstream of the confluence (Photograph 8.6.2a) between the main river arm and the overland flow path that runs south behind No 266 (see Figure 2.3).

The river planform has been measured (Figure 8.6.2) and is approximately 4m². The new armouring occupies a planform area of 1m², or 25%. This reduction in storage capacity may have the result of increasing the level of the river during catchment flooding events. This will not cause any issues on the northern side of the river due to the new armouring. The facing bank of the river is heavily vegetated at present (Photograph 8.6.2b), and despite some slight undercutting of this vegetation does not appear to be undergoing active erosion or scour due to the river flows. A temporary increase in river level during storm events does not appear likely to expose readily erodible material to fluvial processes, due to the presence of this vegetation. Accordingly the structure is not considered likely to result in undue additional scour to the facing southern bank of the river.



Photograph 8.6.2a: Indicative upstream end to wall

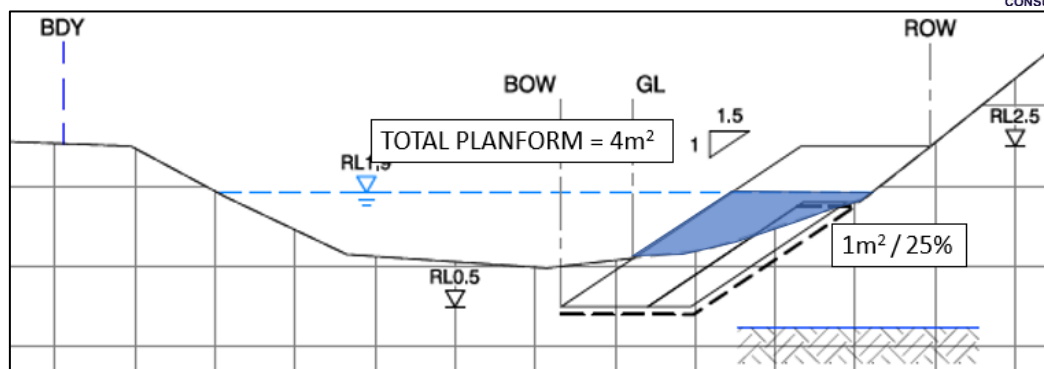


Figure 8.6.2: River planform occupation



Photograph 8.6.2b: Vegetation on southern bank of Waihuka stream

The historic aerial images indicate the outlet of the stream has meandered over time. At the time of the site visit it was tracking north, running along the base of the dune line before outletting onto the foreshore. However, at other times it has adopted a tight curve around the southern headland, with an outlet south of the vegetated headland (Photograph 8.6.2c). This process appears able to occur reasonably rapidly, with images from 2019 indicating both a north-east outlet direction and the southern alignment shown below.

This outlet location is controlled largely by the presence (or absence) of sand in the upper foreshore. As can be seen above (Photograph 8.6.2b) a large sand spit was present at the southern head of the stream, however clearly this is mobile and prone to fluctuation. It is also likely a river flood event would result in straightening of the outlet location, with the angle of the southern bank likely resulting in an outlet orientated approximately north-east. It is these events that would exacerbate scour of the dune at the site. The presence of the armouring is

considered unlikely to markedly alter the larger processes controlling the outlet location, as the structure is located high on the profile, sand will still be able to accumulate on the adjacent foreshore.



Photograph 8.6.2c: Southern outlet of Waihuka stream

8.6.3 Sea-Level Rise

As set out above, the seawall crest height is RL 4.0, with the geotextile fines barrier providing protection to the backshore to RL 3.3. It has been demonstrated above that at present sea-level there is negligible risk to erosion of the backshore sediments above the geotextile height. The potential effect of sea-level rise over the 35 year Consent term and the longer-term timescale (100 years) is set out below (Table 8.6.3).

Event	Current SL (m MSL)	SL + 400mm	SL + 1000mm
MHWS	1.2	1.6	2.2
1% AEP storm tide	2.2	2.6	3.0
1% AEP storm tide + wave setup	2.6	3.0	3.6

Table 8.6.3: Effect of sea-level rise on high water events

As can be seen above, even with the effect of sea-level rise over the next 100 years MHWS and the 1% AEP storm tide remain below the geotextile level and accordingly these events will not pose issues for the structure. Further, for current predictions of sea-level rise over the 35 year Consent term, the structure remains resilient to the extreme water level events, including wave setup. Over the longer term, it is evident that at these extreme events water level will be at / above the geotextile, although below the crest of the wall. This may result in scour at this height, with loss of material from behind the wall and potential mortality of the dune revegetation species immediately at/above the wall. Given the significant length of time before this issue arises, an adaptive approach to sea-level rise over the 50-100 year timescale is considered appropriate.

Should overtopping of the wall be occurring such that erosion of the slope above the wall requires addressing, it would be a relatively simple matter to unpick the upper armour of the wall, place a new geotextile lapping with the existing, extend the underlayer, and place new armour to cover (Figure 8.6.3).

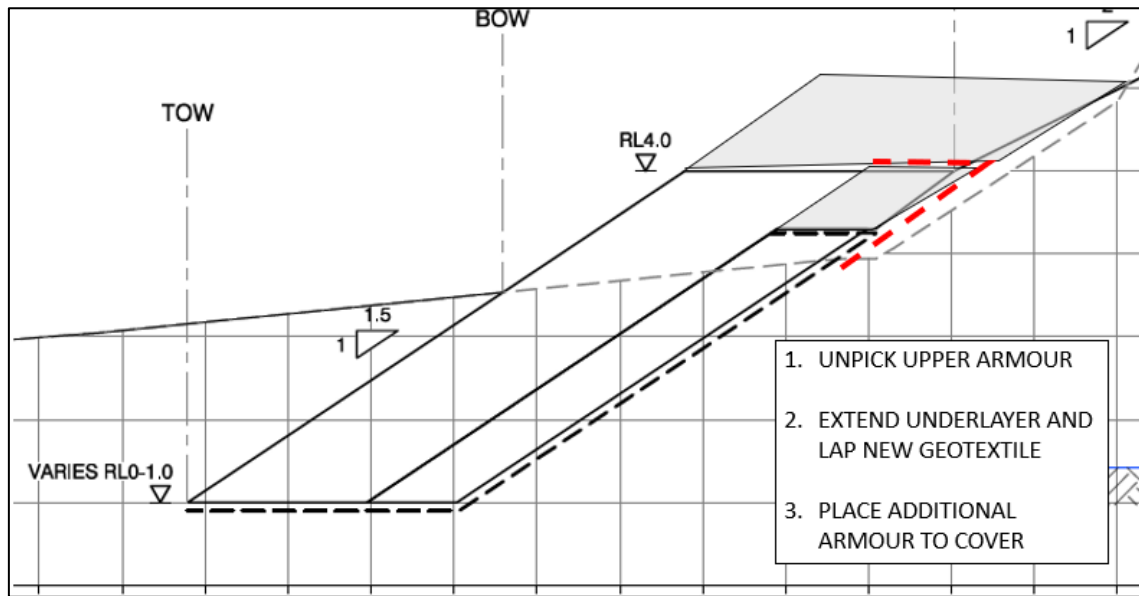


Figure 8.6.3: Indicative adaptive approach to sea-level rise resulting in erosion above proposed structure

9.0 Conclusion

This application proposes to construct a rock riprap seawall, and foreshore access stair, at properties 264 and 266 State Highway 12, Ōmāpere within the Hokianga Harbour.

The proposed structures have been outlined in detail in this report and on the accompanying plans. It is concluded that any adverse effects of the structure will be minor, and will not impact on the overall amenity and character of the Ōmāpere coastline.

The proposal is therefore considered to be consistent with the purpose and principles of the RMA, and with the relevant provisions of the Regional Soil and Water Plan, and the Proposed Regional Plan Appeals Version.

Consent, subject to appropriate conditions, can therefore be supported. In accordance with Section 95 of the RMA, given the demonstrated lack of effects, it is considered the Consent Authority is able to process this application on a non-notified basis, and can grant Consent under Section 104 of the RMA.

