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AEE Report

Paekakariki Seawall Coastal Permit

Prepared for Kapiti Coast District Council

By CH2M Beca Limited

1 March 2016

Revision History

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on behalf of	CH2M Beca Limited		

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APPLICATION FOR RESOURCE CONSENT

SECTION 88, RESOURCE MANAGEMENT ACT 1991

To: **Greater Wellington Regional Council**

Kāpiti Coast District Council applies for the following type of resource consent:

Under the Operative Wellington Regional Coastal Plan:

- Controlled Activity under Rule 16 (Coastal Permit) to continue to occupy the Paekākāriki Coastline; and
- Controlled Activity under Rule 13 (Coastal Permit) for the maintenance, repair, replacement, extensions, additions and alterations to structures in the CMA.

Under the Proposed Wellington Natural Resources Plan:

- Discretionary Activity under Rule 153 to remove or demolish structures or part of a structure
- Discretionary Activity under Rule 166 to construct a seawall outside sites of significance (including occupation).
- Controlled Activity under Rule 183 to renew the occupation of the existing seawall rock revetments.

The location of the proposed activity is as follows:

- Paekākāriki - Approximately 45km north of Wellington, between Pukeura Bay and MacKays Crossing. The proposed new seawall covers Paekākāriki's main stretch of coastline along The Parade from The Sand Track to the southern extent of the rock revetment north of Tangahoe Street. Essentially, this is the 960m stretch of existing timber seawall between the southern and northern rock revetments. The rock revetments at either end of the proposed sea wall will remain in place.

The names and addresses of the owner and occupier (other than the applicant) of any land to which the application relates are as follows:

- The Crown

No additional resource consents are needed for the proposed activity.

In accordance with the Fourth Schedule of the Resource Management Act 1991, an assessment of effects on the environment in the detail that corresponds with the scale and significance of the effects that the proposed activity may have on the environment is attached.

No additional information (not encompassed in the assessment of environmental effects) is required to be included in this application.

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1 Introduction

1.1 Background

Kāpiti Coast District Council is applying for resource consent to construct a new seawall along a 960 metre section of the Paekākāriki coastline. In addition, the occupation consents of the existing rock revetment at either end of the timber wall need renewal. Kāpiti Coast District Council is responsible for managing the coastline and the public assets adjacent to it, in this case The Parade road.

The proposed new seawall will replace the existing timber seawall between Tangahoe Street at the northern end of the beach, down to the Sand Track near the southern end of the beach within the coastal marine area. This existing timber seawall has well-exceeded its original 20 year design life. During its life, failures have occurred and have been replaced or retained using rock. Overall, it has served its purpose of protecting The Parade; however the timber seawall has become fragile in places and will require increasing maintenance as it continues to age.

Without the seawall, there is a significant risk of coastal erosion to The Parade. The seawall is therefore a vital piece of infrastructure that will protect public assets from the impacts of coastal erosion.

Council has worked collaboratively with the community over the past two years to assess replacement options and select a preferred preliminary concept to take forward to resource consent stage. The key background tasks have included:

- **Initial Option Assessment Report, April 2013**- This report considered a range of potential coastal protection options and assessed options against economic, environmental, technical and community values. Some options were discounted and others taken forward based on that report (Appendix B of the AEE);
- **Community Open Day, May 2013**- This open day presented the findings of the Option Assessment Report and visual simulation of a number of high-level options;
- **Community Design Group process, last quarter 2013** - A community design group option was introduced for relative assessment against other high-level options;
- **Community Board Meeting to present the five short-listed options, January 2014**- Options presented were rock revetment; timber wall; concrete wall; community design group option and split revetment;
- **Community Design Group process 2014**. High-level costing of the five short-listed options presented. Refinement of options to a hybrid of rock-concrete-timber to reduce costs while still meeting community values;
- **Geotechnical investigation, last quarter 2014**. Completed to provide further information on ground conditions to refine design and costing;
- **Community Design Group process early 2015**. Workshops and refinement of a stepped-solution consisting of timber wall, concrete steps, and a rock wall.
- **Community Open Day, 2 May 2015**. To present the stepped-solution consisting of timber/concrete wall, concrete steps, and a rock wall as a preferred preliminary concept and seeking feedback on the overall design, mix of treatment materials, access points and accessibility.
- **Resource Consent Application, May 2015-present.** Community Board endorsement of preferred preliminary concept, further stakeholder consultation and preparation of resource consent application.
- **Resource Consent Application- Council Endorsement.**

To assist in the development of a solution that provides the appropriate level of protection from coastal erosion and also meets the communities' expectations with regard to amenity and visual impacts, the Paekākāriki Community Design Group was established. This voluntary group of local residents/experts has worked closely with the Community Board and Council staff to develop the preferred preliminary concept. This has been a collaborative community-led design process, systematically working through option refinement based on community values, affordability and a design life of at least 50 years.

It is important to note that the project is at preliminary concept only and there will likely be opportunity for further refinement at detailed design stage following resource consent. That concept is for a stepped-solution consisting of timber or concrete front wall, concrete steps, a middle walkway and an upper rock wall. The exact details of the final mix of material treatments (timber, concrete and rock); the exact design and location of access points and steps; plantings; seating; and public art can be confirmed at detailed design.

This is a significant community project for Paekākāriki. The existing timber seawall is a well-established feature of the coastal environment and an important part of Paekākāriki's history. The proposed preliminary concept to replace it has been developed through extensive community consultation and working collaboratively with the Paekākāriki Community Design Group. Overall, the new proposed seawall will have a number of positive effects - not only in terms of on-going protection for The Parade, but also in terms of improved amenity and public access to and from the beach.

1.2 Overall Findings

The overall environmental effects of this proposal can be summarised as:

- Temporary and minor short-term construction effects that can be suitably managed by way of standard conditions of consent and a Construction Management Plan;
- Overall minor long-term adverse effects on the coastal environment when considered over and above the existing environment of the timber seawall and revetment structures;
- A number of positive long-term effects on the coastal environment, including:
  - On-going protection to the significant public asset of The Parade;
  - Improved public access to the beach from The Parade;
  - Increased usability of the seawall structure, with opportunities to use the dedicated pathways, sit and use the formal seating and more informal seating places provided by the rocks and concrete steps to the beach;
  - Enhanced amenity, with attractive landscaping, a mix of materials and design to provide some visual interest and different spaces to enjoy along the seawall.

2 Description of the Existing Environment

Paekākāriki is a close community located on the Kāpiti Coast about 22km north of Porirua, south of Paraparaumu. Paekākāriki has a strong connection to the coastal environment on which it sits. The township has developed immediately adjacent to the coastline and has historically been affected by erosion, over at least the last 100 years. There have been episodes of more significant erosion, particularly in the mid 1950's when the first sea wall was built, mid to late 1970's and more recently in the mid 1990's. The Paekākāriki Coastline is a highly erosive and dynamic coastline which periodically goes through phases of accretion and erosion dependant on seasonal variations and storm events.

Paekākāriki Beach is a narrowing coastal plain between the Tasman Sea and the southern end of the Tararua Ranges. This part of the coastline is characterised by narrow beaches with naturally eroding tendencies.

The proposed new seawall covers Paekākāriki's main stretch of coastline along The Parade from The Sand Track to the southern extent of the rock revetment north of Tangahoe Street as shown in the Location Plan below (960 metres). Essentially, this is the stretch of existing timber seawall between the southern and northern rock revetments. The northern and southern rock revetments are also included within the project area.

The Parade provides the main public access to the coast and is set above beach level, retained by the timber seawall and rock revetments at either end. The Surf Life Saving Club is at the northern end of The Parade and a large park (Campbell Park) located about midway along The Parade.

The Parade separates the beach from mostly residential properties and Campbell Park. Access to the beach is via a number of wooden stairways and a ramp down the southern rock revetment.

The existing timber seawall is well-established and forms a part of the existing environment. The timber structure is not performing as well as it used to and is past its 20-year life span. During its life, failures have occurred, which have been fixed and replaced by rock revetment. Without the seawall, The Parade would be subject to on-going erosion, eventually having a significant impact on the Paekākāriki community as a whole.

Figures 1 to 6 show the current coastline, the seawall and rock revetment along Paekākāriki Beach. The current seawall is a timber structure with rock revetments at either end. The rock revetment at the southern end is significantly larger than the smaller one at the northern end of the project area. This is because the beach is set some 3.5-4m below The Parade at the southern end, compared to some 1-1.5m at the northern end.

There is a footpath that runs along the Parade which is separated from the beach by bollards. A number of picnic tables and rubbish bins are provided along the footpath. Currently there is angle parking on The Parade north of Tangahoe Street, opposite Pingau Street, opposite Ocean Road and street parking along the majority of the length of The Parade.

The Paekākāriki Coastline is not identified as a coastline of regional significance within the Operative Wellington Regional Coastal Plan. Similarly, within the Proposed Wellington Natural Resources Plan the area has been identified as having a significant surf break. Although the coastline has not been identified as an outstanding landscape within these Regional Plans, the coastline is highly valued by the Paekākāriki Community and visitors to this area. Within the Operative Kāpiti Coast District Council District Plan, the coastline from Paekākāriki to Otaki has been identified as an outstanding landscape.

The report contained in **Appendix D** presents the results of the ground investigations.

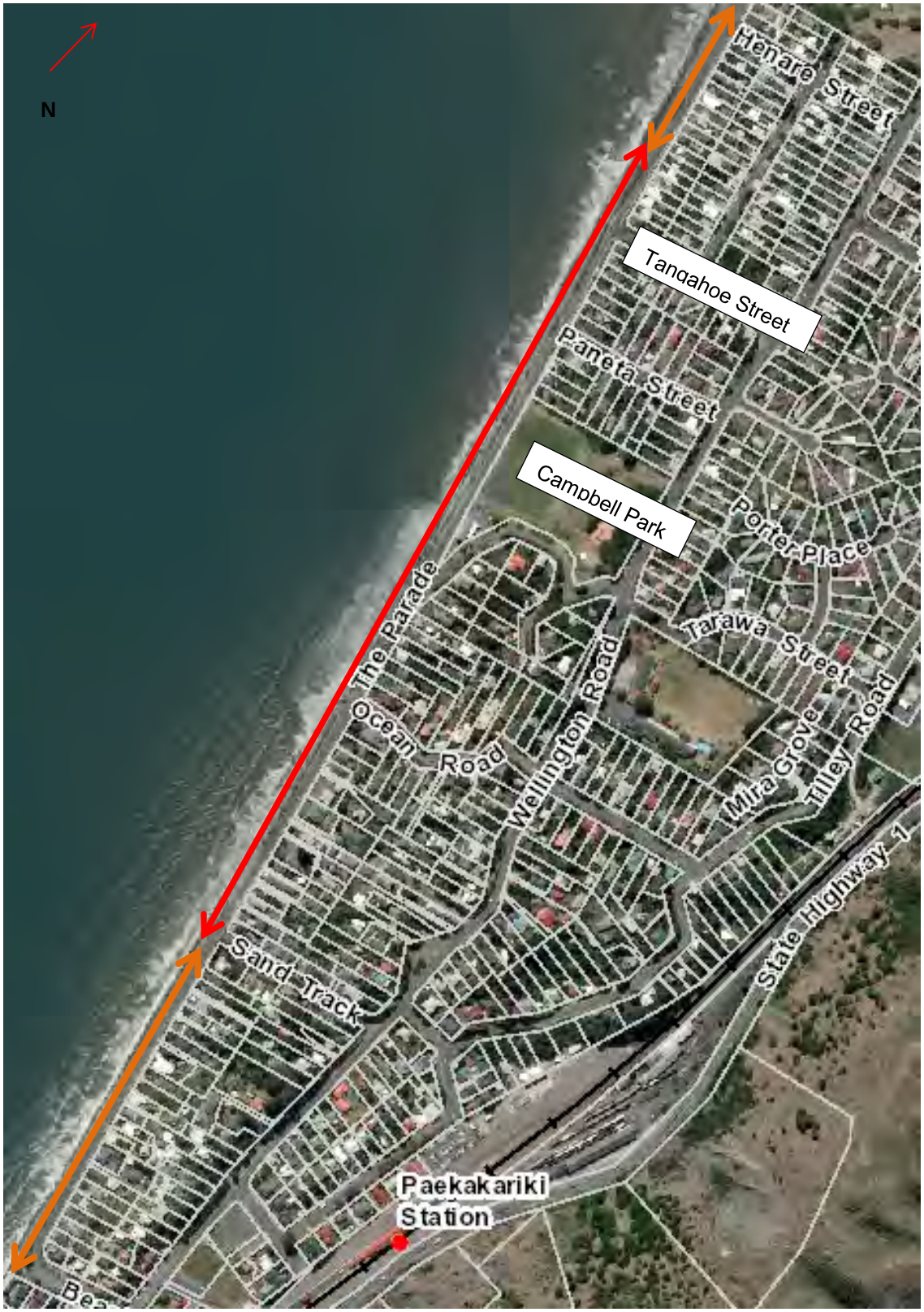


Figure 1- The red line shows the existing timber wall location. The orange lines show the existing rock revetment areas that will remain.

Figure 2- Looking Northwards along the Parade

Figure 3- Looking south towards the rock reventment

Figure 4- An example of current access to the beach. Stairs only go to the top of the sea wall

Figure 5- Current stormwater outlets

Figure 6- Current timber seawall structure

2.1 Existing Coastal Processes

A full assessment of the existing coastal processes at Paekākāriki is attached in Appendix F of this report. Paekākāriki is starved of sand as a result of its location in relation to Kāpiti Island. The reduction of the supply of greywacke gravels as a result of the construction of the State Highway along the coast in the late 1930's has reduced the volume of gravels that were once transported along the coastline. The absence of gravels has also resulted in the coastline becoming vulnerable to erosion during southerly swell events. The accretion of material at Paraparaumu Beach can also be attributed to the cause of continued erosion at Paekākāriki.

The report in **Appendix F** outlines the existing coastal processes in more detail.

3 The Proposal

3.1 Preliminary Concept Design

3.1.1 General Description

This is a relatively straight-forward replacement proposal – replacing the existing failing timber structure with a similar timber/concrete vertical seawall with improved access and amenity within the CMA. The existing rock revetments remain at either end and will be integrated and tied in with the new seawall.

A full set of preliminary concept plans are provided in **Appendix A**.

The proposed seawall will consist of a split level design. The lower beach seawall will be similar in height, scale and position to the existing timber seawall. It will be constructed of timber or concrete or a mixture of both. This will be confirmed at detailed design. The rock revetment at both ends of the seawall will remain in place and will require consent for their occupation of the Coastal Marine Area (CMA). Access and the amenity values in the end areas will remain unchanged.

The top part of the sea wall will be a rock revetment structure. This will integrate with the existing rock revetments at either end of the wall and help provide a consistent amenity along the coastal edge.

A pathway will run between these two seawalls, parallel to the beach. This will provide a recreational walkway along the seawall, with opportunities for informal and formal seating and improved access points along the way.

The existing walkway and road along The Parade remains largely unchanged as a result of this proposal. This will continue to provide an alternative walkway along the coastal edge and provide footpath, road and parking spaces as currently provided. There will be new and additional access points to the beach along The Parade, as shown indicatively in the preliminary concept plans. The exact number and location of the access points will be confirmed at detailed design. This will allow for some practical and creative proposals from prospective tenderers at the time of construction tender to put forward a final solution within the framework of the consented preliminary concept.

This is similar for final landscaping design, street furniture such as seating and rubbish bins, public art opportunities, stormwater treatment and the exact mix of materials (for example timber/concrete front wall and total span of concrete access points along the front seawall).

There are currently 10 wooden stormwater discharge structures along the length of the seawall. It is likely that these stormwater structures will remain, but they will be renewed and upgraded throughout the detailed design phase of the project. It is likely that some form of perched structure extending from the base of the wall will be required; however, this will be confirmed at the detailed design phase.

For the purposes of this resource consent application, both the concrete and the timber front seawall treatment will be assessed in terms of the effects on the environment. In effect, they will have the same physical effect of a vertical front wall (which will be similar to the existing timber seawall) and they will look fairly similar in terms of scale, location and overall amenity.

3.1.2 Design Criteria and Assumptions

The proposed design has the following design criteria and assumptions:

- At least a 50 year design life;

- The Importance level of the structure is IL1 (failure not likely to endanger human life);
- Return period for ULS seismic loads from AS1170 is a 1 in100 year event;
- Scour depth due to wave action is up to 2m below existing minimum beach level with protection to 2.5m below minimum beach level;
- The front seawall is not to extend horizontally onto the beach any further than the existing timber seawall. Some allowance for access steps to be buried under the sand in front of this line is provided for health and safety, resilience of overall structure and amenity reasons;
- Foundation depth for structures is up to 8m below existing average beach level. The foundation depth has been guided by Geotechnical investigations as provided in Appendix D;
- Structures can settle under a ULS earthquake due to liquefaction provided they can be re-levelled afterwards by jacking;
- Coastal edge treatment covers a 960m extent (i.e. the full extent of the existing timber seawall to be replaced).