Appendix A **Drawings**

OMAPERE SEAWALL

FOR

M.J CLUTTERBUCK & P.L HARVEY

A.N PETRIE, H PETRIE & C.A ATCHISON

PREPARED BY

DAVIS COASTAL

CONSULTANTS

RESOURCE CONSENT



DRAWING SCHEDULE			
No	TITLE	REV	DATE
01	DRAWING SCHEDULE AND LOCATION PLAN	B	25.09.20
02	EXISTING LAYOUT	B	25.09.20
03	EXISTING SECTIONS	B	25.09.20
04	PROPOSED PLAN	B	25.09.20
05	PROPOSED SECTIONS 1 OF 2	A	12.08.20
06	PROPOSED SECTIONS 2 OF 2	A	12.08.20
07	PLANTING PLAN	-	12.08.20
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B	MHWS UPDATED	25.09.2020	
A	RESOURCE CONSENT ISSUE	12.08.2020	
-	PRELIMINARY ISSUE	21.10.2019	NOT FOR CONSTRUCTION
No.	REVISION DETAILS	DATE	

JOB TITLE:

OMAPERE SEAWALL
264 & 266 STATE HIGHWAY 12
OMAPERE



COASTAL MANAGEMENT
AND ENGINEERING
P.O. Box 185
Orewa

Phone: 09 428 0040
Mobile: 021 627 193
Email: coastal@daviscoastal.co.nz

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DRAWING SCHEDULE AND
LOCATION PLAN

FILE NO:

1918

SHT NO:

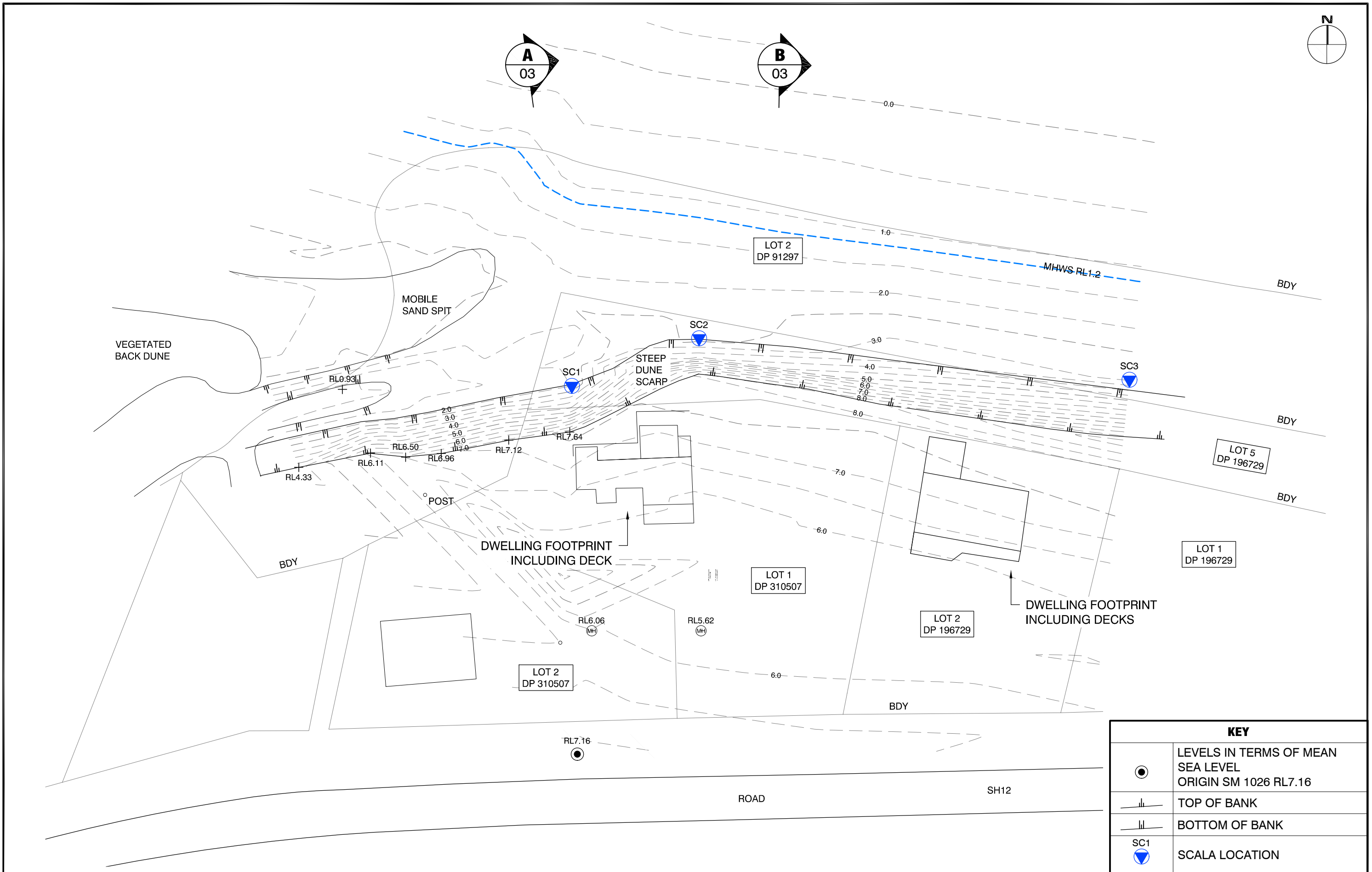
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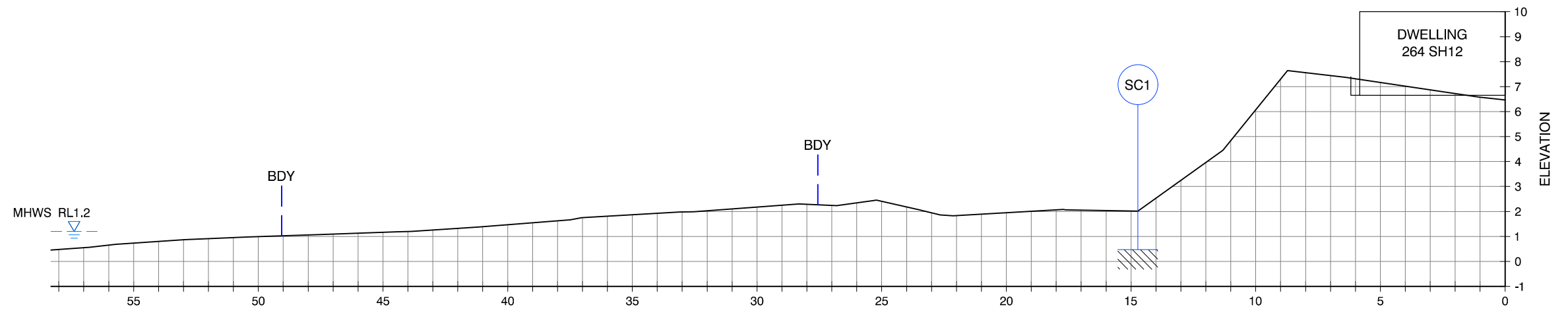
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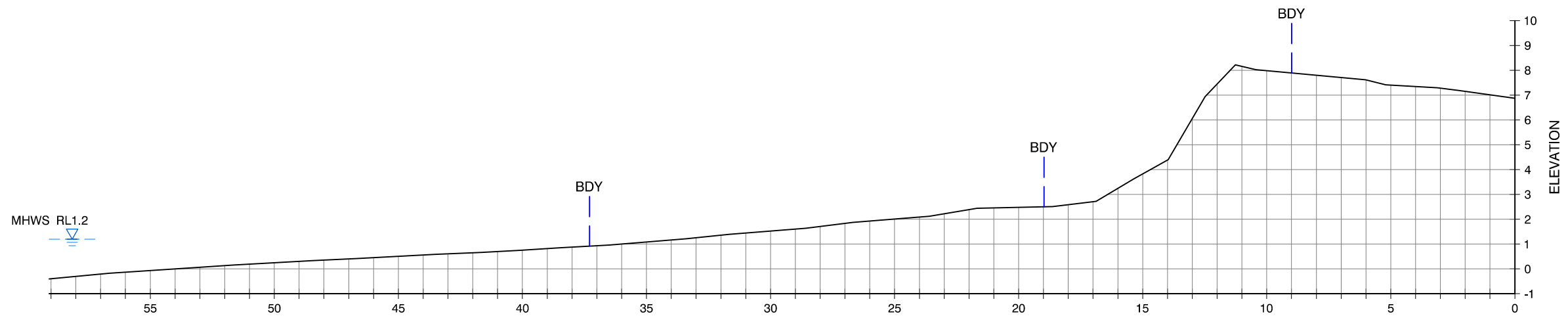


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-	PRELIMINARY ISSUE	21.10.2019								
No.	REVISION DETAILS	DATE								