3.1.3 Design Performance

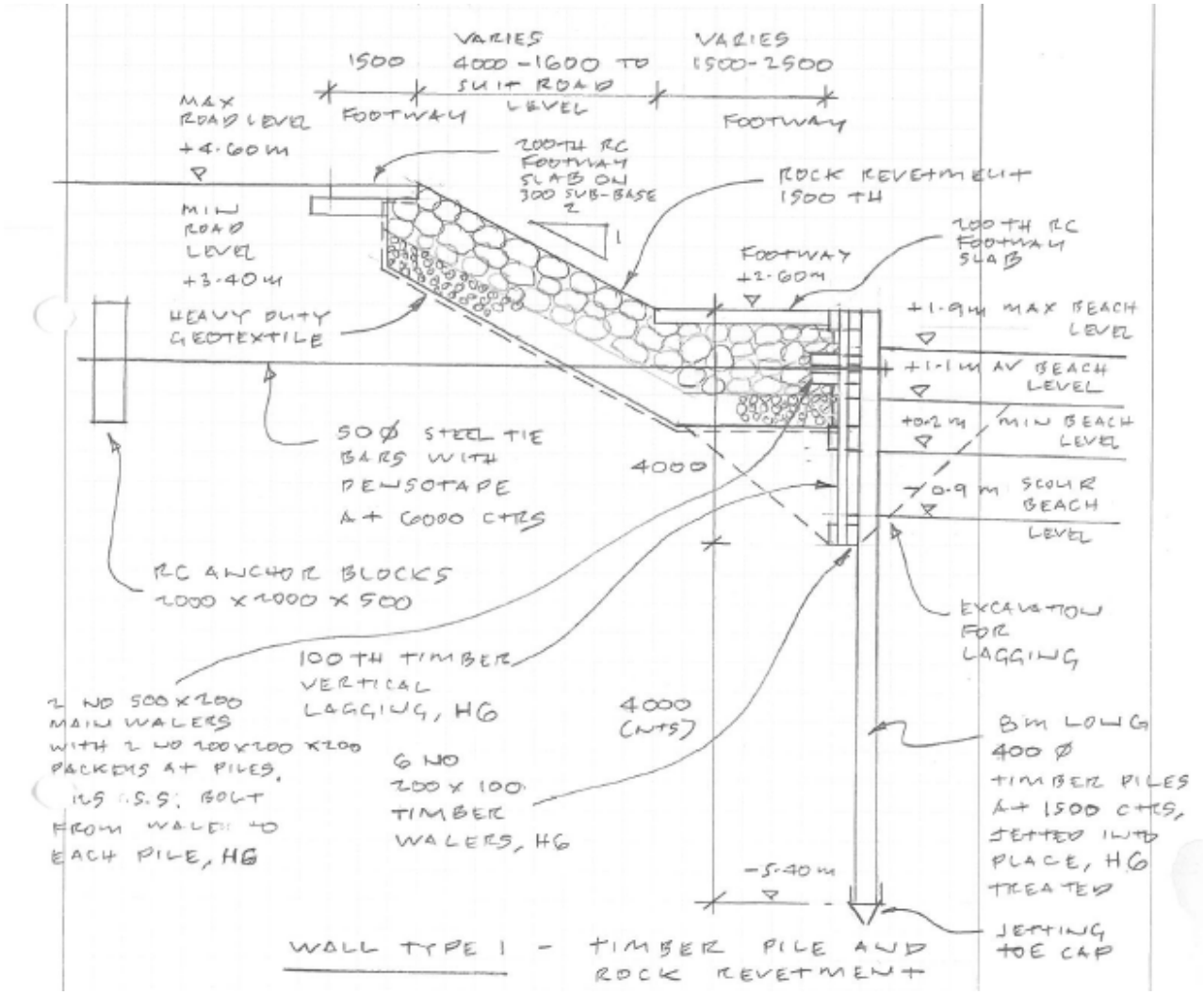
The design of the proposed seawall has two basic cross sections as described below.

Wall Type 1 – Vertical Wall and Preliminary Rock Revetment

Wall type 1 is a timber or concrete and rock revetment seawall which will be provided over the majority of the wall length. The lower timber or concrete wall has a vertical face to the beach supported by timber or concrete piles which are likely to be founded about 8m below the intermediate pathway level in medium dense sands. The pile depth will be selected to provide a foundation that is adequate for the vertical loads from the wall and to allow for scour in front of the wall without undermining the pile toes.

The piles will be closely spaced with timber or concrete panels which span between the piles and extend below the normal beach level to cater for variation in beach levels and wave scour. The wall panels are typically 4m high measured from the level of the intermediate pathway and extend about 2.5m below the lowest beach level to cater for wave scour effects. A typical section of wall type 1 is shown below.

The piles are expected to be anchored by tie bars to concrete anchor blocks located under The Parade. The vertical wall varies in height above the beach between 0.7m and 2.4m over the its length as the beach level varies, with the new pathway set horizontal along its length to match the existing intermediate pathway.



Typical Cross Section of Wall Type 1

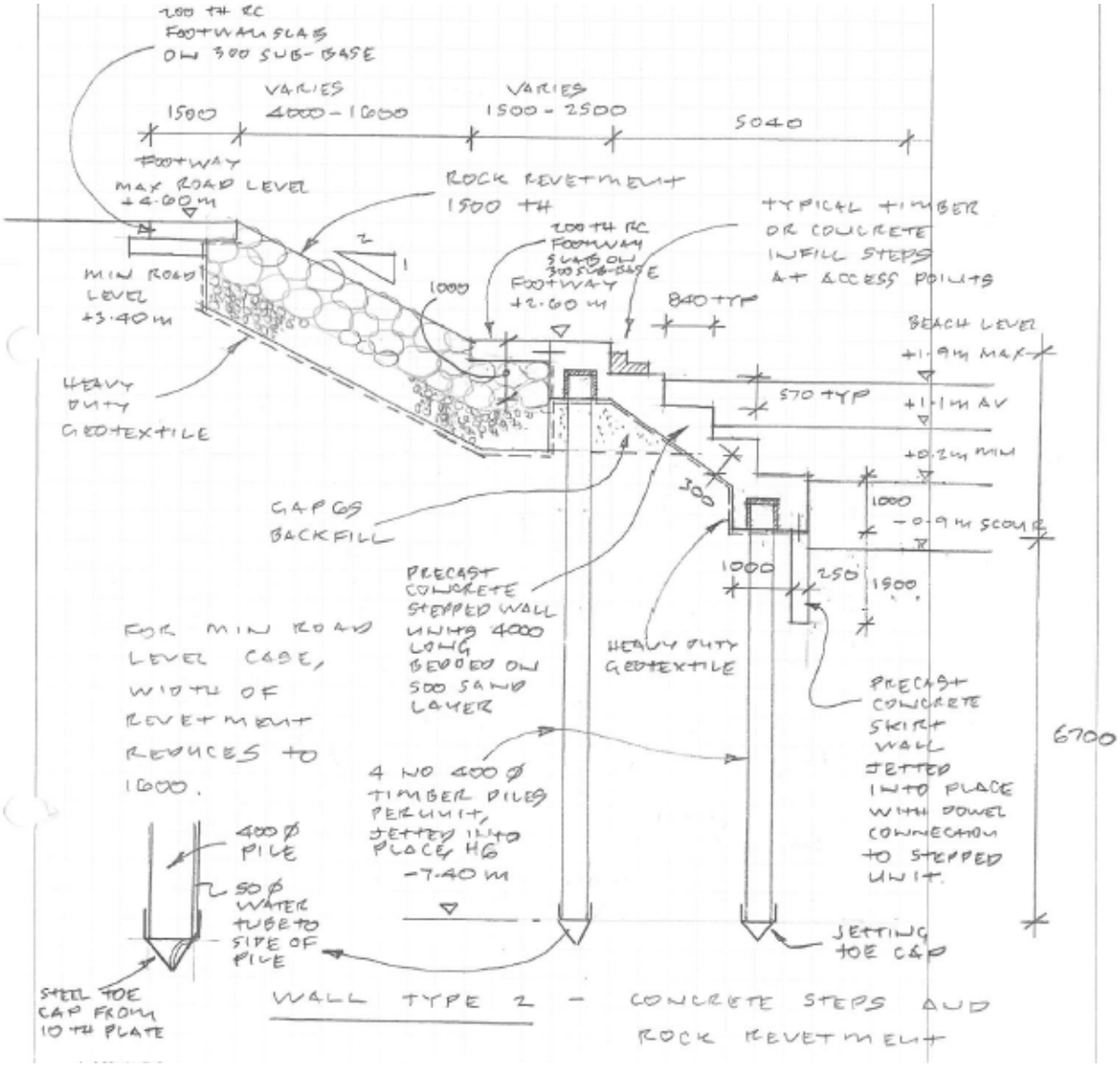
The intermediate pathway is located on top of the lower wall and at the toe of the upper rock revetment which slopes up to the level of the existing roadway and has a vertical height of between 0.8m and 2m as the road level varies, and a slope of 1 vertical to 2 horizontal. The rock revetment is likely to be about 1.5m in thickness and to extend below the intermediate pathway to protect the wall backfill being washed out due to wave overtopping.

Wall Type 2 – Concrete Steps and Rock Revetment

Wall type 2 is a concrete step and rock revetment seawall which will be provided at various locations along the wall where access is to be provided to the beach. The lower concrete step wall will comprise a reinforced concrete step unit supported on timber or concrete piles which are likely to be founded about 10m below the level of the intermediate pathway in medium dense sands. The pile depth will be selected to provide a foundation that is adequate for the vertical loads from the wall and to allow for scour in front of the wall without undermining the pile toes. The concrete step units are likely to be precast concrete units up to 4m long with intermediate joints between units. A typical section of wall type 2 is shown below.

The concrete stepped wall units will slope down from intermediate pathway level to beach level at a slope to suit the required pedestrian steps and will extend below the lowest beach level and be provided with a small skirt wall below the lowest step to provide protection against wave scour

effects. The step unit will vary in height above the beach between 0.7m and 2.4m over the its length as the beach level varies, with the new pathway set horizontal along its length to match the existing intermediate pathway.



Typical Section of Wall Type 2

As with wall type 1 the intermediate pathway is located on top of the stepped wall and at the toe of the upper rock revetment which slopes up to the level of the existing roadway and has a vertical height of between 0.8m and 2m as the road level varies, and a slope of 1 vertical to 2 horizontal. The rock revetment is again likely to be about 1.5m in thickness and to extend partly below the intermediate pathway to protect the wall backfill being washed out due to wave overtopping.

3.1.4 Integration of the New Wall with the Existing Rock Revetments

The proposed seawall will be integrated with the existing rock revetments at both the northern and southern ends by overlapping the rock revetment in front of the new wall for a short length. This may require the new wall back to be tapered back towards The Parade to allow the overlap to occur

without the revetment extending further onto the beach than it currently does. The integrity of the existing rock revetment will not be compromised by the new wall.

3.1.5 Maintenance Requirements

The design life of the new wall is a minimum of 50 years. The materials will be selected to be durable for the design life with normal routine maintenance. This will involve routine repairs to structural elements and the rock revetment. Timber elements will be treated to give a life that is consistent with the design life. Concrete elements will be designed with suitable grades of concrete and cover to reinforcement to achieve the required durability. Buried tie bars for the anchored wall will be protected against corrosion.

The wall is expected to be overtopped by waves during severe storms, in particular the lower wall. Sand and debris will be deposited against the face of the vertical wall and on the stepped wall as well as on the intermediate pathway and rock revetment. This will require maintenance to remove sand and debris build-up. Under extreme events sand and debris may be deposited onto The Parade, as has historically occurred from time to time in the past during severe storms.

Wave scour is expected to occur at the base of the lower walls as describe above and will require scour holes to be filled-in following severe storms.

The wall will be designed for the wave actions that are expected to occur without damage occurring to the structural walls and rock revetment under the design storm event. Under very severe storms, damage could occur to the intermediate pathway surface or rock revetment which may require repair.

Normal maintenance activities can be carried out as a permitted activity under the Regional Coastal Plans.

3.1.6 Design Status

The above detail for the wall is based on preliminary design carried out to date and will be confirmed during the detailed design stage.

3.2 Improved Beach Access

Improving beach access is an important aspect of the preliminary design concept which was highlighted through community consultation.

Examples of the “major”, “minor” and “normal” access points are shown in Figure 7, Figure 8 and Figure 9 below. Full plans showing indicative locations and details are provided in Appendix A. The below describes the proposed improved beach access of the preliminary concept.

The design will tie into the existing path north of Tangahoe Street. Opposite Tangahoe Street and Paneta Street there will be a “normal” access way to the beach including steps, a ramp access to the lower path, large steps for seating as well as rubbish bins and drinking fountains. Currently, the timber seawall limits ease of access to the beach in that there is limited stairway access down to the beach area.

At the northern end of Campbell Park, there will be a “minor” access point containing one set of stairs and some seating. There will be a “major” access point at the southern end of Campbell Park. Here, there will be wide steps as well as a ramp leading from the upper path to the lower path, larger steps leading to the beach, additional seating and rubbish bins. There is opportunity to have more of these wider concrete steps along the front wall beach interface, for improved beach access and a place to sit and enjoy. Again, this will be confirmed at detailed design.

Opposite Ocean Road, there will be another “normal” access point and two stepped “minor” access points leading to the lower path, a larger set of stairs leading to the beach, seating and rubbish bins. Parking spaces will be available along the seaward side of the Parade. The works will end opposite the Sand Track and link into the existing ramp to the beach through the rock revetment. This access can be used for the disabled or for people with push chairs or people transporting kayaks to the beach. The rock revetments at either end will remain the same in terms of access.

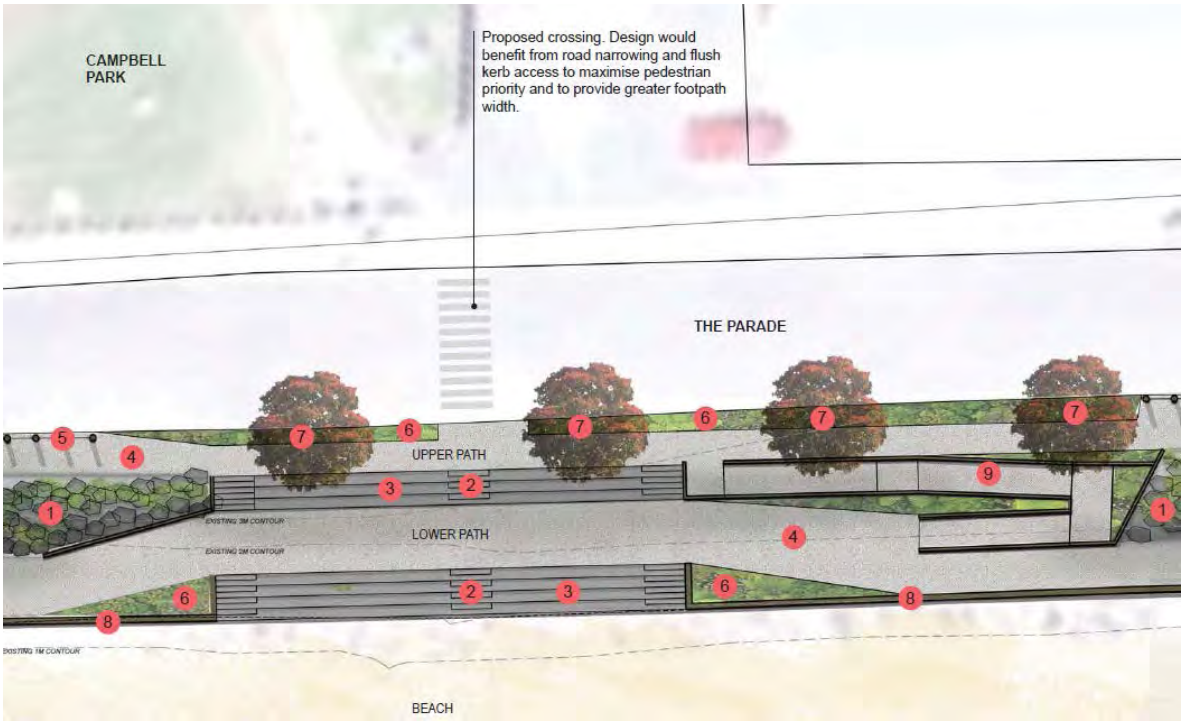


Figure 7- Example of what a "Major" access point will look like

Figure 8- Example of what a "normal" access point will look like

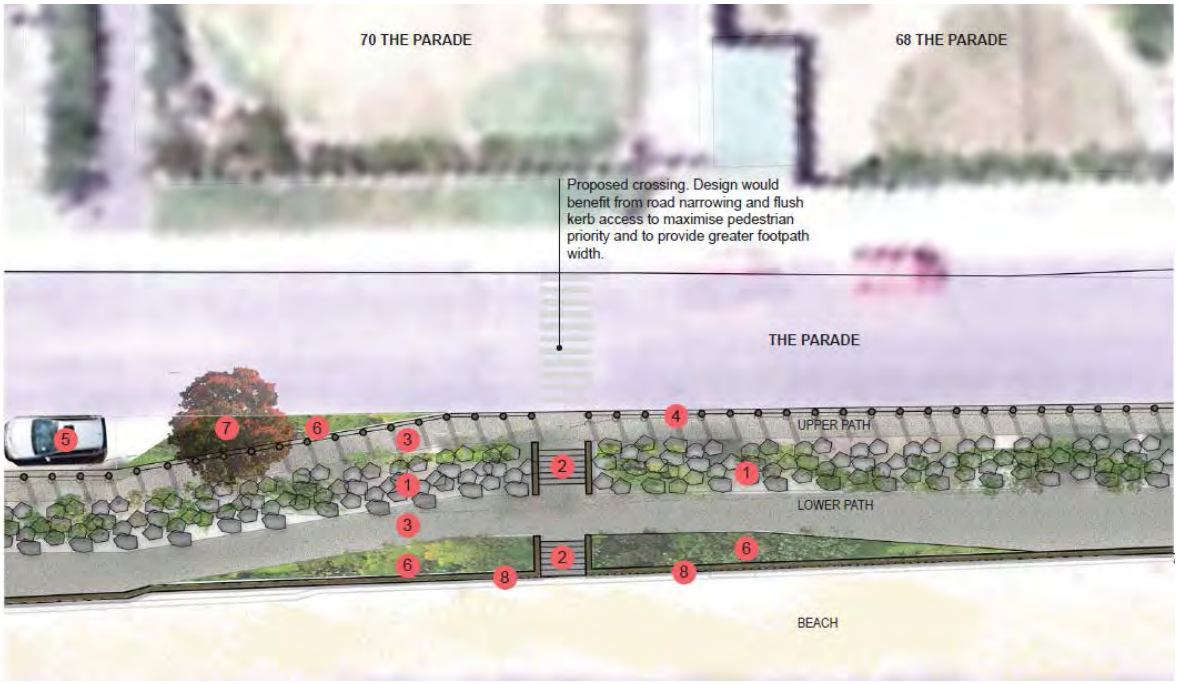


Figure 9- Example of what a "minor" access point will look like

3.3 Integration with The Parade

Accessibility and integration with The Parade were issues highlighted during community consultation. People wanted to see improved and safe access to the beach from The Parade.

The proposed seawall will consist of two footpaths; an upper path and a lower path. The upper path will continue to run along The Parade similar to the present situation. The lower path will run in between the two split seawalls as shown on the plans in Appendix A. These two paths will be linked together via a number of stairways and ramps along the route. The ramps will provide the ability for the disabled, elderly or parents with push chairs to access the beach without using the stairs. This is an improvement on the current situation where there is only one ramp access point towards the south end of the beach.

The footpaths, parking spaces and roadway along the Parade will remain largely unchanged. The proposal is to replace the existing timber seawall rather than to significantly alter the footpath and road above it. There is opportunity at detailed design to enhance the boundary edge between the top of the rock revetment/access points and The Parade. This may include:

- Landscaping, street furniture and public art;
- Some more informal access points and seating places incorporated within the rocks;
- Improved parking opportunities along The Parade;
- Pedestrian crossing points to provide safe and legible places to cross the road. Some indicative locations are shown on the plans in Appendix A.

For the purpose of this regional resource consent application, the key point is that the proposed seawall will offer significantly improved public access options for all users. The impact on The Parade in terms of parking opportunity and road use will be similar to the existing situation.

3.4 Landscaping and Amenity

Improving the landscaping and providing an attractive beach environment was another aspect identified through community consultation as a priority.

The concept plans propose some indicative native species and street furniture. There will be a number of native species planted along the proposed seawall. Within the preliminary design, such species include:

- Hokokaka, Native Ice Plant;
- Pingao, Golden Sand Sedge;
- Wiwi, Knobby club rush;
- Harakeke, Flax;
- Tataraheke, Sand Coprosma;
- Shore Daphne; and
- Taupata, Mirror Plants.