OMAPER SEAWALL
264 & 266 STATE HIGHWAY 12
OMAPER

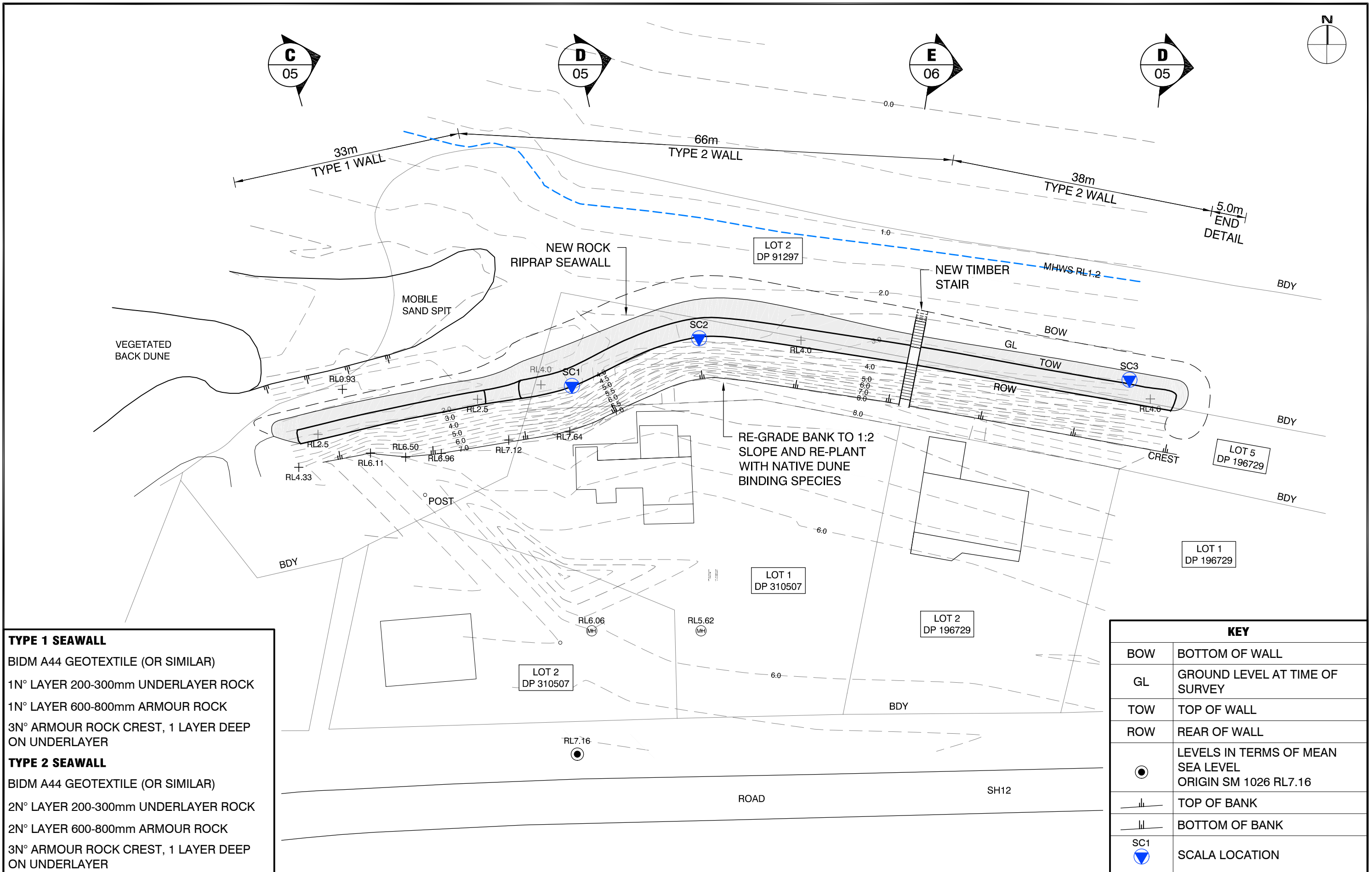


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02
SECTION
SCALE 1:200



B
02
SECTION
SCALE 1:200

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-	PRELIMINARY ISSUE	21.10.2019						
No.	REVISION DETAILS	DATE	NOT FOR CONSTRUCTION					



TYPE 1 SEAWALL
BIDM A44 GEOTEXTILE (OR SIMILAR)
1N° LAYER 200-300mm UNDERLAYER ROCK
1N° LAYER 600-800mm ARMOUR ROCK
3N° ARMOUR ROCK CREST, 1 LAYER DEEP ON UNDERLAYER

TYPE 2 SEAWALL
BIDM A44 GEOTEXTILE (OR SIMILAR)
2N° LAYER 200-300mm UNDERLAYER ROCK
2N° LAYER 600-800mm ARMOUR ROCK
3N° ARMOUR ROCK CREST, 1 LAYER DEEP ON UNDERLAYER

KEY	
BOW	BOTTOM OF WALL
GL	GROUND LEVEL AT TIME OF SURVEY
TOW	TOP OF WALL
ROW	REAR OF WALL
	LEVELS IN TERMS OF MEAN SEA LEVEL ORIGIN SM 1026 RL7.16
	TOP OF BANK
	BOTTOM OF BANK
SC1	SCALA LOCATION

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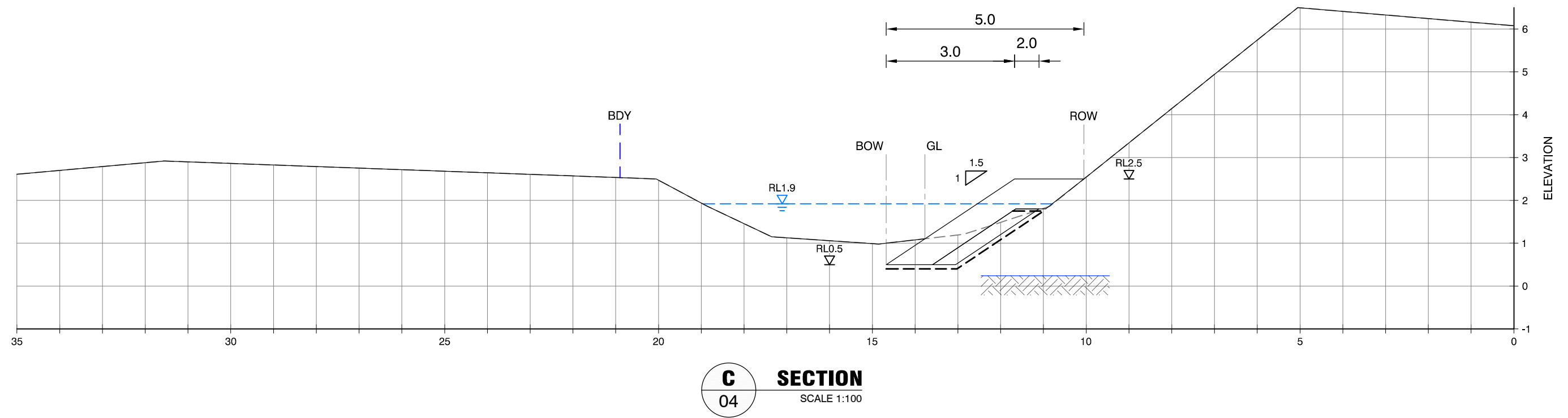
OMAPER SEAWALL
264 & 266 STATE HIGHWAY 12
OMAPER