This list is indicative only and may be subject to change during detailed design. A Landscaping Plan will be submitted to GWRC for approval prior to the works commencing. This is proposed as a condition of consent. Given the harsh nature of the coastal environment and growing conditions for plants, some species may struggle to survive.

There is also opportunity during detailed design to include features like penguin boxes and other environmental benefits that were suggested during community consultation. The mix of different materials, landscaping and the split-seawall design will not only create some visual interest along the beach, but will also create a potential habitat for wildlife such as seals, penguins, and birds.

The proposed seawall will be a significant and valued asset to the Paekākāriki community and wider public. There is opportunity for public art to further enhance the amenity of the coastal environment. This may include cultural art and iwi sculptures, including pou. It may include educational features that tell the story of the place and environment. There is opportunity for local community art and design, with a strong artistic community likely keen to enhance The Parade as the gateway to the coast.

This will be a matter for detailed design, within the parameters of the preliminary concept design that has been consented. At detailed design, tenderers will have opportunity to present landscaping and amenity features as part of proposed construction plans.

3.5 Construction Methodology

A Construction Management Plan will be submitted to GWRC for approval prior to the works commencing. This is proposed as a condition of consent. This is a standard and practical way of managing construction activities and impacts. The Construction Management Plan will include matters such as a detailed construction methodology, timing of the works, erosion and sediment control, health and safety management, and a traffic management plan.

The programming of work will largely be controlled by the tides, and possible adverse weather. The intention is to make the site safe at the end of each working session, with sediment and erosion measures in place against expected conditions.

Council's current funding for this project is spread over five years and the scenario is that construction may be staged over that period at suitable times and the new seawall constructed in portions. Alternatively, a contractor may propose a quicker funding and construction timeframe at detailed design and construction tender. This will be reflected in the approved CMP.

Construction activities are likely to include:

- Installing timber or precast concrete piling to the lower seawall, to a depth of around 8m. This could be carried out using bored, jetted, or driven piles. The construction plant would require beach access for this. The extent of surface disturbance would be small.
- Pile tiebacks would be installed from under The Parade. The concrete anchor block might be installed by boring from surface and the tie by horizontal drilling from the beach.
- The existing seawall structure will be removed in sections, the length of which will be determined by tide and weather constraints.
- Trench excavation varying in depth up to 3m would follow immediately, to accommodate precast concrete or timber wall elements. This might be sheet-piled in the sand strata to prevent collapse. Contaminated sub-beach material might be stockpiled on the existing walkway shelf to avoid polluting the beach sand. The aim would be to install and backfill each new section in a single working session.
- Dewatering of the excavations might be directed to temporary ponding excavated at intermediate points behind the existing wall. Sediment could be filtered from there as required. This will be determined once it is known what particular construction techniques are to be employed. If required, a consent to dewater will be applied for separately.
- Once the lower wall has been constructed, the upper revetment/wall and walkway can be installed. Access would be from the road and beach.
- Landscaping and planting would complete the work.

Spoil will be deposited off-site at appropriate clean fill/dump. The removal works will involve preparatory earthworks to tidy the site for construction. Because work will be completed in each daily cycle, erosion is not expected to be a major issue. Sediment control would be in place at localised points of excavation, and where small amounts of concrete need to be placed in situ.

The construction yard would have designated areas for refueling and storage of potential pollutants. These would be bunded to prevent spills into the beach area. Stormwater inlets would be fitted with filter bags in the vicinity of road excavations. Emergency response spill kits would be on site at all times.

Construction plant will be working from The Parade and along the beach – ideally at low-tide, but could be at any time. Health and safety signs will be erected to warn the public of the hazards in the immediate area.

A Traffic Management Plan will be in place to provide safe access along the Parade during construction works. Similarly, the construction site will be clearly defined and marked off from the beach to provide a safe and secure construction site.

Immediate residents and the Paekākāriki community will be kept well informed of construction works, timing and what can be expected during the works. This will be through letter drops to immediate residents and regular updates to the Community Board. Updates could also be provided through the KCDC website or social media to reach the wider public.

Types of vehicles that could be using the road for the purposes of construction include:

- Diggers, both small and large;

- Trucks to carry the material to clean fill;
- Trucks to transport the new seawall material to site;
- Workers Ute's and cars;
- Rotary drillers;
- Concrete trucks; and
- Cranes.

Details around the management of the traffic will be included in the traffic management plan. Images of the typical machinery that you will see on site are displayed below:

	Typical Pilling Rig
	Typical Machine Excavator
	Typical Crane

4 Consents Required

4.1 Section 12 of the RMA

Section 12 – Restrictions on the use of the coastal marine area:

(1) No Person may, in the coastal marine area,-

(a) Erect, reconstruct, place, alter, extend, remove or demolish any structure that is fixed in, on or under the foreshore and seabed

Unless expressly allowed by a national environmental standard, a rule in a regional coastal plan, as well as a rule in a proposed regional coastal plan for the same region, or a resource consent.

(2) - No person may, in relation to land of the Crown in the coastal marine area, or land in the coastal marine area vested in the regional council,—

(a) Occupy any part of the coastal marine area -

unless expressly allowed by a rule in a regional coastal plan or by a resource consent.

The application for resource consent for the continued occupation of the CMA with a replacement of an existing coastal protection structure as well as the demolition of the existing structure will be assessed in terms of matters listed in section 104 of the RMA and the statutory approach in section 105 of RMA that serves as a framework for assessment of the resource consents and effects of the proposed activity.

4.2 Operative Wellington Regional Coastal Plan

The table below outline the consents that are required to undertake the proposed works to construct the seawall under the Wellington Regional Coastal Plan and renew the occupation of the existing revetments. The project area is not identified as coastal site of regional significance or within an area of significant conservation value.

Table 1- Consents required

Rule- Regional Coastal Plan	Activity Status
Rule 7- Removal or demolition of structures	Permitted
Rule 16- Occupation by structures of land of the Crown or any related part of the coastal marine area	Controlled
Rule 13- Maintenance, repair, replacement, extensions, additions and alterations to structures	Controlled
Rule- Regional Discharge to Land Plan	**Activity Status**
Rule 1- Discharges of contaminants not entering water	Permitted
Rule- Regional Freshwater Plan	**Activity Status**
Rule 7- Minor abstractions.	Permitted

4.2.1 Permitted Activities

An assessment of any permitted activity that is a part of the proposal, under Section 3 of Schedule 4 of the RMA is required. A description of the permitted activity and demonstration of compliance with that activity is required as a part of the assessment.

Rule 7- Removal or demolition of structure (Regional Coastal Plan)

To construct the new sea wall, the original seawall will need to be removed. Rule 7 states that the removal of any structure fixed in any foreshore and seabed, including the associated disturbance for the foreshore and seabed which is outside any area of Significant Conservation Value does not require any blasting or other destruction of bedrock (1) (b) or results in the complete removal of the structure or the part of the structure from the CMA (2) is a Permitted activity.

The seawall will be removed were necessary to enable for the construction of the new seawall. The proposed works are considered to be compliant with the permitted activity standards, including Section 14.1 of the Regional Coastal Plan. Paekākāriki is not an area of significant conservation value as identified in the Regional Coastal Plan.

Section 14.1 matters including public safety, noise and onsite storage can be addressed through standard construction management plans and conditions of consent.

Resource Consent is therefore not required under Section 87A (1) of the RMA for the removal of the existing seawall.

Rule 1- Discharges of contaminants not entering water (Discharges to land Plan)

The details of whether or not dewatering of the excavations will be required will be determined in the construction methodology or when works commence. It is expected that the discharge from the dewatering activities will comply with the permitted rule within the Discharges to Land Plan. The discharge will not result in any contaminants entering any water body. If it is confirmed that the possible dewatering cannot comply with this rule, a separate consent will be applied for prior to construction.

Rule 7- Minor abstractions (Regional Freshwater Plan)

If dewatering of the excavations during the construction of the seawall is required, it is expected that the take of water will comply with the permitted standard in terms of volume of take and the rate of take. It is not expected that the dewatering of excavations will have an adverse effect on any nearby bores. The excavations will be staged which will limit the amount of excavations required at one time. If it is confirmed that the possible dewatering cannot comply with this rule, a separate consent will be applied for prior to construction.

4.2.2 Consents Required

Two consents are required for the construction and operation of the seawall in the Coastal Marine Area.

Rule 13- Maintenance, repair, replacement, extensions, additions and alterations to structures.

Any replacement to any existing lawful structure or any part of the lawful structure that is fixed on the foreshore that:

- is contained within the form of the existing structure and adds no more than 20% to the cross sections area of the structure; or
- Adds no more than 10 metres in horizontal projection and three metres in vertical direction to the remaining coastal marine area; and
- is outside and area of significant conservation value and does not require any blasting or destruction of bedrock,

is a Controlled Activity.

This rule covers the replacement of the existing seawall with the new proposed structure and alternations to the stormwater outlets. These activities would not require public notification. The proposed seawall complies with the matters listed in Section 14.2 and can be managed via conditions of consent. In terms of the proposed replacement, the existing timber seawall site includes the area from the existing seaward front timber wall to the interface with The Parade. In that regard, the proposed seawall will simply replace that area, at a similar scale, width, height and location.

Rule 16- Occupation of CMA

Occupation of the seawall in the CMA meets the requirements of Rule 16 (Controlled Activity) of the Regional Coastal Plan. The proposed seawall will comply with the general terms listed in Section 14.2 of the Regional Coastal Plan. The existing rock revetment at either end of the proposed seawall will remain in place and its occupation will form part of this consent application. The stormwater outlets will likely remain in a similar shape and form as they exist now. However, the structures may be altered during the detailed design phase. Their occupation of the CMA still falls under Rule 16.

The part of the Paekākāriki coastline subject to this application is not identified as Regionally Significant under the Operative Regional Plan. The listed matters of control can be addressed though proposed conditions of consent. Occupation of the CMA shall not be publicly notified except where the consent authority considers that there are special circumstances. As there is already a seawall in place, the activity occupying the CMA will not be changing. The proposed seawall will occupy slightly more of the CMA than the current seawall. The proposed design will only improve the current situation.

4.3 Proposed Wellington Natural Resources Plan 2015

The Proposed Wellington Natural Resources Plan was publicly notified on the 31st of July 2015. The plan replaces the suite of Operative Regional Plans including the Regional Coastal Plan. The rules within the Plan have immediate legal effect. The project area is not identified as a site of Regional Significance or within an area of Significant Conservation Value.

Table 2- Consents required under the Proposed Wellington Natural Resources Plan

Rule- Wellington Natural Resources Plan	Activity status
Rule 69: Discharge of contaminants to land	Permitted
Rule 140: Dewatering	Permitted
Rule 149: Maintenance of the Seawall	Permitted
Rule R153: Removal or demolition of structures or part of a structure	Restricted Discretionary Activity
Rule 166: Seawalls outside sites of significance (including occupation)	Discretionary Activity
Rule 183: Renewal of existing resource consents for occupation of space by structures	Controlled Activity

4.3.1 Permitted Activities

Under **Rule 140**, dewatering of excavations is permitted provided that

- The take continues for the amount of time required to carry out the work, but does not exceed one month;
- The take, diversion and discharge is not from, or onto a contaminated site;

- The take does not cause ground subsidence;
- The take does not deplete the water in the water body; and
- There is no flooding beyond the boundary.

The details of whether or not dewatering of the excavations will be required will be determined in the construction methodology or when works commence. It is expected that the dewatering required will comply with the permitted rule. The discharge of the water extracted from the excavations will need to be discharged to land. It is anticipated that the discharge will be able to comply with the permitted **Rule 69**. The contaminants will be managed so that they will not enter water and the contaminant is not a hazardous substance. It is not expected that the discharge will cause an adverse effect beyond the property boundary. If it is confirmed that the possible dewatering cannot comply with this rule, a separate consent will be applied for.

Under **Rule R149**, the maintenance of the seawall is permitted so long as the maintenance does not increase the height, width or length of the structure and the maintenance works comply with the specified coastal management conditions in Section 5.7.2 of the Proposed Plan. Any maintenance will be undertaken in accordance with the permitted standards within the plan. Any maintenance in the future that is inconsistent with the permitted rules of the plan will require a resource consent.

4.3.2 Consents Required

Rule R153- Removal of the Seawall

Rule R152 provides for the removal or demolition of a structure or part of a structure as a permitted activity. The removal of the existing seawall is likely to disturb more than $10m^3$ of the foreshore and therefore cannot meet the permitted activity thresholds. Therefore consent is required under Rule **R153** as a **Restricted Discretionary Activity.** This includes the disturbance of the seabed and the possible discharge of contaminants. The matters of Discretion include:

- Effects on public access;
- Effects on public open space and visual amenity;
- Effects of the disturbance, deposition, discharge or diversion associated with the removal;
- Effects on sites identified within the Schedules of the Plan;
- Lighting and noise; and
- Navigational safety.

Rule R166- Construction of the seawall

The seawall does not comply with Rule163 (replacement of structures) as the rule excludes seawalls. Therefore, consent is required under **Rule R166**, seawalls outside sites of significance as a **Discretionary Activity**. The specific part of the Paekākāriki Coastline is not identified as Regionally Significant under the Proposed Regional Plan. Rule R166 includes the:

- Occupation of the space in the common marine and coastal area,
- The disturbance of the foreshore and seabed, and
- Deposition in, on, or under the foreshore and seabed,
- Discharges of contaminants, and
- Diversion of open coastal water.

Rule 183: Renewal of existing resource consents for occupation of space by structures

Occupation of the existing rock revetments at either end of the proposed seawall will require CMA occupation consent. No changes to these structures are proposed, with the exception that they will be integrated with the new proposed seawall. The new seawall and the stormwater outlets will also require occupation consent under Rule 183.

4.4 Kāpiti Coast District Council District Plan

Discussions with the Kāpiti District Council Resource Consents team have confirmed that no resource consents will be required for the proposed seawall under both the Operative and the Proposed District Plans. The stated reasons for this are:

- The establishment of the structure itself will not trigger the need for consent under the Residential Zone Provisions; and
- The proposed earthworks are not caught by the Residential Zone Provisions.

Therefore, no consents are required under both the Operative and Proposed Kāpiti Coast District Council District Plans. A building consent will be required and will be lodged with the Kāpiti Coast District Council after the detailed design process.

4.5 Summary

Therefore coastal permits are required under:

- **Rule 13** and **Rule 16** of the Operative Wellington Regional Coastal Plan as a Controlled Activity, and
- **Rule 153, Rule 166 and Rule 183** of the Proposed Wellington Natural Resources Plan as a Discretionary Activity

Given that the Proposed Plan has immediate legal effect, the seawall replacement and occupation will be assessed overall as a **Discretionary Activity**.

5 Assessment of Effects on the Environment

An Assessment of Effects on the Environment is provided below in accordance with Schedule 4 of the RMA 1991.

Overall, the positive effects are significant and there will be an improvement in public access to the beach and the amenity of the coastal environment. Any adverse effects will be minor and can be suitably managed by way of conditions of consent.

5.1 Positive Effects

Overall, there will be a significant positive effect in terms of providing on-going protection to The Parade from coastal erosion. The Parade is an important public asset and provides the main access to the beach and access to the Paekākāriki Surf Club, Campbell Park, and a number of private properties fronting the beach. The existing timber seawall is in need of replacement. Without the seawall, there is a significant risk of coastal erosion to The Parade. The seawall is therefore a vital piece of infrastructure that will protect public assets from the impacts of coastal erosion.

Additionally, there are positive effects from improvements to the overall amenity, usability and accessibility of the coastal environment. The preliminary concept design includes:

- Improved public access to the beach from The Parade;
- Increased usability of the seawall structure, with opportunities to use the dedicated pathways, sit and use the formal seating and more informal seating places provided by the rocks and concrete steps to the beach;
- Enhanced amenity, with attractive landscaping, a mix of materials and design to provide some visual interest and different spaces to enjoy along the seawall

5.2 Cultural Effects

The tāngata whenua of the District are Te Āti Awa ki Whakarongotai, Ngāti Raukawa, Ngāti Toa Rangatira, including their whānau and hapū who have a strong physical and spiritual connection to the coastal environment.

In terms of cultural effects, this is a relatively straightforward application to replace an existing seawall with a new proposed seawall. The overall outcome will be positive in that The Parade will continue to be protected from coastal erosion and there will be an improvement of beach access and amenity. This is positive for the community and people of the district, of which iwi are an integral part.

Rather than any adverse cultural effects, there is opportunity to incorporate some cultural design and influence into the final detailed design should iwi be interested. For this application, we have engaged primarily with Jennie Smeaton and Carol Reihana, Ngāti Toa Rangatira. The feedback has been positive in terms of support for the collaborative process of working with the Community Design Group towards the preferred concept.

Ngāti Toa Rangatira will be interested in having involvement and input into the final detailed design, with opportunity to integrate cultural values into the design of the seawall, either through pou markers, cultural design and art along the seawall and coastal edge.

The subject area is not identified as having any identified sites of cultural significance. However, there is potential for koiwi discovery during earthworks. A suitable condition of consent is proposed in this regard. The construction of the seawall will not limit beach access or prevent the gathering of Kai Moana from the foreshore.

Overall, any adverse cultural effects on iwi values will be less than minor, with opportunity for positive effects during detailed design input, as well as the future enjoyment of the improved amenity and access to the beach.

5.3 Short-term Construction Effects

The adverse environmental effects generated from the construction of the seawall will be temporary and minor and can be sufficiently controlled through standard Construction Management Plan procedures. A proposed condition of consent requiring the consent holder to submit a Construction Management Plan and a Traffic Management Plan for approval prior to works commencing is proposed accordingly.

Council's current funding for this project is spread over 5 years and one scenario is that construction may be staged over that period at suitable times and the new seawall constructed in portions. Alternatively, a contractor may propose a quicker funding and construction timeframe at detailed design and construction tender. This will be reflected in the approved CMP.

There will be minor visual, noise, vibration and access disruption during construction works. These effects will be short-term and the days and hours that the construction works take place can be managed through the Construction Management Plan. For example, standard procedure is for works not to take place on Sundays or Public Holidays and be restricted to daytime hours provided respite during the night-time.

It will be important to keep nearby residents and the Paekākāriki community well informed of construction works. This will be through letter drops to immediate residents and regular updates to the Community Board.

The public will be restricted from using certain parts of the sea wall during construction. The public may have to use an alternative access to the beach while each section of the seawall is being constructed. There will be signs in place to guide beach users.

When balanced against the need to replace the existing timber seawall, and the positive long-term effects generated by the proposed new seawall, the overall adverse effects of construction will be temporary and minor and manageable through standard conditions of consent.