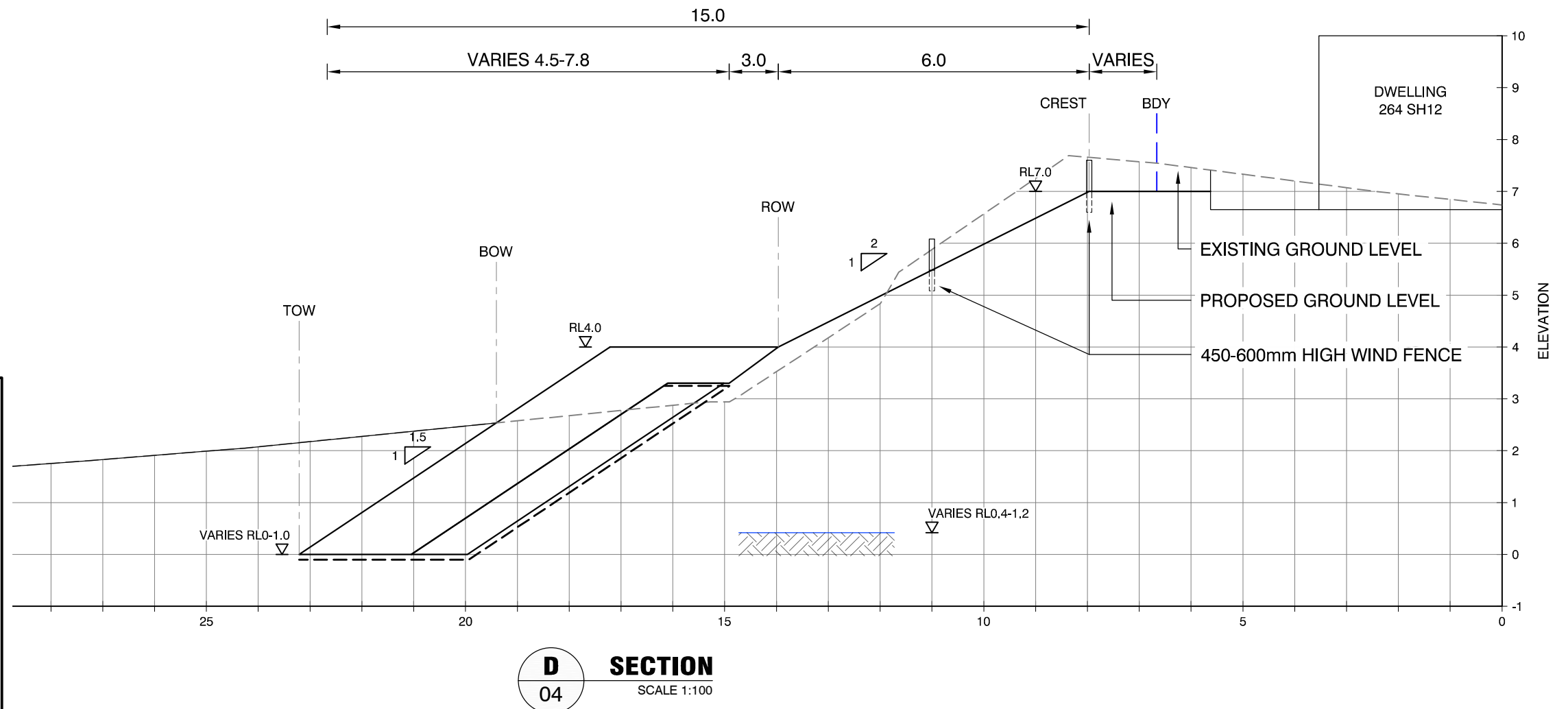
COASTAL MANAGEMENT AND ENGINEERING
P.O. Box 185
Orewa

Phone: 09 428 0040
Mobile: 021 627 193
Email: coastal@daviscoastal.co.nz

DRAWING TITLE: PROPOSED PLAN	FILE NO: 1918
	SHT NO: 04
	REV: B
SERIES: RESOURCE CONSENT	



C
04 **SECTION**
SCALE 1:100



D
04 **SECTION**
SCALE 1:100

TYPE 1 SEAWALL

BIDM A44 GEOTEXTILE (OR SIMILAR)

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1N° LAYER 600-800mm ARMOUR ROCK

3N° ARMOUR ROCK CREST, 1 LAYER DEEP ON UNDERLAYER

TYPE 2 SEAWALL

BIDM A44 GEOTEXTILE (OR SIMILAR)

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2N° LAYER 600-800mm ARMOUR ROCK

3N° ARMOUR ROCK CREST, 1 LAYER DEEP ON UNDERLAYER

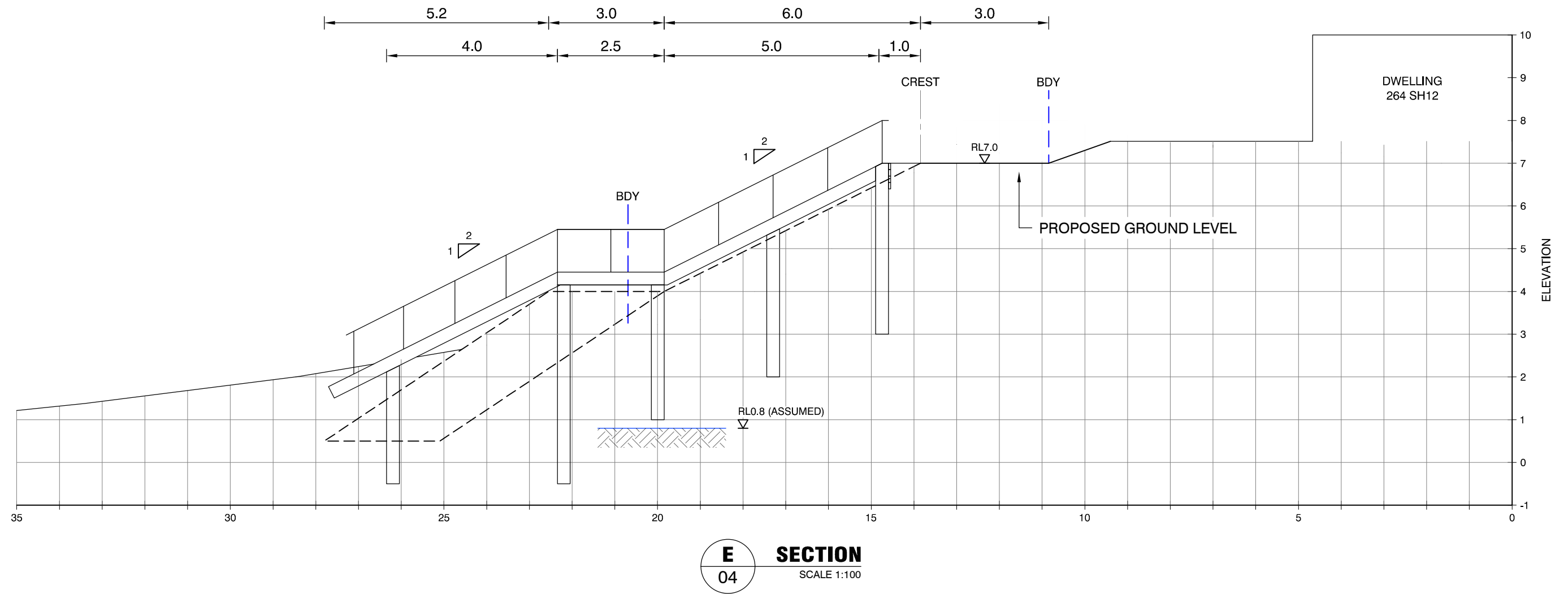
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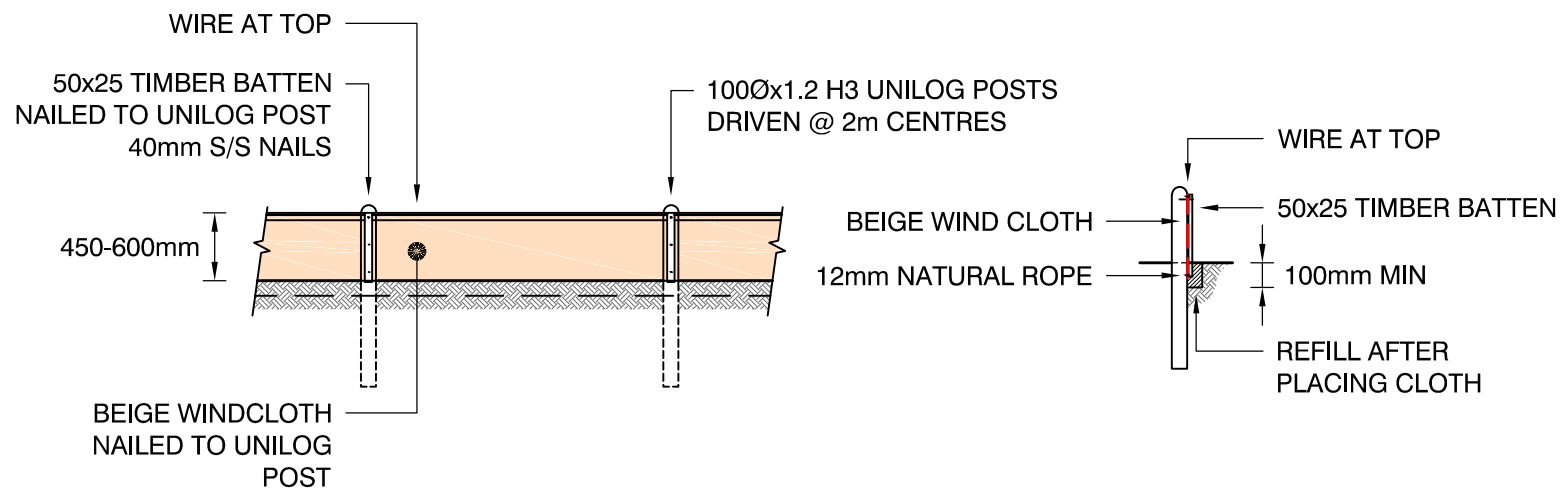
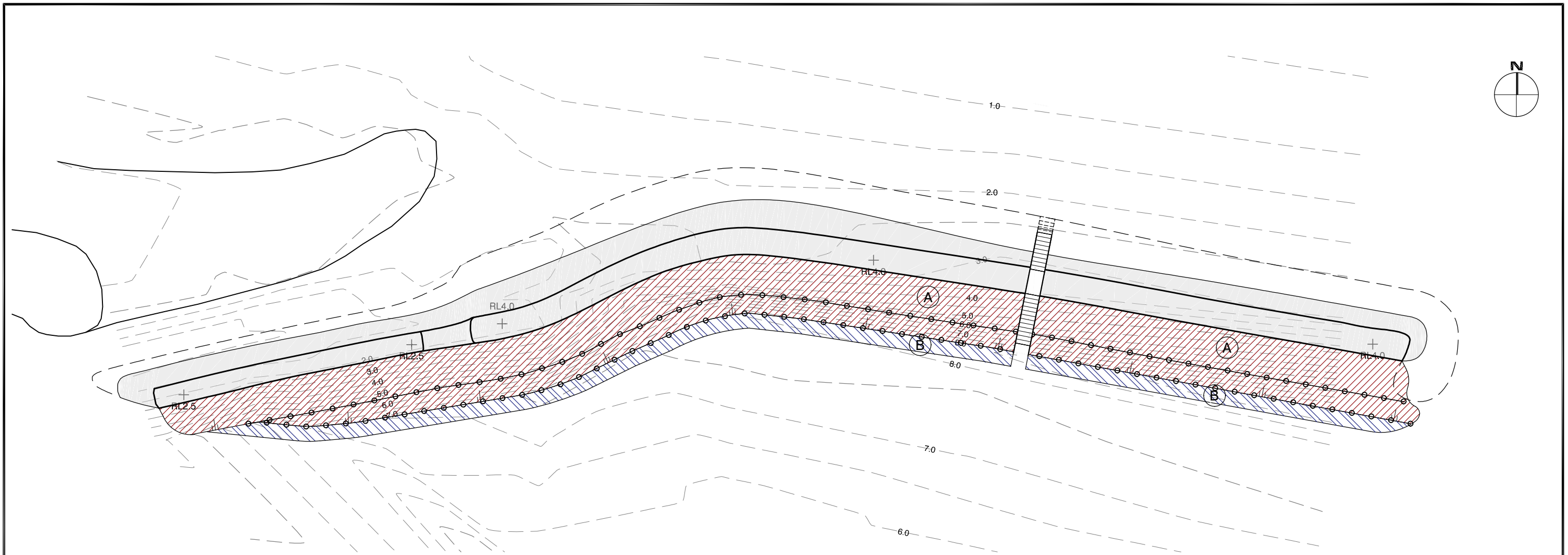
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OMAPER SEAWALL
264 & 266 STATE HIGHWAY 12
OMAPER

	COASTAL MANAGEMENT AND ENGINEERING P.O. Box 185 Orewa Phone: 09 428 0040 Mobile: 021 627 193 Email: coastal@daviscoastal.co.nz
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1 OF 2	SHT NO:
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SERIES:	REV:
RESOURCE CONSENT	A



			DESIGN: DAVIS COASTAL CONSULTANTS	JOB TITLE: OMAPERE SEAWALL 264 & 266 STATE HIGHWAY 12 OMAPERE		COASTAL MANAGEMENT AND ENGINEERING P.O. Box 185 Orewa Phone: 09 428 0040 Mobile: 021 627 193 Email: coastal@daviscoastal.co.nz	DRAWING TITLE: PROPOSED SECTIONS 2 OF 2	FILE NO: 1918		
			SURVEY: -					SHT NO: 06		
			DRAWN: JMA					REV: A		
			CHECKED: -							
			DATE: AUGUST 2020							
			SCALE 1:200 @ A3	NOT FOR CONSTRUCTION						
			CAD FILE: 1918-02 266 SH12 Omapere							
A	RESOURCE CONSENT ISSUE	12.08.2020								
-	PRELIMINARY ISSUE	21.10.2019								
No.	REVISION DETAILS	DATE					SERIES: RESOURCE CONSENT			



WIND FENCE DETAIL
SCALE 1:50

KEY	BOTANICAL NAME	COMMON NAME	SIZE (L)	SPACING (mm)	TOTAL AREA (m²)	TOTAL NO. OF PLANTS
A	Spinifex sericeus	Spinifex	0.5	800	720	650
	Ficinia Spiralis	Pingao	0.5	800		650
B	Pteridium esculentum	Bracken	0.5	800	180	160
	Muehlenbeckia complexa	Pohuehue	0.5	800		160

NOTES:
ALL PLANTS TO BE ECO-SOURCED FROM AS CLOSE TO LOCAL AREA AS POSSIBLE, AS A MINIMUM FROM WITHIN THE HOKIANGA ECOLOGICAL DISTRICT.
ALL PLANTING TO BE COMPLETED WITHIN THE NEXT PLANTING SEASON (AUTUMN - SPRING) IMMEDIATELY FOLLOWING COMPLETION OF WORKS ON SITE

KEY		
○—○—○	WIND FENCE	
No.	REVISION DETAILS	DATE

DESIGN:	DAVIS COASTAL CONSULTANTS
SURVEY:	-
DRAWN:	JMA
CHECKED:	-
DATE:	AUGUST 2020
SCALE:	1:400 @ A3
CAD FILE:	1918-02 266 SH12 Omapere
NOT FOR CONSTRUCTION	

JOB TITLE:	OMAPER SEAWALL 264 & 266 STATE HIGHWAY 12 OMAPER

	COASTAL MANAGEMENT AND ENGINEERING P.O. Box 185 Orewa Phone: 09 428 0040 Mobile: 021 627 193 Email: coastal@daviscoastal.co.nz	DRAWING TITLE: PLANTING PLAN	FILE NO: 1918
			SHT NO: 07
		SERIES:	REV: -

RESOURCE CONSENT

Appendix B

Notification Assessment

Section 95A - Public Notification

Under Section 95A of the RMA, the Consent Authority is required to follow the following four step process to determine whether to publicly notify an application for a Resource Consent.

“Step 1: mandatory public notification in certain circumstances

(2) Determine whether the application meets any of the criteria set out in subsection (3) and, -

(a) If the answer is yes, publicly notify the application; and

(b) If the answer is no, go to step 2

(3) The criteria for Step 1 are as follows:

(a) The applicant has requested that the application be publicly notified;

(b) Public notification is required under Section 95C:

(c) The application is made jointly with an application to exchange recreation reserve land under Section 15AA of the Reserves Act 1977”

With regard to Step 1, the Applicant has not requested the application be publicly notified, Section 95C has not yet been considered as further information has not yet been requested by the Consent Authority, and no application is being made to exchange Recreation Reserve land. Therefore, Step 2 applies as below:

“Step 2: if not required by step 1, public notification precluded in certain circumstances

(4) Determine whether the application meets either of the criteria set out in subsection (5) and,

-

(a) If the answer is yes, go to step 4 (step 3 does not apply); and

(b) If the answer is no, go to step 3

(5) The criteria for step 2 are as follows:

(a) The application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes public notification:

(b) The application is for a resource consent for 1 or more of the following, but no other, activities:

(i) a controlled activity:

(ii) a restricted discretionary or discretionary activity, but only if the activity is a subdivision of land or a residential activity:

(iii) a restricted discretionary, discretionary, or non-complying activity, but only if the activity is a boundary activity:

(iv) a prescribed activity”

With regard to Step 2, the application is for a Resource Consent for more than 1 activity, and there is no rule or environmental standard precluding public notification for these activities. The Application is for activities other than residential activity / boundary activity, with an overall Discretionary Status. Therefore, the application meets neither of the criteria set out in Step 2 above and Step 3 applies as below:

“Step 3: if not precluded by step 2, public notification required in certain circumstances

(7) Determine whether the application meets either of the criteria set out in subsection (8) and,-

(a) if the answer is yes, publicly notify the application; and

(b) if the answer is no, go to step 4

(8) The criteria for step 3 are as follows:

(a) The application is for a resource consent for 1 or more activities, and any of those activities is subject to a rule or national environmental standard that requires public notification;

(b) The consent authority decides, in accordance with Section 95D, that the activity will have or is likely to have adverse effects on the environment that are more than minor”

With regard to Step 3, there is no rule or national environmental standard that requires public notification of the application. The potential adverse effects on the environment are assessed in Section 8.0. The assessment is guided by our experience in construction of similar structures across the country. It is considered as a result of that assessment that any adverse effects arising from the proposed rock riprap wall and timber stairway on the dune will be minor. On the basis of this assessment, the application meets neither of the criteria set out in Step 3 and Step 4 applies, as below:

“Step 4: public notification in special circumstances

(9) Determine whether special circumstances exist in relation to the application that warrant the application being publicly notified, and –

(a) if the answer is yes, publicly notify the application; and

(b) if the answer is no, do not publicly notify the application, but determine whether to give limited notification of the application under Section 95B”

With regard to Step 4, special circumstances have been defined through case law as circumstances *“outside the common run of things which is exceptional, abnormal or unusual, but they may be less than extraordinary or unique”* (Far North DC v Te Runanga-iwi o Ngati Kahu [2013]).