5.4 Coastal Amenity

Appendix C contains the design statement for the Paekākāriki seawall. In terms of coastal amenity, this is a relatively straight-forward replacement proposal – replacing the existing failing timber structure with a similar timber/concrete vertical seawall. The change in coastal amenity will occur between the two existing rock revetments at either end of the existing timber seawall. The use of either timber or concrete or a mix of both materials will be decided during detailed design and costing.

The overall scale and location of the proposed seawall is similar to the existing seawall and environment between the beach and The Parade. That is, what is proposed is similar to the existing environment and not introducing a significantly different coastal amenity. There will be no change in the amenity values and effects associated with northern and southern rock revetments.

The design of the proposed seawall has been developed collaboratively with the Community Design Group throughout 2014 and 2015. There will be an overall improvement to the coastal amenity of the area. The existing timber seawall is looking tired and in places unsafe and messy. The proposed design will improve the overall amenity of the coastal environment, providing an upgrade to the existing seawall, enhanced landscaping and a two-stepped seawall design with plenty of opportunity for people to walk, sit and enjoy the coastal environment.

Overall, the effects on coastal amenity are minor when compared to the existing environment and likely to be positive in terms of an improved functional seawall area between the beach and The Parade.

5.5 Recreation and Public Access

The proposed sea wall design will enable people of all abilities to readily access the beach. The large concrete steps will provide additional seating for users of the foreshore, especially when the tide is high and the beach cannot be utilised for recreational purposes. The new paths will provide a safe and wide area for all ages to use, improving access from Campbell Park to the beach and along the foreshore, while being separated from the road. Overall, the effects on recreation and public access will be positive and an improvement on the existing situation.

5.6 Ecological Effects

The area is not identified in the Regional Plans as having any specific ecological significance. The site is however part of a dynamic coastal environment and provides an interface between the built environment of The Parade and beyond and the natural coast.

The proposed seawall will have an overall neutral to slightly positive long-term effect on the ecology of the area. The proposed seawall will essentially replace the existing structure with a similar structure. The difference will be the mix in materials, diversity of spaces and additional rock revetment as an upper seawall, and landscaping. This will likely provide additional habitat for wildlife, for example seals, penguins and birds. Penguin boxes/ habitat consideration have been raised during community engagement as a potential feature for detailed design.

Therefore, the impact on the local ecology from the construction of the new seawall is expected to be less than minor.

5.6.1 Impact on Marine Ecology

The Report written by Dr Shaw Meads titled "*Review of Coastal Processes Assessments at Paekakariki Beach and the Potential Impacts of the Proposed Replacement Seawall*" contained in **Appendix F** of this Assessment of Environmental Effects details the impacts on marine ecology. Dr Meads states that:

> *"The existing marine ecology at the site is comprised of a relatively low number of common intertidal species that are adapted to this very harsh environment. Sand levels at the site can change by over a metre between tides due to wave action, making it a very changeable and abrasive environment, which together with the intertidal nature (i.e. organisms must be adapted to survive for extended periods out of the sea, in freshwater during heavy rain fall and tolerate large temperature variations on a daily basis), means that only a few hardy species can inhabit the area."*

Dr Meads also states that the species that colonise this coastline are adapted to withstand the high sediment movement and strong wave action, resulting in large fluctuations in the abundance of species and individuals through time.

As noted in Dr Meads report, the construction will be undertaken along small sections of the wall, with the removal and reconstruction of the wall occurring over a period of up to five years. It is likely that beach access will be required for the construction and demolition of the wall; however the disturbance of the beach will only be small. Erosion and sediment control will form a part of the Construction Management Plan. It is not expected that the construction of the seawall will have an adverse effect on the marine ecology within the area. Therefore, based on Dr Mead's findings, the

environmental effects on the existing marine ecology are expected to be less than minor and of a temporary nature.

5.7 Effects of Coastal Processes

Dr Meads Report also states that the Paekākāriki's coastline is being starved of a natural supply of longshore drift material by the growing headland at Paraparaumu that is preventing the southward transport of sand. As a result there is less sand reaching the Paekākāriki Beach. Some of the sand that does arrive at the beach is transported seaward during storms. Not all of the sand returns to the beach following the storms, resulting in more net loss from the system. An undeveloped coastline would contribute some material to the beach system, however the current timber seawall and to a lesser extent the rock revetments effectively prevents this from happening.

The overall effects on coastal processes are expected to be similar in nature as to what is existing.

5.7.1 Location of the Proposed Seawall

The overall effects on the coastal processes (such as wave dynamics and end effects) will be similar to the existing situation. The proposed seawall will be flanked by and integrated with the existing rock revetments at either end.

Dr Meads Report (**Appendix F**) notes that the steeper the structure, the higher the coefficient and subsequent erosion. The report notes the location of the seawall is one of the main factors to consider when assessing the effects of the proposed wall. The proposed location in relation to the existing seawall is in the same location for the southern half, while the northern half is located more landward than the existing seawall. As a result, the report notes that the effects can be considered insignificant and could have a very minor positive effect on reducing erosion and protecting the coast line. The existing seawall and the proposed seawall have a very similar gradient and height, while the upper wall is set back. The report states that the "access-ways are lower (less reflection/scour), they incorporate steps (increased friction and reduced overtopping) and are further setback from the existing wall profile" (p.g 15). The proposed wall design has therefore been assessed to have an insignificant to very minor positive effect on the coastal environment.

Therefore, the impact of the new seawall on the coastline will be negligible/ slightly positive from that existing situation.

5.7.2 Climate Change

Dr Meads Report also provides commentary on the impacts of sea level rise on the Paekākāriki Coastline. It notes that it is likely that the main impact of Sea Level Rise over the next 50 years will be a beach that is lower than the present average beach level. There may be a requirement to alter the step arrangements to access the beach in the future as the beach changes. Dr Meads also discusses options for mitigation and increased protection in his report for the next 50 year period, following the life of the sea wall to mitigate the erosive effects of climate change on the coastline.

The "most likely" estimates for sea level rise around the Wellington Region by 2050 and 2100 are 0.26-0.30m above the current situation[1]. The preliminary concept design has taken this into account and proposed a design life of at least 50 years. As has occurred historically from time to time, occasionally storm surges will create waves that over-top the front vertical wall and on lesser

[1] NIWA (2002). Meteorological Hazards and the Potential Impacts of Climate Change in the Wellington Region, Scoping Report.

occasions potentially the top rock revetment. The detailed design will need to account for that in terms of resilient materials and stable construction design.

Equally, storm surges and wind storm surges may cause sand and other beach material to be washed up onto the pathways along the seawall and amongst the upper rock revetment. That is part of a dynamic and active coastal environment and the final design will account for that likelihood.

In summary, there is no significant difference in potential environmental effects between the existing and the proposed seawall. Over topping events will increase in number and in frequency as sea level rises, but measures will need to be put in place in the future to adaptively manage any potential effects that arise from climate change which have an impact on the structural integrity of the wall.

5.7.3 End Effects

Given that there is little to no change in the location of the seawall in comparison with the existing seawall where it ties into the existing northern and southern revetments, and since the areas at either end of the existing sea wall are already protected, the Coastal Processes Report notes that there will be no foreseeable environmental effects at the tie ins. The end effects of the new seawall can therefore be assessed as less than minor.

5.8 Overall Effects Assessment Summary

The overall environmental effects of this proposal can be summarised as:

- Temporary and minor short-term construction effects that can be suitably managed by way of standard conditions of consent and a Construction Management Plan;
- Overall minor long-term adverse effects on the coastal environment when considered over and above the existing environment of the timber seawall;
- A number of positive long-term effects on the coastal environment, including:
  - On-going protection to the significant public asset of The Parade;
  - Improved public access to the beach from The Parade;
  - Increased usability of the seawall structure, with opportunities to use the dedicated pathways, sit and use the formal seating and more informal seating places provided by the rocks and concrete steps to the beach;
  - Enhanced amenity, with attractive landscaping, a mix of materials and design to provide some visual interest and different spaces to enjoy along the seawall; and
- The position of the new seawall on the coastline will be negligible/ slightly positive from that existing situation.

6 Assessment of Alternatives

Kāpiti Coast District Council's overall strategic response for hazards is to continue to maintain existing structures on the Kāpiti Coast as much as practicable where they protect public assets and to employ soft engineering solutions where possible. However, some coastal stretches, including Paekākāriki require hard structures to provide a minimum protection level.

Kāpiti Coast District Council has recognised that the changes in climate with rising sea levels and more intense storms may have a major effect of Paekākāriki. Kāpiti Coast District Council does not have a policy to withdraw protection services in this area and a decision to do so would be a community decision- most likely as a result of a major storm event whereby The Parade is beyond repair. Managed retreat is therefore not considered as an option in the assessment. The Options assessment considers a range of coastal management options for 'holding the current line' now and over several decades against a set of criteria chosen as being important for this specific Paekākāriki Project. The criteria are listed in the table below.

The assessment of alternatives has included the following key steps:

- **Initial Option Assessment Report, April 2013**- This Report considered a range of potential coastal protection options and assessed options against economic, environmental, technical and community values. Some options were discounted and others taken forward based on that report;

  The options listed below were discounted and not taken forward for short-listing.

  1. Do nothing;
  2. Maintain the existing timber seawall as best as possible
  3. Beach nourishment;
  4. Beach drainage;
  5. Groynes; and a
  6. Sheet pile wall.

The "do nothing" approach was not an acceptable option as the shoreline would most likely erode inland, damaging both public and private assets. Without maintenance of the current seawall, it is highly likely that the wall will fail. Maintenance of the seawall as an emergency response was seen to be a reactive approach and continuing with this approach is not considered to be sustainable. Nourishment of the beach with additional sand does not stop the erosion. It takes a lot to maintain the volume of sand on the beach and is an on-going, high maintenance process. Sand would also have to be dredged from another marine environment. The cost of beach drainage was considered to be too high and it had a 50% chance of failure. Groynes were discounted as an option due to the lack of longshore drift along the Paekākāriki Coastline. The sheet pile wall was discounted due to the lack of both community and GWRC support.

Overall, these options provided a more reactive rather than a proactive response to managing coastal erosion, had difficult consentability issues, were not in alignment with Council policy or were not considered to be appropriate to the locality of Paekākāriki.

Four options were considered in more detail through a high-level multi-criteria analysis. These four options included:

1. Rock revetment;

2. A timber wall;
3. A concrete wall; and
4. A offshore breakwater.

The assessment criteria included:

Assessment Criteria	Description
Cost	The comparative cost of construction and maintenance. This does not include the cost of consenting, consultation and any legal process which is considered under Degree of difficulty.
Performance: Risk of failure	Risk of failing to protect public assets; not resilient to climate change effects; risk of design failure.
Degree of difficulty	Practical difficulty in implementing the option; property/land and access issues; potential for legal risk and liability; difficulty with construction and on-going maintenance.
Difficulty in obtaining resource consent	Difficulty in obtaining resource consent due to adverse effects and conflict with GWRC policy for coastal management.
Potential for adverse effects on the environment	Potential for adverse effects on coastal environment due to construction and the on-going presence of any structure.
Potential for adverse effects on Paekākāriki community	Restricts or impacts adversely on: public access; recreation; amenity; noise and vibration; safety; heritage; culture; sense of place and the community's close connection to the coastal environment; loss of useable beach.
Conflicts with Council's Coastal Management Strategy	Inconsistent with Council's Coastal Management Strategy and specific management approach for Paekākāriki.

The outcome of that report was that timber and rock solutions scored as more preferable options over concrete (as shown as a vertical concrete wall which would introduce a new material element to the coastal environment). Least preferable was a breakwater.

- **Community Open Day, May 2013**- This open day presented the findings of the Option Assessment Report and visual simulation of a number of high-level options;
- **Community Design Group process, last quarter 2013** - A community design group option was introduced for relative assessment against other high-level options;
- **Community Board Meeting to present the five short-listed options, January 2014**- Options presented were rock revetment; timber wall; concrete wall; community design group option and split revetment;
- **Community Design Group process 2014**. High-level costing of the five short-listed options presented. Refinement of options to a hybrid of rock-concrete-timber to reduce costs while still meeting community values;
- **Geotechnical investigation, last quarter 2014**. Completed to provide further information on ground conditions to refine design and costing's;
- **Community Design Group process early 2015**. Workshops and refinement of a stepped-solution consisting of timber wall, concrete steps, and a rock wall.
- **Community Open Day, 2 May 2015**. To present the stepped-solution consisting of timber/concrete wall, concrete steps, and a rock wall as a preferred preliminary concept and seeking feedback on the overall design, mix of treatment materials, access points and accessibility.

The preferred proposed solution has the endorsement and support of the Community Board, the Community Design Group and Council.

7 Statutory Planning Requirements

The following matters are relevant to the consideration of proposed activity under section 104 of the RMA:

- Part 2 matters (RMA)
- NZ Coastal Policy Statement 2010
- Wellington Regional Policy Statement 2013
- Wellington Regional Coastal Plan 2000
- Proposed Wellington Natural Resources Plan (Notified July 31st 2015)
- Kāpiti Coast: Choosing Futures – Coastal Strategy.

The sections of the RMA that are of particular relevance to this proposal are as follows:

7.1 Part 2 of the RMA 1991

7.1.1 Section 5- Purpose of the RMA

Section 5 of the RMA outlines the purpose of the RMA which is to:

Promote sustainable management of natural and physical resources in a way or rate which enables people and communities to provide for their social, economic and cultural wellbeing and for their health and safety while-

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

The seawall will enable the Paekākāriki Coastline to be protected from the impacts of coastal erosion and climate change for the foreseeable future which will provide for the Paekākāriki Communities social, economic and cultural wellbeing. The proposed seawall replacement is therefore considered to be consistent with the purpose of the RMA.

7.1.2 Section 6- Matters of national Importance

Two matters of National Importance (Section 6) are considered to be relevant, being:

> *(a) the preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development; and*
>
> *(d) the maintenance and enhancement of public access to and along the coastal marine area, lakes, and rivers.*

As discussed previously in Section 5, the proposal is considered to be consistent with these section 6 matters. It is proposed to improve both amenity and public access from the current situation.

7.1.3 Section 7- Other Matters

In terms of section 7, the following matters are relevant:

> *(c) the maintenance and enhancement of amenity values:*
>
> *(d) intrinsic values of ecosystems:*

(f) maintenance and enhancement of the quality of the environment:

(i) the effects of climate change.

For the reasons discussed in Section 5 of this report, the continued occupation of the coastal protection structure will not adversely affect the amenity values, ecosystems and the quality of the environment. Council has taken into account the effects of climate change as part of its wider Coastal Strategy, in that climate change may cause an increase in storm events which will enhance storm surge and consequent erosion.

Sea level rise may increase the height of storm surge, increase the height of the mean high water spring line (MHWS) and may affect erosion along susceptible lengths of the coastline. In that regard, this proposal to continue to occupy the CMA with a coastal protection structure is prudent and consistent with Kāpiti Coast District Council's Coastal Strategy. The proposal is consistent with Section 7 of the Act.

7.1.4 Section 8 –Treaty of Waitangi

Section 8 of the RMA requires that the Principles of the Treaty of Waitangi be taken into account. This proposal is not inconsistent with those Principles.

Overall the proposed activity is considered to promote the sustainable management of a natural resource (i.e. the affected coastline) as set out in Section 5 of the RMA by enabling people and communities to provide for their social, economic and cultural well-being and health and safety while ensuring that any adverse environmental effects will be adequately managed.

7.2 NZ Coastal Policy Statement 2010

The NZ Coastal Policy Statement 2010 (NZCPS) took effect on 3 December 2010 and provides policy guidance and direction on management of the CMA and the coastal environment.

In addition to Part 2 of the RMA, the NZCPS requires that regard shall be had to a number of Objectives and Policies. Those relevant to this application are set out below:

Matters addressed in the NZCPS of relevance to the proposed activity are:

- The preservation of the natural character of the coastal environment (Objective 2 and Policy 13)
- Taking into account the principles of the Treaty of Waitangi (Objective 3 and Policy 2)
- The maintenance and enhancement of public access to the coastal environment (Objective 4 and Policies 18-20)
- The management of coastal hazard risks (Objective 5)
- Enabling people and communities to provide for their social, economic and cultural well-being (Objective 6)
- Strategies for protection significant existing development from coastal hazard risk (Policy 27).

In terms of the preservation of natural character, the seawall has been a feature of this length of coast for many years and while such a structure would not naturally be on the foreshore, it is an established part of the existing environment and the placement does not unduly detract from the existing coastal environment.

The proposal is consistent with Treaty of Waitangi matters and the continued occupation of the proposed seawall will not adversely affect cultural values. Key issues for Ngati Toa Rangatira were physical access to the foreshore and the ability to gather kai moana (seafood). The proposal will not

adversely affect either of these two cultural values. Council will continue to work in partnership with iwi for any wider coastal management strategies.

Public access will be maintained and improved. The existing ramp at the southern end of the rock revetment will continue to provide safe public access to the beach via regular access ramps and points. Additional ramps will be included at the northern end of the seawall.

The final relevant matter of the NZCPS is the protection of existing development from coastal hazards (in this case erosion). Policy 27 recognises that a range of options are available and will be appropriate for the protection of development from coastal hazards, including hard protection structures. The seawall structure provides protection to both public and private assets including The Parade and Campbell Park and the adjacent residential areas.

In terms of the physical form of the protection, the seawall is considered to be a full hard engineering solution but provides a good level of protection while maintaining a reasonably natural (in terms of the top rock wall) and overall improved aesthetic look from the existing design. The proposed seawall will be a more usable public space. It is consistent with part (c) of Policy 27. An assessment of alternative options is provided within Section 6 of this Report which concludes that the hard engineering structure is the preferred option.

In summary the proposal is considered to be consistent with the NZCPS.

7.3 Wellington Regional Policy Statement

The second generation Regional Policy Statement for the Wellington region (WRPS) was made operative on 24 April 2013. The WRPS identifies the regionally significant issues around the management of the regions natural and physical resources and sets out what needs to be achieved (objectives) and the way in which the objectives will be achieved (policies and methods).

Section 3.2 of the WRPS addresses the management of the region's coastal environment, while Table 2 of the WRPS provides a comprehensive review of the objectives and policies. Most relevant objectives and policies relate to:

- Policy 35: Preserving the natural character of the coastal environment
- Policy 36: Managing effects on natural character in the coastal environment
- Policy 37: Safeguarding life supporting capacity of coastal ecosystems
- Policy 53: Public access to and along the coastal marine area, lakes and rivers – consideration.

For the reasons discussed in relation to the NZCPS, the proposal is considered to be consistent with these objectives and policies of the WRPS.

7.4 Operative Wellington Regional Coastal Plan (WRCP)

The WRCP become operative on 19 June 2000.

Objective 6.1.1 *allows for appropriate structures which enable people and communities to provide for their economic and social wellbeing*. The proposed seawall will enable the coastline, the Parade and the adjacent residential properties to be protected from the impacts of coastal erosion.

Policy 6.2.3 *discourages the development of ad hoc shore protection structures and does not allow the development of hard shore protection structures unless all feasible alternatives have been evaluated and found to be impracticable or to have greater adverse effects on the environment.* The proposed new seawall will not be an ad hoc structure. An assessment of alternatives is provided in Section 6 of this report. It provides an evaluation of all the other options considered for the proposed sea wall design including the option of doing nothing.

Policy 6.2.4 aims to *ensure that all new structures in the coastal marine area to which the public are admitted provide reasonable and adequate access and facilities for the disabled persons*.

The seawall design contains two additional ramp access points to the lower path. To get from the lower path to the beach at the new access points, there are steps. People in wheel chairs would not be able to access the beach at these points, but will be able to access the lower path of the seawall. The existing ramp to the beach opposite the Sand Track will enable wheelchair access down to the beach itself. Along both the lower and upper pathways, there will be adequate seating to allow for the people with disabilities to take a seat and enjoy the beach. The proposed activity is therefore consistent with this policy.

Policy 6.2.5 aims to *ensure that adequate allowance is made for the following factors when designing any structure:*

- *Rising sea levels as a result of climate change, using the best current estimate scenario of the IPCC;*
- *Waves and currents;*
- *Storm surge; and*
- *Major earthquake events.*

Storm surges, climate change and earthquakes are natural hazard risks that are present on the Paekākāriki Coastline. The purpose of the seawall is to protect the Paekākāriki Coastline from erosion resulting from waves and storm surges. The current seawall is due for replacement; therefore the proposed seawall will enable the coastline to be protected from waves, storm surges and the future impacts of climate change. The structure may need to be re-leveled after an earthquake due to liquefaction.

Policy 6.2.7 is particularly relevant to this application, seeking "*to ensure that all structures in the coastal marine area which are visible and/or accessible are adequately maintained so that:*

- *the structure remains safe; and*
- *any adverse effects on the visual amenity of the area are minimised*."

The positive effects of continued coastal protection at Paekākāriki Beach is significant in regards to protecting the road and public areas from coastal erosion; maintaining public safety and access to the beach; and maintaining the amenity of the beach through tidying up and maintaining these existing structures. This proposal is consistent with Policy 6.2.7. If the timber material is chosen for the finish of the wall, the design of the seawall will be in keeping with the existing environment as the current structure is made of the same material and access will be improved. If a concrete finish is chosen, the proposed design will improve the overall amenity of the coastal environment, enhancing the landscaping and public amenities including seating and access to the beach.

Policy 6.2.8 encourages *the removal or any structure not in active use, unless its removal is not practical or will create more adverse effects.* The exiting seawall will be removed and then replaced. The end rock revetments will remain in place as they are still capable of protecting the coast line.

Policy 6.2.9 aims *to have regard to the relevant provisions in the Kāpiti Coast District Plan relating to the protection of important views when assessing the application for an activity involving a structure in the coastal marine area*. In the Kāpiti Coast District Plan, the Paekākāriki Coastline is identified as an Outstanding Landscape. Urban design and amenity values have been a major part of the development process for the proposed design. It is considered that the proposed works are consistent with Policy 6.2.9 and that the design will enhance the views along the Paekākāriki Coastline.

General objectives and policies in Section 4 focus on the preservation of the life-supporting capacity, natural character and public access to the coastal environment. The proposed activity is consistent with these provisions. Public access will be improved and opportunities for enhanced planting along the length of the sea wall will enhance the natural character and habitat of the coastline.

In summary, the proposal is overall consistent with the relevant objectives and policies of the WRCP.

7.5 Proposed Wellington Natural Resources Plan

The Proposed Wellington natural Resources Plan was publicly notified on the 31st of July 2015. It takes immediate legal effect.

Objective 5 and **Policy 7** and **10** aim to manage coastal marine areas to provide for contact recreation and Maori customary use. The proposed seawall will not change the customary use and contact recreation activities as provided by the current sea wall. Maori will still be able to freely access the coastline for the collection of kai monana. During construction, access may be more restricted, but this effect is assessed as temporary and less than minor.

Objectives 9 and **10** and **Policies 9, 133 and 134** aim to maintain and enhance the recreational values and public access of the coastal marine area. **Objective 55** aims to recognise the need for public open space in the CMA. The quality of the public space along the coastline will be improved as a result of the proposed seawall. Access to the beach will be significantly improved for all abilities. There will be a temporary period of time during construction where access will be restricted, however, Policy 9 provides for this. Access to the beach will still be available at the southern end of the beach during construction which is consistent with the requirements of Policy 9. The proposed seawall will enhance the visual amenity of the Paekākāriki coastline, therefore being consistent with Policy 134.

Objective 20 aims to create an acceptable risk, residual risk and adverse effects from natural hazards and climate change on people, the community and infrastructure. By having a seawall along the Paekākāriki Coastline, the risk of coastal erosion and the effects of climate change along The Parade is reduced and mitigated. The seawall provides The Parade as well as the residents on the landward side of The Parade a level of protection from the risk of coastal erosion.

Objective 21 and **Policy 27** and **132** aim to avoid the inappropriate use and development in high hazard areas unless the structure has a functional need or requirement to be located in the CMA or there is no practical alternative. Policy 27 allows for development that does not cause or exacerbate hazards in other areas. Natural cycles of erosion and accretion and the potential for natural fluctuations over time due to climate change and sea level rise needs to be taken into account. Policy 132 states that development in the CMA needs to have a functional need and an operational requirement. These matters are discussed in the Assessment of Environmental Effects. The proposal is not expected to exacerbate hazards in other areas along the Paekākāriki Coastline as the proposed seawall will be simply replacing what currently exists. Sea level rise has been taken into account as the proposed seawall will be higher than the existing wall to cater for a 50 year life span. The stairways in the design will help dissipate wave energy along the coastline.

The Proposed Plan includes specific Objectives and Policies in relation to seawalls and additions to seawalls which seek to achieve hazard mitigation measures (**Objective 22**) and take into account natural processes (**Objective 19**) as well as other Objectives that relate to access and amenity. **Objective 22** states that hard engineering mitigation options should only be used as a last practical option. **Policy 28** states that hard engineering mitigation and protection methods shall be avoided except where it is necessary to protect existing development from unacceptable risk (using the risk

based approach) and the works either form part of a hazard management strategy or the environmental effects are considered to be no more than minor.

The plan defines a risk based approach as

> *"A risk-based approach takes account of the intended purpose of a development, the likelihood of natural hazard events occurring the vulnerability and exposure of the site, use or development, the severity and consequences of potential hazard events and the costs and benefits of acting or not acting. An assessment needs to be commensurate with the size and scale of the use or development. The risk can be evaluated on a scale from low to high or acceptable to intolerable assessed on the basis of:*
>
> *(a) the scale, engineering design and intended life and use for the development, and*
>
> *(b) the likelihood, frequency and magnitude of natural hazard events that could potentially affect the site or development, and*
>
> *(c) the vulnerability and exposure of the development to natural hazards, and*
>
> *(d) the severity of any physical, social, economic and environmental consequences that could arise from natural hazard events affecting the site or development"*

The Paekākāriki Coastline as stated previously in this report is vulnerable to coastal erosion due to sand accumulating at Paraparaumu Beach, reducing sand supply further down the coast. Paekākāriki is exposed to storm surges and the current wall has exceeded its design life. The Assessment of Alternatives describes the options that were assessed and the risk of doing nothing was deemed unacceptable to the Paekākāriki Residents. The proposed seawall is expected to protect the coastline and The Parade for another 50 years. The consequences of doing nothing were assessed to be too high in terms of risk.

Policy 29 states that particular regard shall be given to the potential for climate change to cause or exacerbate natural hazard events that could adversely affect use and development including coastal erosion, storm surges and sea level rise. As discussed above, and in the Assessment of Environmental Effects, these matters have been taken into account.

Objective 53 and **54** aims to ensure that the use and development in the coastal marine area has a functional need to be placed their and that it makes efficient use of any occupied space. The seawall needs to be placed within the CMA to protect the coastline. There is no other space for it to be located.

Policy 51 aims to manage significant adverse effects to surf breaks that have been identified in Schedule K of the Proposed Plan. The Paekakariki Coastline has been identified as a surf break of significance within the Wellington Region. In terms of location in relation to the existing wall, the new wall at the southern end is in the same location and the wall at the northern end is further landward. As stated in the Review of Coastal Processes Assessment attached (Appendix F), the proposed wall will have a very minor positive effect on the coastline. As a result, it is not expected that current surf break will be adversely affected.

Objective 56 aims to allow for new development in the CMA of a scale, density and design that is compatible with its location in the coastal environment. **Policy 25** aims to avoid significant adverse effects on the natural character in the coastal marine area, taking into account the extent of man-made changes to landforms, vegetation's, natural processes and patterns. This Policy also aims to recognise the extent to which functional need or existing use limits location and development options or if an alternative location would be better for the development. The proposed seawall is a replacement of the existing structure, and will be in keeping with the scale and design of the coastal environment.

Policy 139 allows for the construction of a new seawalls where required to protect infrastructure, there are no reasonable or practical alternatives, it has been designed by a certified and qualified engineer and designed to incorporate the use of soft engineering options where appropriate. This policy gives effect to the NZCPS and the wider social and cultural effects of the replacement of seawalls. The proposed seawall design is considered to be consistent with this policy as there are no practical alternatives to replacing the seawall with another seawall along the Paekākāriki Coastline to protect The Parade. Managed retreat and other soft engineering solutions are not acceptable to the Paekākāriki Community.

Overall, the proposed seawall is consistent with the Objectives and Policies of the Proposed Wellington Natural Resources Plan.

7.6 Operative Kāpiti Coast District Plan

The area where the seawall is being constructed is zoned as Residential under the Operative and Proposed Kāpiti Coast District Plan. For the purposes of this assessment, only the Operative Plan objectives and policies will be assessed as the Proposed District Plan is still under review until 2017.

The objectives and policies that are relevant to the proposed works are listed below:

Residential Zone

Objective 2 states that, for non-residential activities, to ensure that the adverse effects on the amenity values and environmental quality of the residential areas are avoided, remedied or mitigated. Policy 3 relates to projects of public benefit to the community and encourages the continued development of non-residential activities where the adverse effects on the residential environment and avoided, remedied or mitigated. The proposed seawall is consistent with the Residential Objectives and Policies. The seawall will be of public benefit to the Paekākāriki Community. The seawall will help protect the existing residential activities and the public road.

Tangata Wheuna

Objective 1 requires the principles of the Treaty of Waitangi to be taken into account. Policy 1 and 2 aim to enable Tangata Whenua input in to the decision making processes. Policy 4 aims to protect sites of cultural importance. The coastline has a low risk of finding sites of historic significance as it has already been highly modified; however, a condition to apply the Accidental Discovery Protocol on the earthworks consent can be placed.

Policy 7 aims to protect the characteristics of the coastal environment that are of special value to Tangata Whenua. The dunescape along the project area is already highly modified. The seawall will be in keeping with the natural environment.

Earthworks

Objective 1 aims to ensure that any adverse effects of earthworks on the natural, physical and cultural environment are avoided, remedies or mitigated. Policy 1 aims to take into account the effects of earthworks on the coastal marine area and dunes, the extent to which any cut or fill can be restored, the practicality of drainage and the impact of the earthworks on flood hazards. Policy 2 aims to avoid, remedy or mitigate the adverse effects of earthworks on outstanding landscapes and to maintain the integrity and character or the landscape, the visual character and the cultural values. Access and recreational opportunities are also to be taken into account.

For reasons discussed in Section 5 of this report, the existing environment is already a highly modified dune environment. Stormwater already drains through the wall and into the coastal

environment. This discharge will not change and is covered by a global consent held by Kapiti Coast District Council. Although the works will be within an area identified as an outstanding landscape, the seawall and associated earthworks will be in keeping with the existing environment. Access and recreational opportunities will be improved.

Coastal Environment

Objective 1 aims to protect and enhance the natural character, natural values and associated amenity values of the coastal environment. Policy 2 aims to discourage the building of assets in areas prone to coastal erosion or the effects of sea level rise unless the structure has a significant community benefit and need to be located in the coastal environment, and do not adversely affect the natural character and a relocatable. The proposed seawall, is not relocatable, but is necessary for the community to protect The Parade and Campbell Park. The seawall must be located within the coastal environment.

Policy 4 aims to discourage coastal protection works on the Coastal Marine Area interface where there are not already present and to encourage management options such as retreat and coastal re-nourishment rather than hard engineering structures. The current seawall has passed its design life span and is subject to failure. The replacement of the sea wall with a like for like structure has been assessed as the best option for future protection of the Paekākāriki coastline. Managed retreat or do nothing were not considered to be appropriate options.

Policy 6 encourages the development of structures that are not visually dominant. The proposed seawall will be more visually dominant than the current structure. However, the use of either concrete or timber will blend into the natural environment. Planting and other soft measures will be used to reduce the visual impact of the seawall.

Objective 2 aims to facilitate public access along the coast. Policy 2 aims to include the provision of board walks where damage to vegetation is likely and to provide for access for launching fishing equipment. The proposed seawall will enhance the public access along the Paekākāriki Coastline and provide easy access options for all abilities.

Policy 3 aims to protect the fore dunes and adjacent coastal marine area from disturbance created by the public access points. The proposal is consistent with this Policy.

Objective 3 aims to recognise and provide for the relationship or Tangata Whenua with the coastal environment. Iwi have been consulted as a part of the design development process. They have not expressed any concerns. There are options to include Pou markers in the final design or cultural designs which tell the story of the area on the seating and other furniture along the seawall.

Landscape

Objective 1 aims to protect the districts outstanding landscapes from the adverse effects of development. Policy 3 aims to ensure that no modification takes place within landscapes of the residential zone, except to the minimum necessary for access, services and farming purposes. There will be no increase in modification to the coastline. The existing seawall will be replaced with a slightly larger structure. The landscape is already highly modified and the proposed works are expected to have a moderate impact on the outstanding landscape.

Summary

Overall, the proposed seawall is largely consistent with the objectives and policies of the Kāpiti Coast District Council District Plan. Confirmation has been received from Kapiti Coast District Council that no resource consents are required for the construction of the seawall. A building consent will be required.

7.7 Kāpiti Coast: Choosing Futures – Coastal Strategy

Section 104 of the RMA 1991 requires consideration to be given to any other relevant matters or guiding documents.

The *Kāpiti Coast: Choosing Futures – Coastal Strategy* was released by Council in 2006. It is a high level guiding document for the management of the District's coastal environment into the future. The Strategy recognises that coastal erosion and accretion is part of the natural process of this coastline and that a range of management approaches have been used in the past and will need to continue to be used.

It states that the overall strategic response for Paekākāriki is to review and upgrade access where necessary and to investigate protection options. One challenge identified by the community for Paekākāriki through consultation was to only use soft solutions to manage coastal erosion. The response to this identified challenge was for Council to consider all practical options noting that Paekākāriki beach is a very high energy beach which has been highly modified and that soft solutions may not always be practical. As the assessment of effects notes, the proposed seawall design was the most practical, cost effective and best option for managing coastal erosion in the future while providing a public space which the community can enjoy.

This proposal is part of the overall integrated management approach to coastal management and is consistent with the Strategy

7.8 Overall Statutory Summary

The replacement of the seawall at Paekākāriki has significant positive effects on the environment and the surrounding amenity of the coastline. It will provide for the communities social, economic and cultural wellbeing and for their health and safety and is fully consistent with Part 2 of the RMA 1991. The NZCPS and both Regional Plans promote soft engineering solutions over hard engineering solutions. In this case, as the alternatives assessment section demonstrates, a hard solution is required at this particular location given the erosive nature of the coastal environment and the lack of long shore drift. The proposed seawall is consistent with Policy 27(3) of the NZCPS, policy 6.2.3 of the Operative Wellington Regional Coastal Plan and Objective 22 of the Proposed Wellington Natural Resources Plan, where hard structures are considered a necessary alternative to soft engineering solutions.

Objective 4 of the NZCPS, Policy 6.2.4 of the Operative Regional Coastal Plan and Objective 9 and 10 of the Proposed Natural Resources Plan aim to enhance public access to the coastal environment. The Paekākāriki Coastline is not identified as a significant landscape within the Regional Plans. Notwithstanding this, the coastline is highly valued by the Paekākāriki Community and the wider community. For this reason, the preliminary design concept has incorporated usability, amenity values and ease of access factors into the design.

Overall, the proposed seawall design is consistent with the RMA 1991, the NZCPS, the Operative Regional Coastal Plan, the Proposed Natural Resources Plan, the Kāpiti Coast District Plan and the Kāpiti Coast: Choosing Futures Document.

8 Consultation

8.1 Tangata Whenua

Iwi is a key partner of Council in the management of natural resources, including the coastal environment.

Tāngata whenua of the District are Te Āti Awa ki Whakarongotai, Ngāti Raukawa, Ngāti Toa Rangatira, including their whānau and hapū. For this application, we have engaged primarily with Jennie Smeaton and Carol Reihana, Ngāti Toa Rangatira. The feedback has been positive in terms of support for the collaborative process of working with the Community Design Group towards the preferred concept.

Ngāti Toa Rangatira will be interested in having involvement and input into the final detailed design, with opportunity to integrate cultural values into the design of the seawall, either through pou markers, cultural design and art along the seawall and coastal edge.

8.2 Greater Wellington Regional Council

Greater Wellington Regional Council has been informed throughout the design process. The most recent meeting was held on the 7th of December 2015 at the GWRC offices between Beca Ltd, Kāpiti Coast District Council and GWRC to discuss the information required within the consent application, conditions of the consent and notification.

8.3 Community Consultation

The Open Day on 2 May (2015) was well attended with about 60 people attending to share their views and discuss the concept designs. A total of 34 written submissions were also received following the Open Day. The following key themes came through from that community feedback.

Overall Concept

Overall, there was a general consensus that the existing timber wall needed replacement. Feedback was largely in support of the overall preliminary concept, being a vertical front wall of similar height to the existing timber wall (either timber or concrete), a middle walkway, and a top rock revetment between the walkway and the parade roadway. This stepped concept was generally supported.

Accessibility

Accessibility was raised as a key theme in terms of opportunities to access the beach along the seawall. Access for the elderly and disabled was also raised as a key consideration. Some support for the 'concrete' option was in relation to the increased accessibility aspect – i.e. more steps along the beach linking beach to the middle walkway.

Resilience

Design life and resilience of the seawall was raised as a key consideration. There was a general understanding that Council must work within an appropriate budget for this project, however cost should not compromise the longevity of the seawall chosen. The seawall has been designed with a 50-year design life. This is a relatively standard design life for such a coastal structure and has regard to the future potential impacts of climate change and also potential changes to the future approaches to coastal management. Both timber and concrete treatment of the front wall can meet this 50-year design life. Concrete does have the potential to have an extended life beyond timber.