The proposed works are provided for under the relevant Regional Plans as a Discretionary Activity. They are similar in type and scale to other existing structures on the subject coastline, which to an extent has a compromised Character by these existing structures. Whilst there are no armouring structures immediately adjacent to the site, there are a number of existing built structures on the

coastline north and south. The scale of the structure has been minimised through design, with the structure providing toe protection to the dune only, rather than seeking to armour the entire dune face. This allows development of a planted upper dune above the seawall. As such, the structures in this coastal location is considered to be provided for and cannot be described as out of the ordinary or giving rise to special circumstances. Public notification in this regard is therefore not considered to be required.

Pursuant to this process, Step 4 directs that the Consent Authority should not publicly notify the application, but determine whether limited notification is required under Section 95B of the RMA.

Section 95B - Limited Notification

Under Section 95B of the RMA, the Consent Authority is required to follow the following four step process to determine whether to give limited notification of an application for a Resource Consent, if the application is not publicly notified under Section 95A.

“Step 1: certain affected groups and affected persons must be notified

(1) Determine whether there are any-

(a) Affected protected customary rights groups; or

(b) Affected customary marine title groups

(2) Determine –

(a) Whether the proposed activity is on or adjacent to, or may affect, land that is the subject of a statutory acknowledgement made in accordance with an Act specified in Schedule 11; and

(b) Whether the person to whom the statutory acknowledgement is made is an affected person under Section 95E

(3) Notify the application to each affected group identified under subsection (2) and each affected person identified under subsection (3)”

With regard to Step 1, the footprint of the proposed structures is outside the CMA, therefore notification is not required for either Protected Customary Rights or Customary Marine Title Groups stated in Step 1. However, ground disturbance is proposed for an area of historic significance to iwi, therefore consultation has been undertaken with the local hapū management committee, who represent Ngāti Korokoro, Ngāti Wharara and Te Pouka. They are best placed to provide advice on potential effects to cultural heritage of the proposed works. The Applicants intend that this consultation will be an ongoing process, however no formal feedback has been received at this point. Any information or reporting arising from this consultation will be provided to the Consent Authority

as it is available. No additional notification to these groups is considered required at this point and Step 2 applies as below:

“Step 2: if not required by step 1, limited notification precluded in certain circumstances

- (4) Determine whether the application meets either of the criteria set out in subsection (6) and,*
- (a) If the answer is yes, go to step 4 (step 3 does not apply); and*
- (b) If the answer is no, go to step 3*
- (5) The criteria for step 2 are as follows:*
 - (a) The application is for a resource consent for 1 or more activities, and each activity is subject to a rule or national environmental standard that precludes limited notification:*
 - (b) The application is for a resource consent for either or both of the following, but no other, activities:*
 - (i) A controlled activity that requires consent under a district plan (other than a subdivision of land):*
 - (ii) A prescribed activity”*

With regard to Step 2, the application is for a Resource Consent for more than 1 activity, and there is no rule or environmental standard precluding limited notification for these activities. The Application is for activities other than Controlled or Prescribed Activities, with an overall Discretionary Status. Therefore, the application meets neither of the criteria set out in Step 2 above and Step 3 applies as below:

“Step 3: if not precluded by step 2, certain other affected persons must be notified

- (6) Determine whether, in accordance with Section 95E, the following persons are affected persons:*
 - (a) In the case of a boundary activity, an owner of an allotment with an infringed boundary; and*
 - (b) In the case of any activity prescribed under section 360H(1)(b), a prescribed person in respect of the proposed activity.*
- (7) In the case of any other activity, determine whether a person is an affected person in accordance with Section 95E*
- (8) Notify each affected person identified under subsections (7) and (8) of the application”*

With regard to Step 3, the proposed Resource Consent is neither a boundary activity nor an activity prescribed under Section 360H(1)(b). With respect to Section 95E, it must be determined whether there are any affected persons in relation to the activity. This includes consideration of owners of adjacent properties. Under Section 95E, *“a person is an affected person if the consent authority decides*

that the activity's adverse effects on the person are minor or more than minor (but are not less than minor)."

The potential effects on the adjacent property owners to the site have been assessed in Section 8.0 and demonstrated to be minor. Accordingly, consultation with these parties is not considered to be required.

Therefore, the application meets neither of the criteria set out in Step 3 and Step 4 applies as below:

"Step 4: further notification in special circumstances

(9) Determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined to be eligible for limited notification under this section (excluding persons assessed under Section 95E as not being affected persons), and,-

(a) If the answer is yes, notify these persons; and

(b) If the answer is no, do not notify anyone else"

With regard to Step 4, it has been determined under Step 4 of Section 95A that special circumstances do not exist in relation to the application, and the same conclusion applies in this instance. Therefore, pursuant to Section 95B Subsection 10, there are no other persons determined to be eligible for limited notification, and no notification of the application is required.

Appendix C
**Detailed Statutory
Assessment**

Northland Regional Soil and Water Plan

C1. Land Disturbance within the Riparian Management Zone – Assessment Criteria provided by Section 36.4

Assessment Criteria 36.4		Comment
<i>a</i>	<i>The scale, method and timing of the land disturbance activity and the nature of the surrounding catchment.</i>	The land disturbance activity comprises re-shaping of a coastal dune. Following construction of the seawall, approximately 3-4m of the upper dune will remain over-steep above the structure, along approximately 100m of the coastline. This will be re-shaped using an excavator to a more stable 1(vert):2(horiz) batter, and will primarily comprise reducing the height of the upper dune and respreading this material to the foreshore below the seawall. The works will be undertaken immediately following construction of the seawall, and due to the simplicity of the work will be quick to undertake (approximately 1-2 days), with no material needing to be removed from site.
<i>b</i>	<i>The proximity of the land disturbance activity to any water body, the nature and sensitivity of the water body and any associated values and the likely effects on that water body</i>	The work is to be undertaken on a coastal dune immediately adjacent to the coastal area. The material to be disturbed comprises unconsolidated dune sands, and more consolidated sandstone. This material is already exposed in the dune scarp and due to the presence of the seawall is not at risk of further wave attack during the earthworks. The risk of exacerbated sedimentation of the adjacent Harbour due to mobilised silt is considered to be low due to the composition of this material
<i>c</i>	<i>The proximity of the land disturbance activity to any areas of significant indigenous vegetation and significant habitats of indigenous fauna that meet the criteria in Appendix 13B, any outstanding or significant natural feature identified in a regional or district plan, any known archaeological site or historic feature, waahi tapu or urupa; and any effects on them</i>	The dune is currently sparsely vegetated. The re-shaped dune will be replanted with native dune-binding species. Consultation has been initiated with the local hapū management committee and this consultation is expected to be ongoing.

<i>d</i>	<i>The expected efficiency of sediment control measures and any other mitigation measures.</i>	No sediment control measures are considered to be required due to the type of material being re-shaped being material that is already exposed, and is a combination of dune sands and cemented sand
<i>e</i>	<i>The removal and/or any retention of vegetation and the expected efficiency of any revegetation and/or rehabilitation programme.</i>	Significant re-vegetation of the re-shaped dune is proposed, which is not currently practicable due to the progressive erosion. This planting will be undertaken in the first planting season following the works. To assist in the establishment of this vegetation two lines of wind fencing are proposed which will reduce the risk of dune blowouts as these plants are establishing, and assist in minimising mortality of these plants as they establish on the exposed dune face
<i>f</i>	<i>The adequacy of any proposed monitoring programme to assess the effects of the activity on the environment.</i>	It is proposed that maintenance conditions be imposed on the planting, with the format of this as follows (or similar): <i>“Within the first planting season following the completion of all earthworks, planting as shown on the Davis Coastal Consultants ‘Planting Plan’ File No 1918 / Sheet No 07 / Rev – dated 12.08.2020 will be undertaken. Following this all new plantings shall be maintained for a minimum of three years and any new plantings that die or decline over this three year period shall be replaced. The replacement plants shall be of the same species, grade and size as the original specimens and planted no later than the following planting season (May to August)”.</i>
<i>g</i>	<i>The practicality of alternative methods to undertake the activity and their likelihood of having reduced environmental effects.</i>	The armouring has been demonstrated as the best practicable option for the site given the existing issues present. The earthworks proposed are necessary to allow planting to be established on the dune above the structure. The establishment of the planting is a key mitigating feature of the work as it will provide positive ecological benefit to the dune system following the works

Proposed Northland Regional Plan – Appeals Version Aug 2020

C2. Policies for Hard Protection Structures D.6.1 – D.6.2

Policies D.6.1 – Appropriateness of hard protection structures		Comment
1	<i>alternative responses to the hazard (including soft protection measures, restoration or enhancement of natural defences against coastal hazards and abandonment of assets) are demonstrated to be impractical or have greater adverse effects on the environment, or</i>	The Options Assessment undertaken in Section 5.0 has reviewed the various alternative approaches to the erosion issue, including relocation of the threatened dwellings and ‘soft’ engineering approaches. These have been shown to either not address the issue or produce undesirable outcomes for the subject properties.
2	<i>they are the only practical means to protect:</i>	
c	<i>concentrations of existing vulnerable development, and</i>	The proposal includes two adjacent property owners working together to address an issue which will provide a more cohesive structural approach than individual property owners
d	<i>they provide a better outcome for the local community, district or region, compared to no hard protection structure, and the works form part of a long-term hazard management strategy, which represents the best practicable option for the future.</i>	With reference to existing structures elsewhere on the coastline, the existing hazard management strategy in place is to undertake armouring to either protect dwellings seaward of the Highway, or to protect the Highway itself. Therefore the proposal is in accordance with the current management of the issue of the retreating coastal dune on the Ōmapere / Opononi coastline
Policies D.6.2 – Design and location of hard protection structures		
1	<i>be located as far landward as possible in order to retain existing natural defences against coastal hazards as much as possible, and</i>	The new seawall will be located at the base of the existing dune, and will involve revegetation of a significant area of the upper dune. This revegetation work will restore the natural defence of the upper dune to protect against blowouts and wind blown erosion
2	<i>be designed and constructed by a suitably qualified and experienced professional, and</i>	The wall has been designed by Davis Coastal Consultants who have a nearly 20 year history designing coastal protection works at a number of different locations around New Zealand

3	<i>incorporate the use of soft protection measures where practical, and</i>	Due to the steep progressively eroding dune face softer protection measures such as replanting or renourishment are not considered to be practicable. Due to the relatively open nature of the coastline any renourished material would be reasonably rapidly re-distributed to the adjacent coastline and would therefore require headland control structures (groynes) to retain this material for any length of time
4	<i>be designed to take into account the nature of the coastal hazard risk and how it might change over at least a 100-year time-frame, including the projected effects of a sea level rise, using the latest national guidance and best available information.</i>	Climate change over the 100 year timescale, using the current best guidance from the Ministry for the Environment, has been factored into the design of the seawall

Appendix D

Iwi Consultation

Sam Scott-Kelly

From: Matt Clutterbuck <mj.clutterbuck@gmail.com>
Sent: Wednesday, 16 September 2020 2:55 p.m.
To: sam@daviscoastal.co.nz
Subject: Fwd: FW: Omapere - Seawall - Drawing Set
Attachments: image001.jpg; 1918-02 266 SH12 Omapere-Resource Consent Set.pdf

Hi Sam,

Please see below an email i sent to Alan Hessel. I also sent the plans as supplied by yourself. below is also abit more information Alan spoke to me about.

As part of this application, it is important to me that consultation is made to all stakeholders and kaitiaki. Having grown up in Hokianga and my parents still living in Broadwood, I know alot of Hokiangas history and importance.

Before submitting this application, as land owner i have made contact with Alan Hassell and talked him through what we are wanting to achieve and build. Alan is a member of the Hapu Management committee which represents Ngati Korokoro, Ngati Wharara and Te Pouka.

Alan explained to me the importance and cultural significance of the Waihuka burial reserve and the significance of the area our property is located; with the remains of the chief and his two children on the point north of our boundary. In recent times, Alan said John Claracich has been recovering any remains that become exposed exposed and relocating them to a local uru pa.

Alan spoke positively about what we are requesting consent for and indicated that the hapu management committee might be more favorable to this seawall as it will protect in area of cultural significance. I have sent the plans to Alan and hope to catch up with him when we next go home. I have asked Alan to review and advise if these plans need to be moidified to further protect the area where Nuku Tawhiti, Morewarewa and Papatuanuku are buried.

Alan has agreed to be contacted by the groups involved in this project and council. We will also be using local contractors and suppliers who know the cultural significance of this area.

Alan Hessel's contact details are gildahessell@xtra.co.nz and phone number is 094058832. He is best to contact via phone.

Please feel free to contact me anytime to discuss this application.

Kind regards,

Matt clutterbuck

021304363

Mj.clutterbuck@gmail.com

----- Forwarded message -----

From: **Matt Clutterbuck** <mj.clutterbuck@gmail.com>

Date: Mon, Aug 31, 2020 at 7:58 AM

Subject: Fwd: FW: Omapere - Seawall - Drawing Set

To: <gildahessell@xtra.co.nz>

Morena Alan,

Thanks you for your time on the phone last week, I really appreciated it and it was good for me to get a better understanding about the Waihuka burial reserve and the significance of the area our property is located with the remains of the chief and his two children.

As mentioned, I grew up in Broadwood. Mum and Dad are still on the farm there and have been there for 40years. I now live in Tauranga, but have always wanted to have a property back home so our kids can experience the life we had growing up in Hokianga, its also a place that hopefully my parents use more as they get older.

We are going through the consent process for a retaining wall in conjunction with our neighbour, Tony Petrie through a firm Davis Coastal Constructions. They are based in Orewa and the guy leading the project is Sam, he was a flat mate of my brothers at uni and has links back to Broadwood also, I think his Dad lived there for a period of time.

Thank you for agreeing to allow me to put your contact details on our submission as a representative of the Hapu Management committee representing Ngati Korokoro, Ngati Wharara and Te Pouka. Please see the proposed seawall plans attached, if these need to be modified to further protect the area where Nuku Tawhiti, Morewarewa and Papatuanuku.

Please feel free to call me anytime to discuss, my number is 021304363. We hope to get up soon as it would be good to meet up in person. However, i am not keen to travel too much with this COVID hanging around and we definitely would hate to bring it to the home if by some chance we picked it up on the way North. Tony Petrie might touch base with you next time he is up to further discuss these.

Kind regards,

Matt Clutterbuck

Subject: Omapere - Seawall - Drawing Set

Hi Matt,

As discussed – Resource Consent set attached.

Pretty similar to what you've seen already, rock specification included, and a planting plan at the rear of the set.

We are progressing the AEE and will aim to lodge with both Council's as soon as practicable. Keep us updated with the iwi consultation so we can include this in the documentation.

Regards,

Sam Scott-Kelly

Coastal Engineer



Davis Coastal Consultants Ltd.

PO Box 185

Appendix E
Status of
Esplanade Reserve

Sam Scott-Kelly

From: Matt Clutterbuck <matt.clutterbuck@bayleystauranga.co.nz>
Sent: Thursday, 12 September 2019 3:33 p.m.
To: Sam Scott-Kelly
Subject: FW: Esplanade Res adjoining 264 and 266 SH 12

Hi Sam,

Please see below, might be of use.

Cheers,

Matt

Matt Clutterbuck
Sales Manager, Bayleys Country
Bay of Plenty

P: 07 571 4674 | M: 021 304 363 | F: 07 578 2119 | Visit: www.bayleys.co.nz
Bayleys Tauranga, 247 Cameron Road, Tauranga, New Zealand
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From: ANDRE & ROBIN LA BONTE <labonte@xtra.co.nz>
Sent: Monday, 5 August 2019 1:48 PM
To: Kay Meekings <Kay.Meekings@fndc.govt.nz>
Subject: Re: Esplanade Res adjoining 264 and 266 SH 12

Hello Kay,

Thank you for the information and analysis. You have answered our questions.