Detailed Design Matters

A number of matters were raised at the community open days that concerned matters that are most appropriately addressed during the detailed design phase, rather than preliminary concept matters for resource consenting. Such matters included:

Exact details of the final treatment of the seawall, including the mix of timber and concrete;

- Exact details of the access locations and design;
- Final design of the stormwater outlets and how they integrate with the seawall;
- Seating design and arrangement;
- Waste disposal design;
- Public art design;
- Penguin boxes in the wall;
- Provision of bike stands; and
- Narrowing the Parade and options for traffic calming.

Summary

Overall, the Paekākāriki Community has been supportive of the proposed seawall preliminary concept design. Matters of contention were over the finish of the wall (whether it will be concrete or timber) and other amenities such as seating, planting and traffic calming. All these matters will be addressed during detailed design and costing once the construction of the seawall has been tendered. This can be achieved within the framework of the consented preliminary concept presented in this application.

The Community Board resolution is also contained in Appendix E.

9 Proposed Conditions of Consent

It is expected that GWRC will impose a number of standard coastal permit conditions should this proposal be granted.

The below conditions (or similar) are proposed as a part of the consent application:

General Condition

Except as modified by the conditions below, and subject to the final design, the proposed seawall shall be constructed in general accordance with the information provided (in this application) being: XXXX

Where there is conflict between the documents lodged and the conditions, the conditions shall prevail.

Detailed Design Plans prior to construction commencing

A full set of detailed design drawings shall be submitted to the Manager for certification (Greater Wellington Regional Council) at least two months prior to construction commencing. The plans shall detail the finish of the wall, the locations of the access ways, details of the seating arrangements, any changes to the road layout of The Parade and any other detail that is fundamental to the design of the seawall.

A Landscape Management Plan shall be submitted to the Manager for certification (Greater Wellington Regional Council) at least one month prior to works commencing. The Landscape Management Plan shall include (but is not limited to) the types of plants to be used, the location of the plants and vegetation and any other landscape matter that has been incorporated into the design.

Construction Management

The consent holder shall notify Greater Wellington Regional Council 24 hours before works commence.

All work shall be carried out in accordance with the Construction Management Plan which shall be submitted to the Manager for certification (Greater Wellington Regional Council) two weeks prior to the works commencing. The Construction Management Plan Shall include (but not limited to) the methodology for removal, erosion and sediment control, hours or operation and management of traffic and public access and public safety during construction.

If the consent holder discovers koiwi tangata (human skeletal remains), waahi taoka (resources of importance), waahi tapu (places or features of special significance) or other Maori artefact material, the consent holder shall without delay

i. Notify the consent authority, Tangata whenua, Heritage New Zealand and in the case of skeletal remains, the New Zealand Police.
ii. Stop works within the immediate vicinity of the discovery to allow a site inspection by Heritage New Zealand and the appropriate runanga and their advisors, who shall determine whether the discovery is likely to be extensive, if a thorough site investigation is required, and whether an archaeological Authority is required.

Any koiwi tangata discovered shall be handled and removed by tribal elders responsible for the tikanga (custom) appropriate to its removal or preservation.

Site work shall recommence following consultation with the Consent authority, Heritage New Zealand, Tangata Whenua, and in the case of skeletal remains, the New Zealand Police, provided that any statutory permissions have been obtained.

10 Conclusion

The Applicant proposes to remove and replace a 960m long section of the Paekākāriki Seawall along The Parade from The Sand Track to the southern extent of the rock revetment north of Tangahoe Street as shown in the Location Plan below (960 metres). Essentially, this is the stretch of existing timber seawall between the southern and northern rock revetments. The current seawall has exceeded its design expectancy and has been subject to failure in recent storm events.

The existing revetments will remain at either end of the new seawall and be integrated into the design.

The consents required under the Operative Wellington Regional Coastal Plan include:

- Controlled Activity under Rule 13 (Coastal Permit) for the maintenance, repair, replacement, extensions, additions and alterations to structures in the CMA; and
- Controlled Activity under Rule 16 (Coastal Permit) to continue to occupy the Paekākāriki Coastline.

The consents required under the Proposed Wellington Natural Resources Plan include:

- Controlled Activity under Rule 183 for the occupation of the existing rock revetment at either end of the proposed wall;
- Discretionary Activity under Rule 153 to remove or demolish structures or part of a structure; and
- Discretionary Activity under Rule 166 to construct a seawall outside sites of significance (including occupation).

The overall environmental effects of this proposal can be summarised as:

- Temporary and minor short-term construction effects that can be suitably managed by way of standard conditions of consent and a Construction Management Plan;
- Overall minor long-term adverse effects on the coastal environment when considered over and above the existing environment of the timber seawall;
- A number of positive long-term effects on the coastal environment, including:
  - Ongoing protection to the significant public asset of The Parade;
  - Improved public access to the beach from The Parade;
  - Increased usability of the seawall structure, with opportunities to use the dedicated pathways, sit and use the formal seating and more informal seating places provided by the rocks and concrete steps to the beach;
  - Enhanced amenity, with attractive landscaping, a mix of materials and design to provide some visual interest and different spaces to enjoy along the seawall
- The position of the new seawall on the coastline will be negligible/ slightly positive from that existing situation;
- There are no foreseen end effects as a result of the proposed new sea wall.

The replacement of the seawall at Paekākāriki has significant positive effects on the environment and the surrounding amenity of the coastline. It will provide for the communities social, economic and cultural wellbeing and for their health and safety and is fully consistent with Part 2 of the RMA 1991. The alternatives assessment section demonstrates a hard solution is required at this particular location given the erosive nature of the coastal environment and the lack of long shore drift. The proposed seawall is consistent with Policy 27(3) of the NZCPS, Policy 6.2.3 of the Operative Wellington Regional Coastal Plan and Objective 22 of the Proposed Wellington Natural

Resources Plan, where hard structures are considered a necessary alternative to soft engineering solutions.

Objective 4 of the NZCPS, Policy 6.2.4 of the Operative Regional Coastal Plan and Objective 9 and 10 of the Proposed Natural Resources Plan aim to enhance public access to the coastal environment. The Paekākāriki Coastline is not identified as a significant landscape within the Regional Plans. Notwithstanding this, the coastline is highly valued by the Paekākāriki Community. For this reason, the preliminary design concept taken pride in incorporating usability, amenity values and ease of access factors into the design.

Overall, the proposed seawall is consistent with the RMA 1991, the NZCPS, the Operative Regional Coastal Plan, the Proposed Natural Resources Plan, the Kāpiti Coast District Plan and the Kāpiti Coast: Choosing Futures Document

This proposal will enable protection of The Parade, Campbell Park as well as a number of private properties from the effects of coastal erosion and storm surges.

Based on this assessment, it is considered that resource consent can be granted for the proposal, subject to standard conditions of consent.

Appendix A

Paekakariki Coastal Edge Preliminary Concept Drawings

PAEKAKARIKI COASTAL EDGE

PRELIMINARY CONCEPT

Prepared for Kapiti Coast District Council

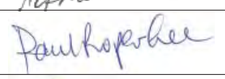
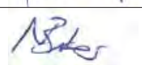
By Beca Ltd

November 2015

Revision History

Revision No.	Prepared By	Description	Date
A	Anne Braithwaite	Draft for client review	10-01-2014
B	Anne Braithwaite	Draft for client review	22-01-2014
C	Anne Braithwaite	Final for community consultation	27-01-2014
D	Anne Braithwaite	Timber seawall with rock revetment for community consultation	04-02-2015
E	Anne Braithwaite	Timber seawall with rock revetment for community consultation	17-02-2015
F	Emily Kelly	Draft Carparking option	12-03-2015
G	Anne Braithwaite	Timber seawall with rock revetment for community consultation	19-03-2015
H	Anne Braithwaite	Timber seawall with rock revetment for community consultation	24-03-2015
I	Anne Braithwaite	For Community Open Day	13-04-2015
J	Anne Braithwaite	For Community Open Day	08-07-2015
K	Anne Braithwaite	For Consent	13-08-2015
L	Kate McNeill and Anne Braithwaite	For Consent	02-11-2015

Document Acceptance

Action	Name	Signed	Date
Prepared by	Kate McNeill and Anne Braithwaite		02-11-2015
Reviewed by	Paul Roper-Gee		02-11-2015
Approved by	Nathan Baker		02-11-2015
on behalf of Beca Ltd.			

This document should be printed at A3.

Images in this document: Unless otherwise noted, drawings, illustrations, photos and other images have been provided directly by Beca. In all other instances, best efforts have been made to reference the image to its original source.

Existing rock revetment - looking south-east

Existing timber seawall

Existing timber seawall - looking south-east

Existing ramp through revetment

Existing revetment looking north-west

Plan 1 - refer to page 4
Plan 2 - refer to page 5
Plan 3 - refer to page 6

LOCATION PLAN
NOT TO SCALE

Extent of project works. Total length approximately 960m

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Me Huri Whakamuri, Ka Titiro Whakamua

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

CONTEXT

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

ORIGINAL SIZE: A3
SHEET 3 OF 20

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

THE DESIGN CRITERIA ASSUMED ARE:

1. Design life of structures – 50 years
2. Importance level of structures – IL1
3. Return period for ULS seismic loads from AS1170 – 1 in100 years
4. Scour depth due to wave action is up to 2m below existing minimum beach level with protection to 2.5m below minimum beach level
5. Structures are not to extend horizontally onto beach any further than existing structures/revetment
6. Foundation depth for structures is up to 8.5m below existing average beach level.
7. Structures can settle under ULS earthquake due to liquefaction provided can be re-leveled afterwards.
8. Edge treatment covers a 960m extent

TANGAHOE STREET

PANETA STREET

CAMPBELL PARK

THE PARADE

EXTENT OF WORKS

Design to tie into adjacent existing path

'Normal Access' containing:
- Step access to beach x 1
- Ramp access to lower path x 1
- Timber seating
- Large steps for seating
- Rubbish bin
- Drinking fountain

Opportunity to include:
- Ramp to beach (this would result in the loss of some car parking)

'Normal Access' containing:
- Step access to beach x 2
- Timber seating
- Large steps for seating
- Rubbish bin

'Minor Access' containing:
- Step access to beach x 1
- Timber seating
- Rubbish bin

DETAIL PLAN
SCALE: 1:1000 @ A3

Note: Final design and position of access locations subject to design development.

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PLAN 1 (TANGAHOE STREET - CAMPBELL PARK)

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

ORIGINAL SIZE: A3
SHEET 4 OF 20

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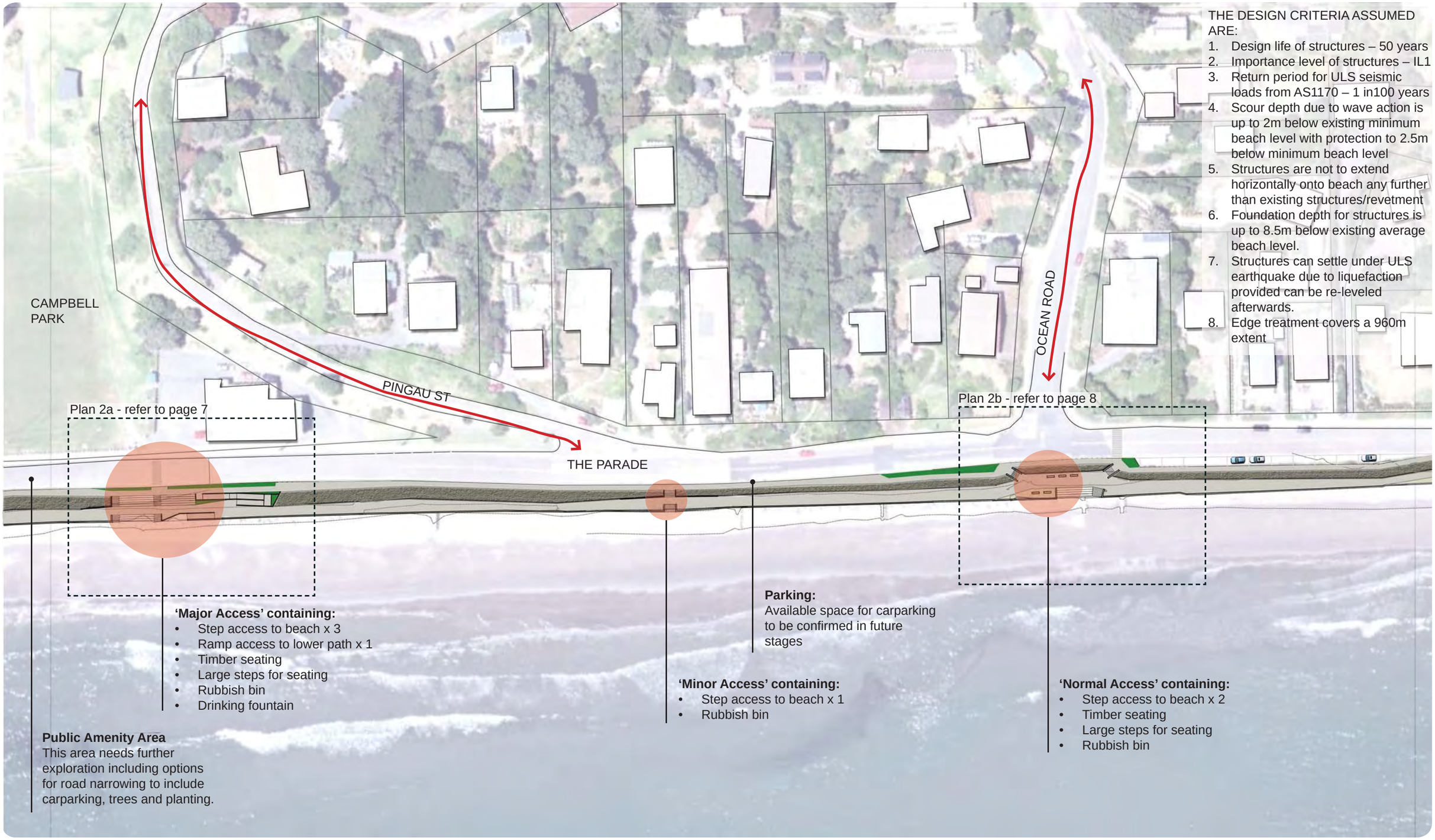

THE DESIGN CRITERIA ASSUMED ARE:

1. Design life of structures – 50 years
2. Importance level of structures – IL1
3. Return period for ULS seismic loads from AS1170 – 1 in100 years
4. Scour depth due to wave action is up to 2m below existing minimum beach level with protection to 2.5m below minimum beach level
5. Structures are not to extend horizontally onto beach any further than existing structures/revetment
6. Foundation depth for structures is up to 8.5m below existing average beach level.
7. Structures can settle under ULS earthquake due to liquefaction provided can be re-leveled afterwards.
8. Edge treatment covers a 960m extent

DETAIL PLAN
SCALE: 1:1000 @ A3

Note: Final design and position of access locations subject to design development.

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PLAN 2 (CAMPBELL PARK - 70 THE PARADE)

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

ORIGINAL SIZE: A3
SHEET 5 OF 20

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

THE DESIGN CRITERIA ASSUMED ARE:

1. Design life of structures – 50 years
2. Importance level of structures – IL1
3. Return period for ULS seismic loads from AS1170 – 1 in100 years
4. Scour depth due to wave action is up to 2m below existing minimum beach level with protection to 2.5m below minimum beach level
5. Structures are not to extend horizontally onto beach any further than existing structures/revetment
6. Foundation depth for structures is up to 8.5m below existing average beach level.
7. Structures can settle under ULS earthquake due to liquefaction provided can be re-leveled afterwards.
8. Edge treatment covers a 960m extent

SAND TRACK

Plan 3a - refer to page 9

THE PARADE

EXTENT OF WORKS

'Minor Access' containing:
- Step access to beach x 1
- Rubbish bin

Design to tie into adjacent existing path

Existing ramp to beach

'Normal Access' containing:
- Step access to beach x 1
- Ramp access to lower path x 1
- Timber seating
- Large steps for seating
- Rubbish bin
- Drinking fountain

DETAIL PLAN
SCALE: 1:1000 @ A3

Note: Final design and position of access locations subject to design development.

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PLAN 2 (70 THE PARADE - SAND TRACK)

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

ORIGINAL SIZE: A3
SHEET 6 OF 20

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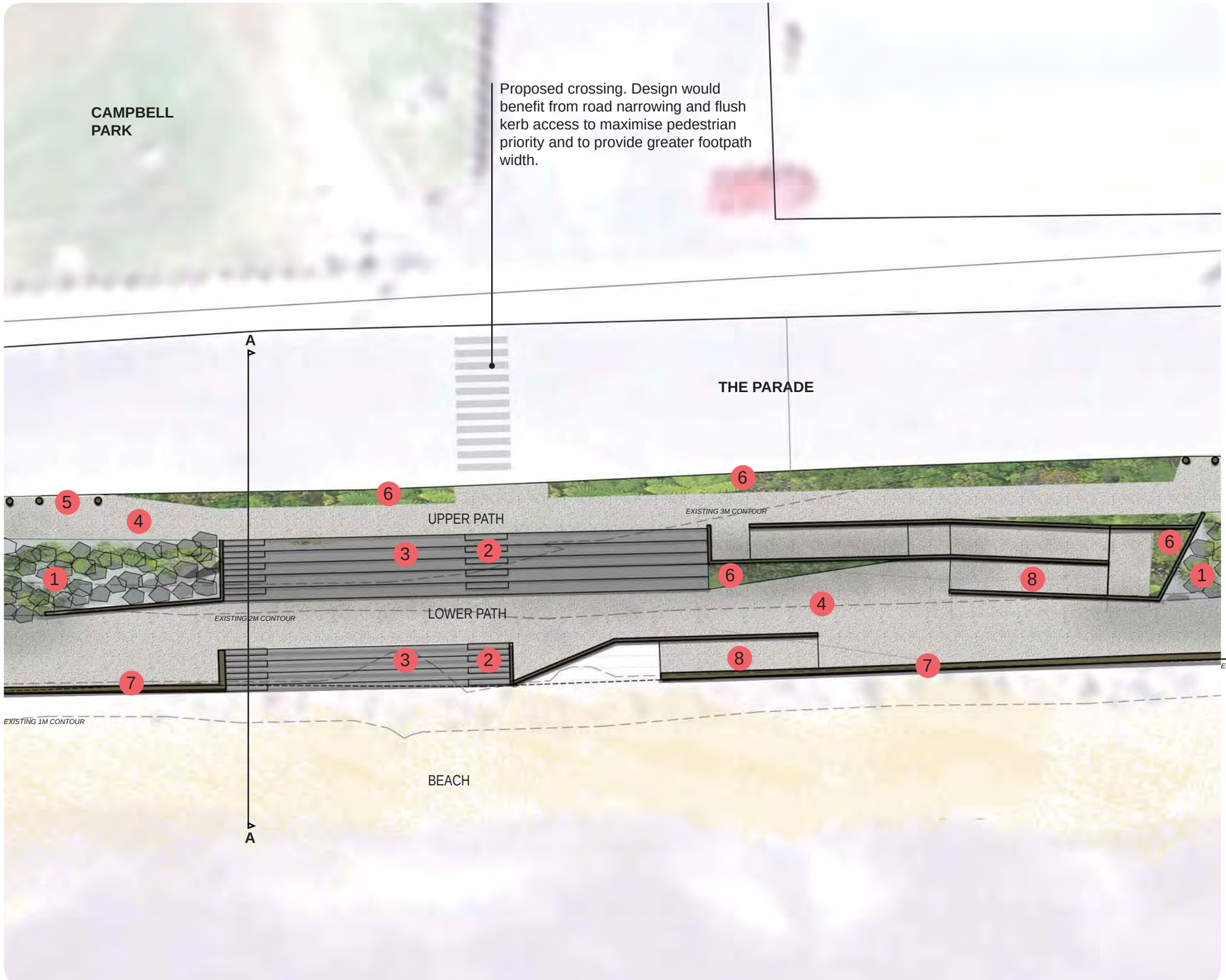


DETAIL PLAN
SCALE: 1:200 @ A3

0 1 2 3 4 5 10 20 30 Metres

LEGEND

1. Rock revetment. Includes planting in bags of soil.
2. Concrete steps to provide beach access. Include handrails to both sides.
3. Large scale steps to provide informal seating.
4. Footpath - Concrete type 1. Refer to materials palette on page 10.
5. Round timber bollards with rope chain along road edge.
6. Native planting. For planting palette refer to page 12.
7. Timber seawall
8. Ramp at 1:12 with handrails both sides. Climbing plant species to be included in adjacent garden beds to be trained up ramp walls. Final design subject to design development.

ADDITIONAL NOTES:

Existing timber storm-water outlets would likely be integrated into the revetment design so they do not protrude seaward of the revetment.

For imagery of all furniture and material items refer to page 10.

Option to engage local artist to create sculptures at entry points using recycled timber from existing sea wall.

Access arrangements for discussion only and subject to design development.

DETAIL PLAN
SCALE: 1:200 @ A3

0 1 2 3 4 5 10 20 30 Metres

LEGEND

1. Rock revetment. Includes planting in bags of soil.
2. Concrete steps to provide beach access. Include handrails to both sides.
3. Large scale steps to provide informal seating.
4. Footpath - Concrete type 1. Refer to materials palette on page 10.
5. Concrete type 2. Refer to materials palette on page 10.
6. Round timber bollards with rope chain along road edge.
7. Parallel parking.
8. Native planting. For planting palette refer to page 12.
9. Timber plinth seating.
10. Timber seawall.

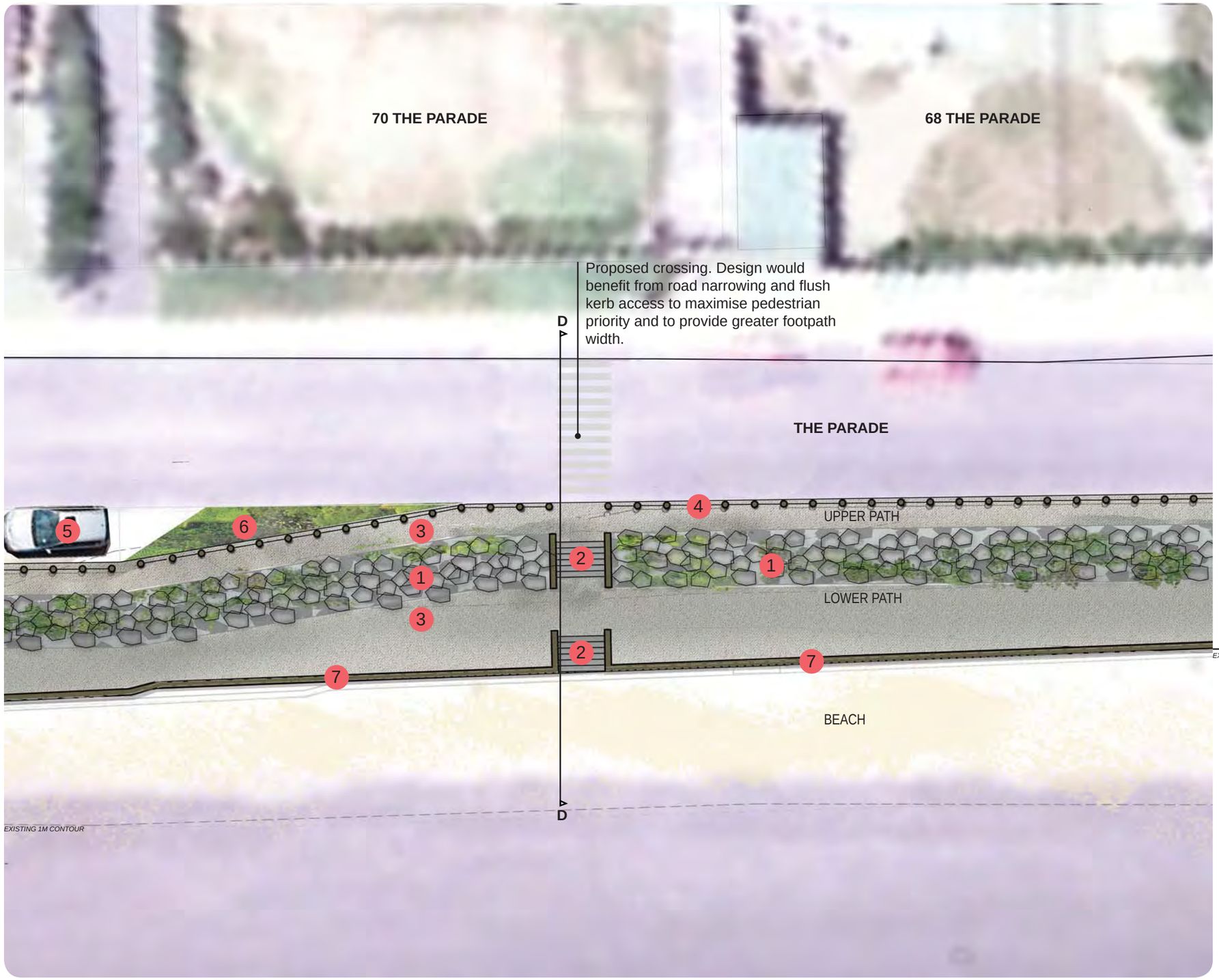
ADDITIONAL NOTES:

Existing timber storm-water outlets would likely be integrated into the revetment design so they do not protrude seaward of the revetment.

For imagery of all furniture and material items refer to page 10.

Option to engage local artist to create sculptures at entry points using recycled timber from existing sea wall.

Access arrangements for discussion only and subject to design development.



LEGEND

1. Rock revetment. Includes planting in bags of soil.
2. Concrete steps to provide beach access. Include handrails to both sides.
3. Concrete Type 1. Refer to materials palette on page 10.
4. Round timber bollards with rope chain along road edge.
5. Parallel parking.
6. Native planting buffer. For planting palette refer to page 12.
7. Timber seawall.

ADDITIONAL NOTES:

Existing timber storm-water outlets would likely be integrated into the revetment design so they do not protrude seaward of the revetment.

For imagery of all furniture and material items refer to page 10.

Option to engage local artist to create sculptures at entry points using recycled timber from existing sea wall.

Access arrangements for discussion only and subject to design development.

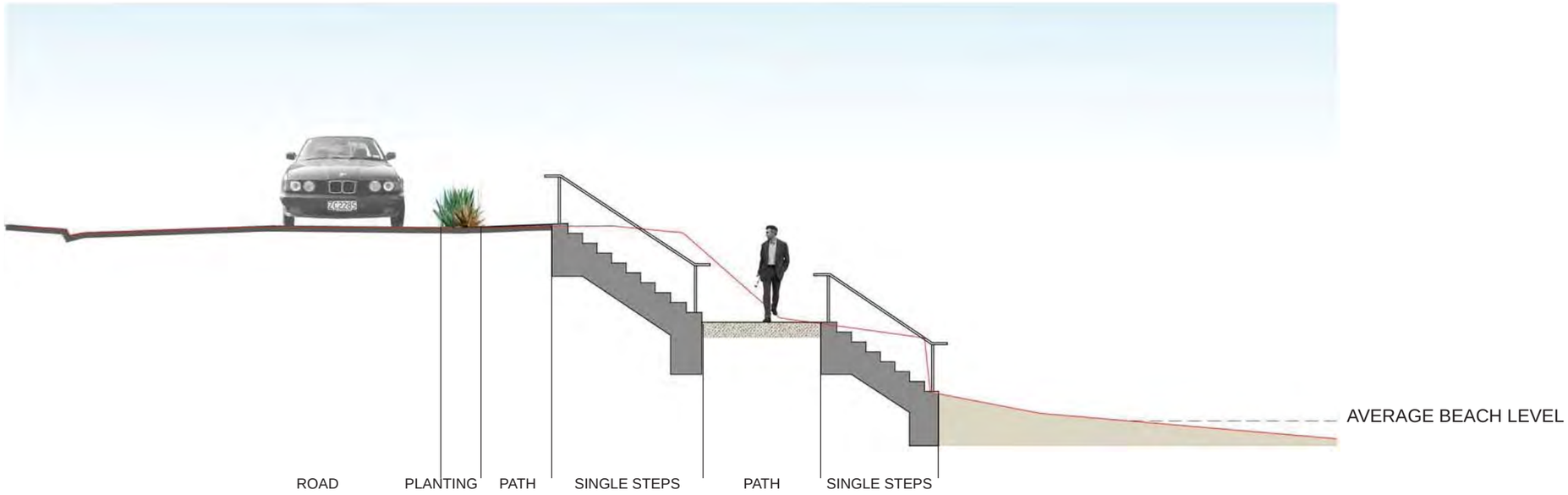
DETAIL PLAN
SCALE: 1:200 @ A3

0 1 2 3 4 5 10 20 30 Metres

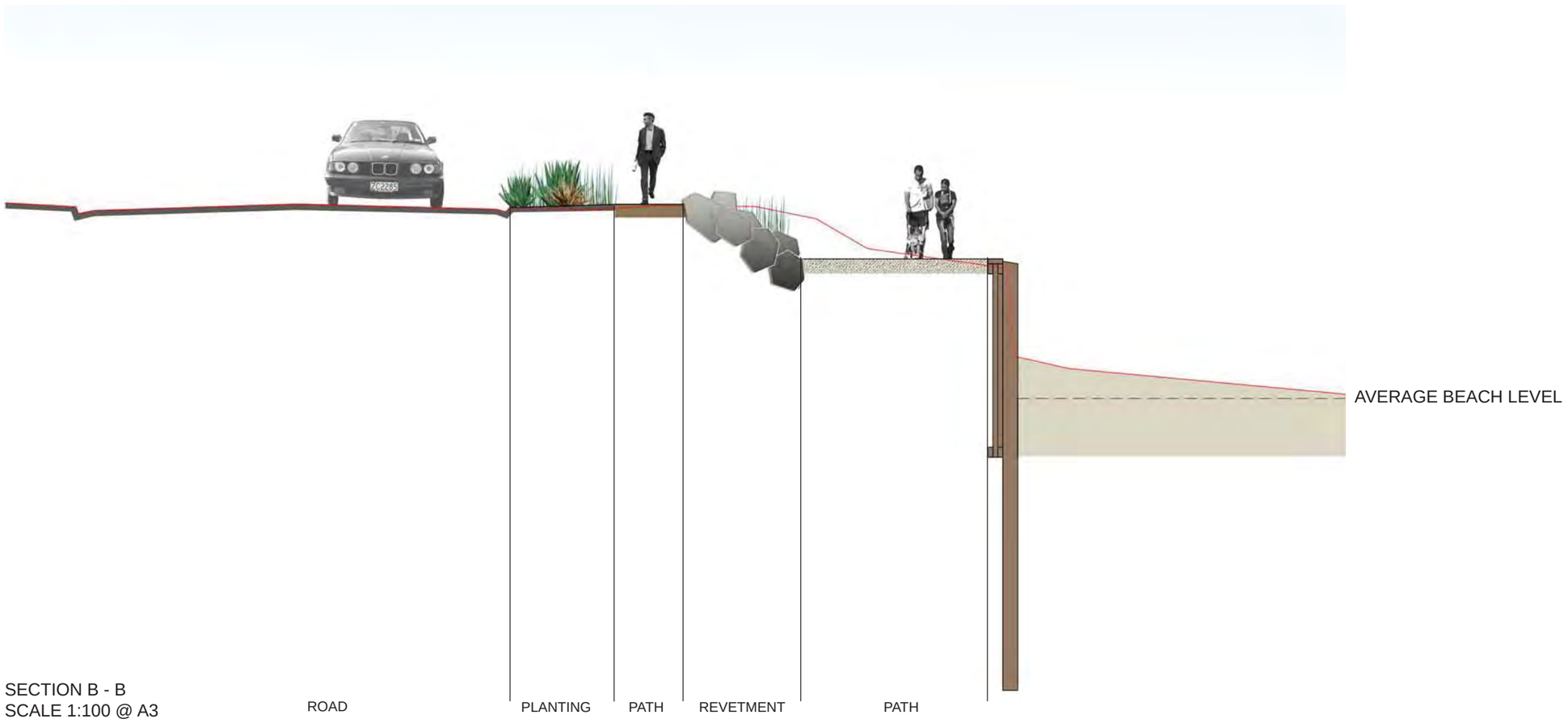
KEY

EXISTING GROUND LINE

NOTE:
FINAL LAYOUT SUBJECT TO
DETAILED DESIGN



SECTION A - A
SCALE 1:100 @ A3



SECTION B - B
SCALE 1:100 @ A3

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Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

LANDSCAPE SECTIONS

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

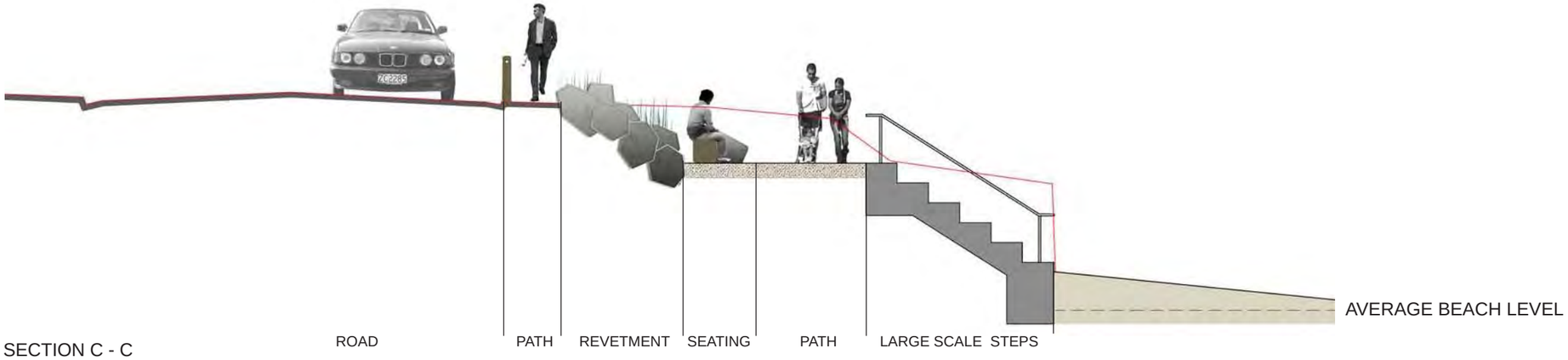
ORIGINAL SIZE: A3
SHEET 10 OF 20

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

KEY

EXISTING GROUND LINE

NOTE:
FINAL LAYOUT SUBJECT TO DETAILED DESIGN



SECTION C - C
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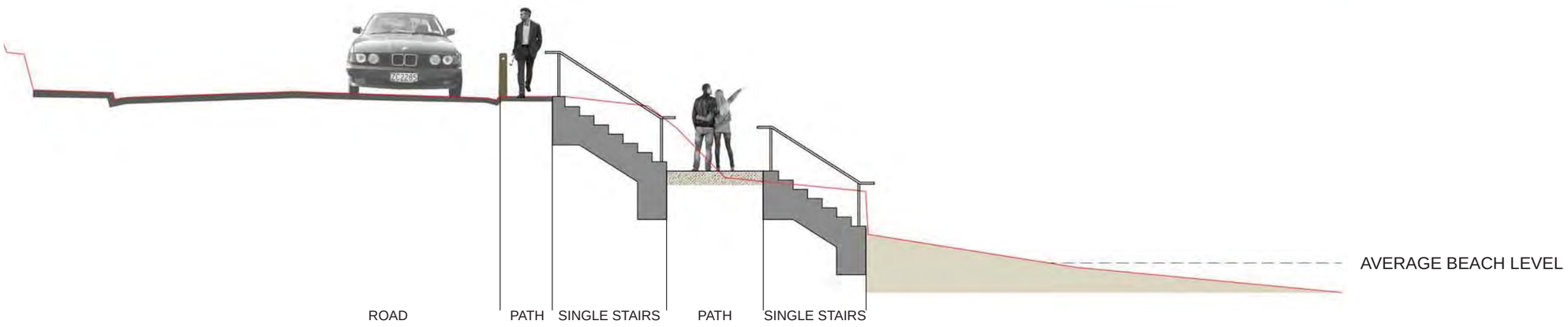


SECTION D - D
SCALE 1:100 @ A3

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

LANDSCAPE SECTIONS

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

ORIGINAL SIZE: A3
SHEET 11 OF 20

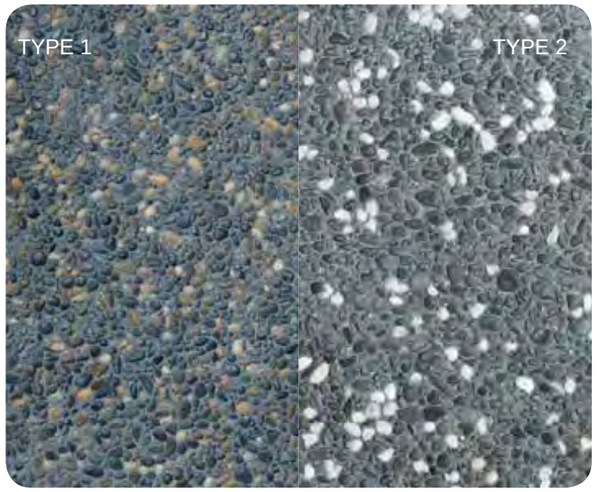
P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

SKETCH - Typical ‘Normal Access’
Timber Wall Option

TIMBER SEATING EXAMPLES.
Subject to design development

WASTE BIN

Option to include two bins per site for waste splitting



EXPOSED AGGREGATE

Use of two aggregate mixes using stone sourced from the Wellington region

BOLLARDS

To match existing

DRINKING FOUNTAIN

Option to include dog feeders and bottle fillers

Note:
1. There is an opportunity to include bike stands along the coastal edge; and
2. There is an opportunity for incorporation of sculpture throughout the design through engagment with a local artist during design development.