Kind regards,

Andre' & Robin

On 05 August 2019 at 13:16 Kay Meekings <Kay.Meekings@fndc.govt.nz> wrote:

Hi Andre and Robin,

In reply to your query “do the boundaries of these parcels shift landward with progressive erosion or are they potentially lost through erosion as the MHWS boundary moves landward?”

They are potentially lost through erosion as the MHWS boundary moves landward.

The status of the reserved parcels:

- Lot 2 DP 91297, Local Purpose (Esplanade)Reserve vested in Council on deposit of DP 91297, subject to the Reserves Act 1977.
- Lot 5 DP 196729, Local Purpose (Esplanade)Reserve vested in Council on deposit of DP 196729, subject to the Reserves Act 1977.

Having looked at the Marine and Coastal Area Act 2011(MACA Act), DP 91297, DP 196729 and Office of Treaty Settlements advice to Local Government: <https://tearawhiti.govt.nz/assets/MACA-docs/13b81079fa/Part-2-Interests-in-land-and-structures-residual-Crown-functions-public-rights-subdivision-and-reclamations.pdf> - see paragraph on “Land added to the CMCA.”

The titles show the parcels have moveable water boundaries. They are not fixed water boundaries. This is determined as the seaward boundary is described as MHWM and MHWS rather than a surveyed line.

MACA Act provides:

Interpretation: common marine and coastal area means the marine and coastal area other than—(iii) a reserve within the meaning of section 2(1) of the Reserves Act 1977

S11 Special status of common marine and coastal area - (4)Whenever, after the commencement of this Act, whether as a result of erosion or other natural occurrence, any land owned by the Crown or a local authority becomes part of the common marine and coastal area, the title of the Crown or the local authority as owner of that land is, by this section, divested. *(This applies only to the portion that is inundated up to the MHWS)*

S13 Boundary changes of marine and coastal area - (2) However, if, because of a change caused by a natural occurrence or process, any land, other than a road, that is owned by the Crown or a local authority becomes part of the marine and coastal area, then that land becomes part of the common

marine and coastal area (even if that land consists of or is included in a piece of land defined by fixed boundaries).

Conclusion: Lot 2 DP 91297 is completely under water and is now part of the Common Marine and Coastal Area. The title is completely divested.

Lot 5 DP 196729 is partially under water and that portion is lost to the Common Marine and Coastal Area. The title is divested for that portion of land now below MHWS.

The parcels lose the land to the Common Marine and Coastal Area as the MHWS mark rises.

I hope this helps.

Give me a call if you wish to discuss.

Regards



Kay Meekings

Property Legalisation Officer

Corporate Services, Far North District Council | **24-hour Contact Centre 0800 920 029**

ddi +6494015294 | Kay.Meekings@fndc.govt.nz

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Ph. 09 401 5200 | Fax. 09 401 2137 | Email. ask.us@fndc.govt.nz
Address. Memorial Avenue, Private Bag 752, Kaikohe 0440, New Zealand

Please consider the environment before printing this email.

Appendix F

Communication

With LINZ

Sam Scott-Kelly

From: Glen Rowe <growe@linz.govt.nz>
Sent: Tuesday, 29 September 2020 9:13 a.m.
To: sam@daviscoastal.co.nz
Subject: Hokianga Hbr - MHWS query

Kia ora Sam,

Thank you for your enquiry about MHWS in Hokianga Harbour.

You have quoted values for MHWS at Opononi/Omapere given by T&T in terms of OTP. T&T must have made some assumptions to come up with those values as there are no heights in terms of OTP in the Hokianga region so I can't tell you how they got those numbers.

You have tried to find a relationship between TCD and OTP through NZVD16. The differences between NZVD16 and TCD/OTP are valid only at AGMH and DJM9 respectively. As NZVD16 is not a plane the offsets to TCD and OTP are not the same everywhere. As you have found, Northland is out of bounds as far as Taranaki Vertical Datum is concerned so our online converter is unable to calculate an offset. Therefore there is no correct conversion factor between TCD and OTP and, anyway, at a fundamental level relating those two systems does not make sense as they are spatially disparate.

Therefore, can LINZ please advise what is the correct conversion factor to apply, in order to convert between TCD (source data) and OTP (target output data).

As described above, LINZ is unable to provide this information.

For DY1B the reference to MSL is an approximation. Historically height network adjustments were either based on a defined datum or something close to MSL and designated as such. We have tied EVXA to sea level data recorded at the Opononi wharf and MSL is 2.50m below that mark (MHWS is 1.35m below EVXA). As I have said above, there are no OTP heights in the Hokianga area but from the conversion tool OTP comes in 0.054m below NZVD16. Using the above information and the geodetic database, I make MSL and MHWS 0.18m and 1.33m above NZVD16 respectively. Using the conversion tool offset for OTP, MSL and MHWS are 0.23m and 1.38m above OTP respectively.

Ngā mihi nui,

Glen Rowe

Technical Leader Sea Level Data

New Zealand Hydrographic Authority

growe@linz.govt.nz | DDI 04 460 0569



Wellington Office, Level 7, Radio New Zealand House, 155 The Terrace
PO Box 5501, Wellington 6145, New Zealand
www.linz.govt.nz | data.linz.govt.nz



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Appendix G
Certificate of
Title

D 519985. 2 CONO



FAR NORTH DISTRICT COUNCIL

THE RESOURCE MANAGEMENT ACT 1991

SECTION 221 : CONSENT NOTICE

REGARDING RC 1960605

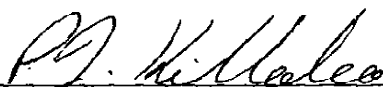
The subdivision of
Lot 3 DP 91297
North Auckland Registry.

PURSUANT to Section 221 for the purposes of Section 224 of the Resource Management Act 1991, this Consent Notice is issued by the FAR NORTH DISTRICT COUNCIL to the effect that conditions described in the schedule below are to be complied with on a continuing basis by the subdividing owner and the subsequent owners after the deposit of the survey plan, and is to be registered on the titles of Lots 1,2,3, & 4 DP 196729.

SCHEDULE

- Any building erected is to be re-locatable for coastal hazard reasons.
- No buildings shall be erected closer than 40 metres from mean high water springs as shown on the Haigh Consultants report dated 18 December 1996.
- Any dwelling erected will be made subject to section 36 of the Building Act 1991 stating that Council will accept no liability for any loss or damage to any building as a result of any adverse coastal process.
- Parts of the sites may contain fill and require specific engineering design for foundations.

SIGNED:


by the FAR NORTH DISTRICT COUNCIL
under delegated authority:
RESOURCE CONSENTS MANAGER

DATED at **KAIKOHE** this 23rd day of June 2000

RC 1960605

SRM\CERT\3bridge221

LINZ COPY



255 03 JUL 00 D 519985.2

PARTICULARS ENTERED IN GENERAL
LAND REGISTRY NO RT
for REGISTERED



(2) CONO-28



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**




R.W. Muir
Registrar-General
of Land

Identifier **41164**
Land Registration District **North Auckland**
Date Issued 21 October 2002

Prior References

NA124C/657 NA124C/658

Estate Fee Simple
Area 1904 square metres more or less
Legal Description Lot 1 Deposited Plan 310507

Registered Owners

Matthew James Clutterbuck and Philippa Louise Harvey

Interests

D519985.2 Consent Notice pursuant to Section 221(1) Resource Management Act 1991 - 3.7.2000 at 2.55 pm
Subject to a stormwater right (in gross) over part marked A on DP 310507 in favour of Far North District Council
created by Transfer D519985.6 - 3.7.2000 at 2.55 pm

The easements created by Transfer D519985.6 are subject to Section 243 (a) Resource Management Act 1991

D616625.1 Gazette Notice (NZ Gazette 9.11.2000 No152 p 3942) declaring part of State Highway 12 in Northland
commencing at its intersection with the northern end of Waiotemarama Gorge Road at Pakanae and proceeding
in a Southerly direction to its intersection with the southern end of Waiotemarama Gorge Road at Waiotemarama
to be a limited access road

D616743.3 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 27.6.2001 at 9.01 am

Appurtenant hereto is a right to drain sewage created by Transfer 5379959.6 - 21.10.2002 at 3:33 pm

The easements created by Transfer 5379959.6 are subject to Section 243 (a) Resource Management Act 1991

5900053.1 Notice pursuant to Section 91 Transit New Zealand Act 1989 - 16.2.2004 at 9:00 am