SKETCH - Typical ‘Normal Access’
Timber Wall Option

SKETCH - Typical ‘Normal Access’
Concrete Wall Option

SKETCH - Typical ‘Normal Access’
Concrete Wall Option

Horokaka, Native ice plant
(Disphyma australe)

Pingao, Golden Sand Sedge
(Desmoschoenus spiralis)

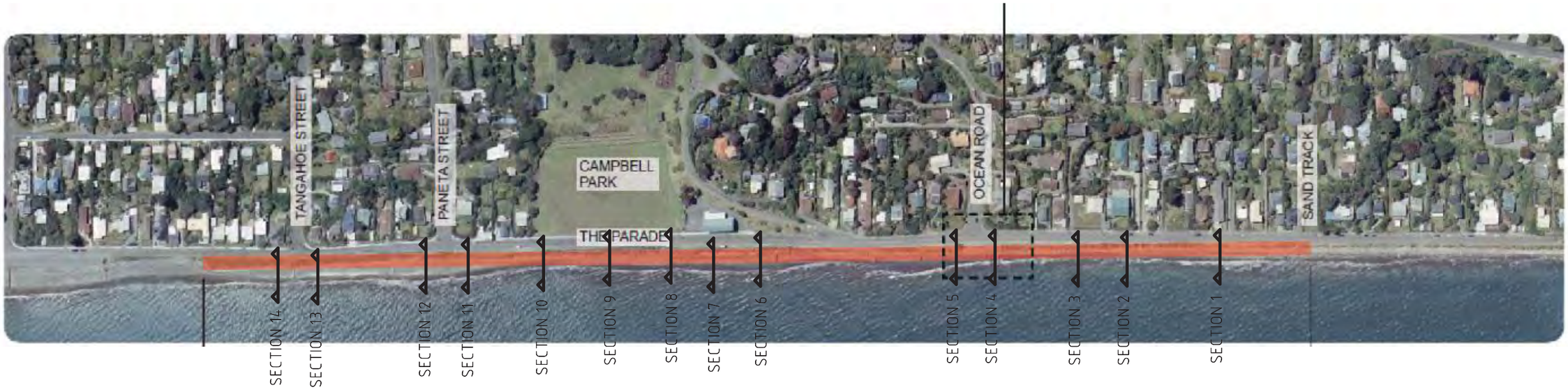
Wiwi, Knobby club rush
(Ficinia nodosa)

Harakeke, Flax
(Phormium tenax)

Tataraheke, Sand Coprosma
(Coprosma acerosa)

Shore Daphne
(Pimelea villisoa)

Taupata, Mirror plant
(Coprosma repens)



COASTAL ROAD CROSS SECTIONS LOCATION

www.beca.com

FOR INFORMATION
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
+	UNDER REVISION				

Drawing Originator: Beca

Original Scale (A1) NTS
Reduced Scale (A3) NTS

Surveyed	JOC	JAN 15	Approved For Issue* DRF
Drawn	JOC	FEB 15	
Verifier	DRF	FEB 15	
Dwg Check			Date FEB 15

* Refer to Revision 1 for Original Signature

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI UPGRADE WORKS

Title: ROAD CROSS SECTIONS LOCATIONS

Discipline: SURVEY

Drawing No. 4261160-GA-05

Rev. A

Document No. 4261160-GS001.DWG

DO NOT SCALE

Source Application

IF IN DOUBT ASK.

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

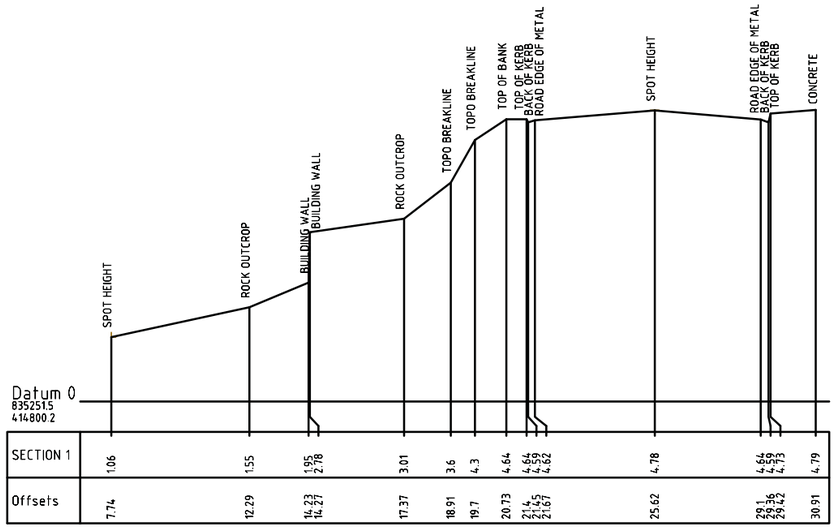
PROFILE SURVEYS

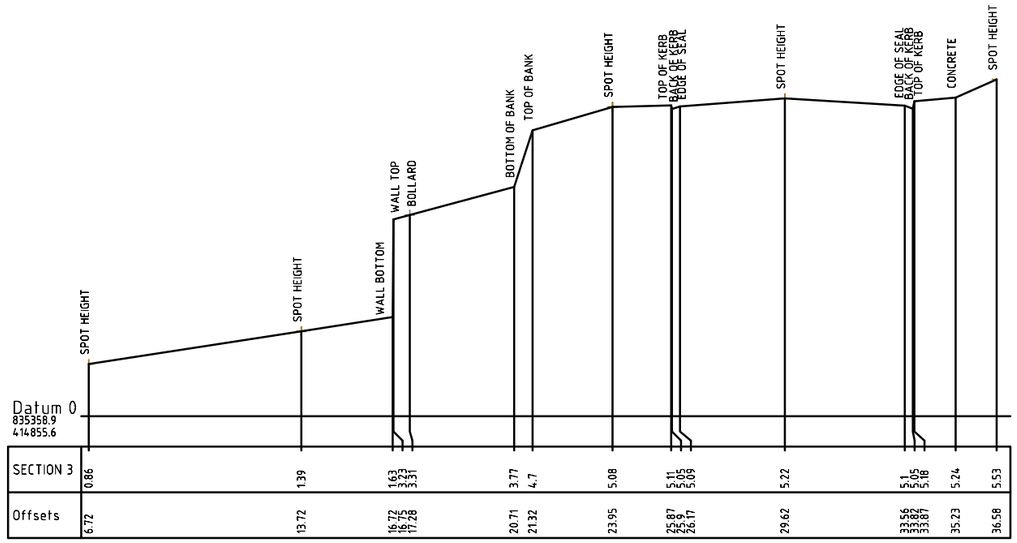
DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

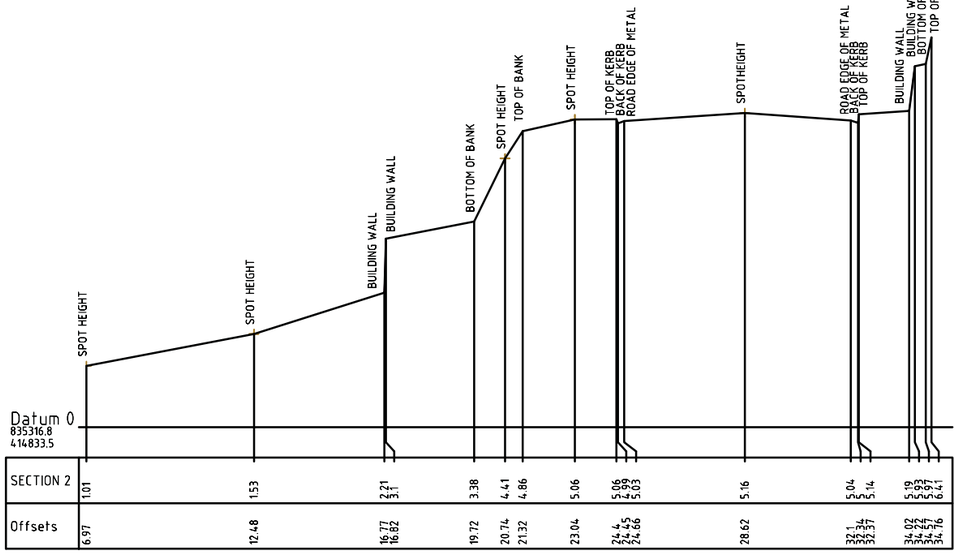
REVISION: L
FOR CONSENT
NOVEMBER 2015

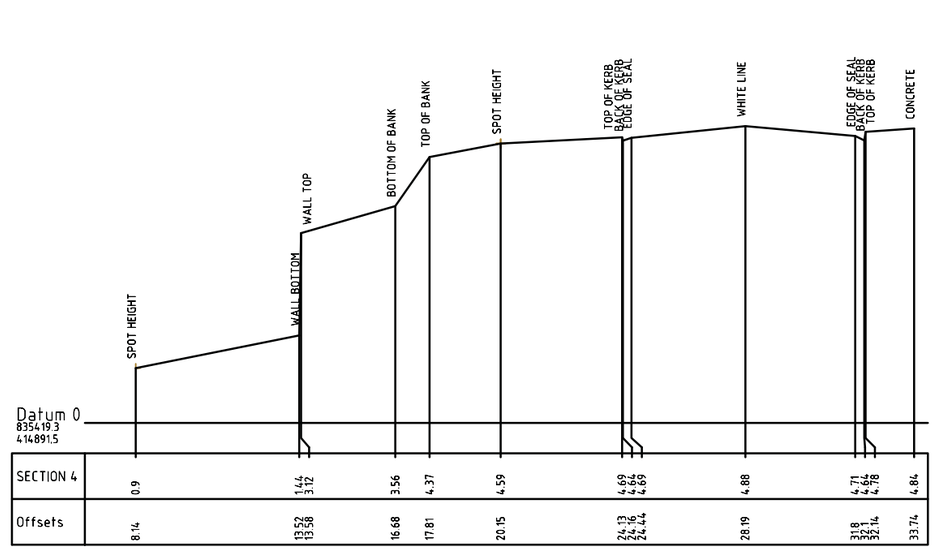
ORIGINAL SIZE: A3
SHEET 16 OF 20

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD









COASTAL ROAD CROSS SECTIONS SHEET 1

FOR INFORMATION
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
+	UNDER REVISION				

Drawing Originator: Beca

Original Scale (A1)	1:400	Surveyed	JOC JAN 15
Reduced Scale (A3)	1:200	Drawn	JOC FEB 15
		Verifier	DRF FEB 15
		Dwg Check	
		* Refer to Revision 1 for Original Signature	

Approved For Issue* DRF
Date FEB 15

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI UPGRADE WORKS

Title: ROAD CROSS SECTIONS

Discipline: SURVEY

Drawing No.: 4261160-GA-01

Rev.: A

Document No.: 4261160-GS001.DWG

DO NOT SCALE

Source Application

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PROFILE SURVEYS

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

ORIGINAL SIZE: A3
SHEET 17 OF 20

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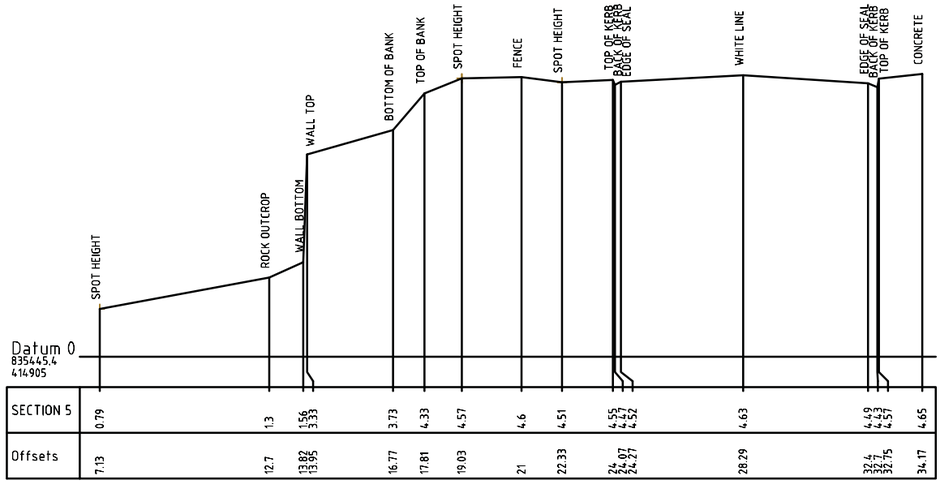

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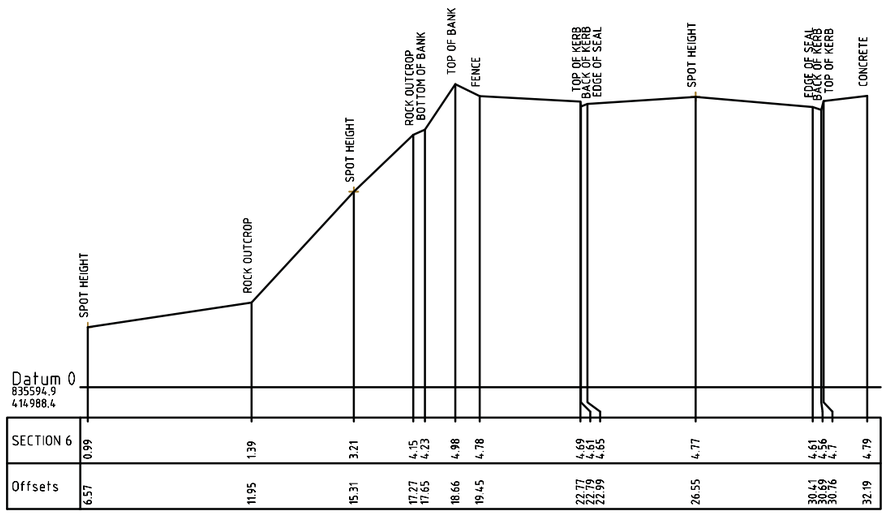
Offsets	7.13	12.7	13.82	13.95	16.77	17.81	19.03	21	22.33	24	24.07	24.27	28.29	32.4	32.71	32.75	34.17



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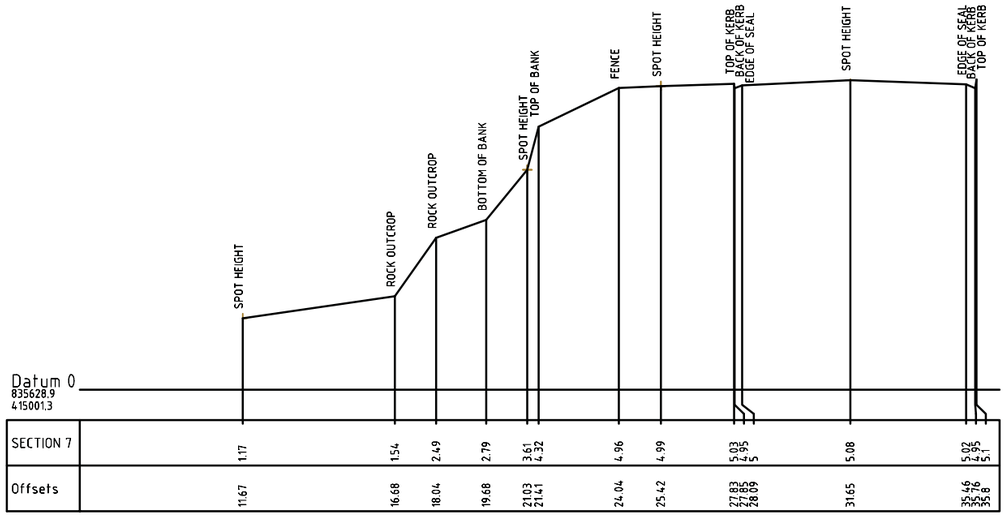
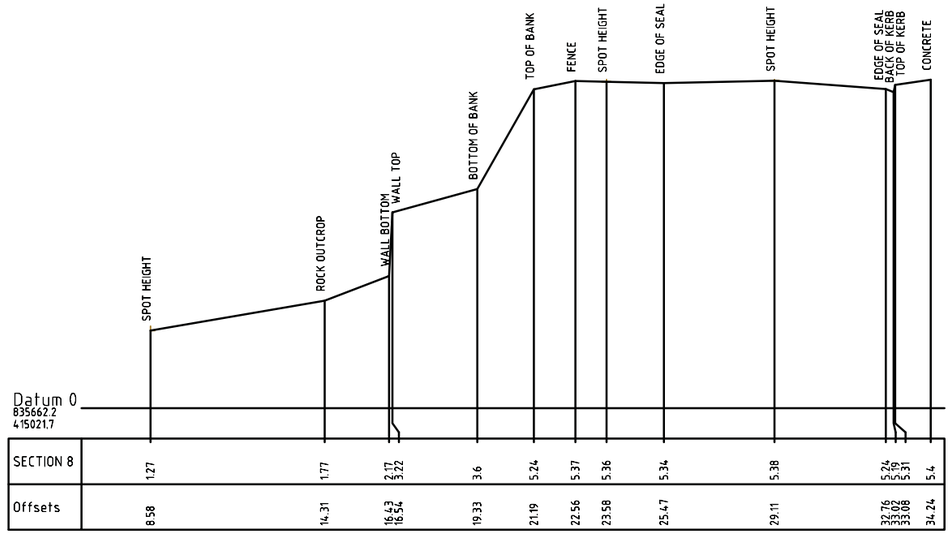
Offsets	6.57	11.95	15.31	17.27	17.65	18.66	19.45	22.77	22.79	22.99	26.55	30.41	30.69	30.76	32.19



SECTION 7	1.17	1.54	2.49	2.79	3.61	4.32	4.96	4.99	5.03	5.05	5.08	5.02	4.95	5.1
Offsets	11.67	16.68	18.04	19.68	21.03	21.41	24.04	25.42	27.83	28.05	31.65	35.46	35.76	35.8



SECTION 8	1.27	1.77	2.17	3.22	3.6	5.24	5.37	5.36	5.34	5.38	5.24	5.19	5.31	5.4
Offsets	8.58	14.31	16.43	16.54	19.33	21.19	22.56	23.58	25.47	29.11	32.76	33.02	33.08	34.24

COASTAL ROAD CROSS SECTIONS SHEET 2

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No.	Revision	By	Chk	Appd	Date
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Drawing Originator: Beca

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Project: PAEKAKARIKI UPGRADE WORKS

Title: ROAD CROSS SECTIONS

Discipline: SURVEY

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PROFILE SURVEYS

DESIGN: AB DRAWN: AB
REVIEWED: PRG
BECA REF: 6519300

REVISION: L
FOR CONSENT
NOVEMBER 2015

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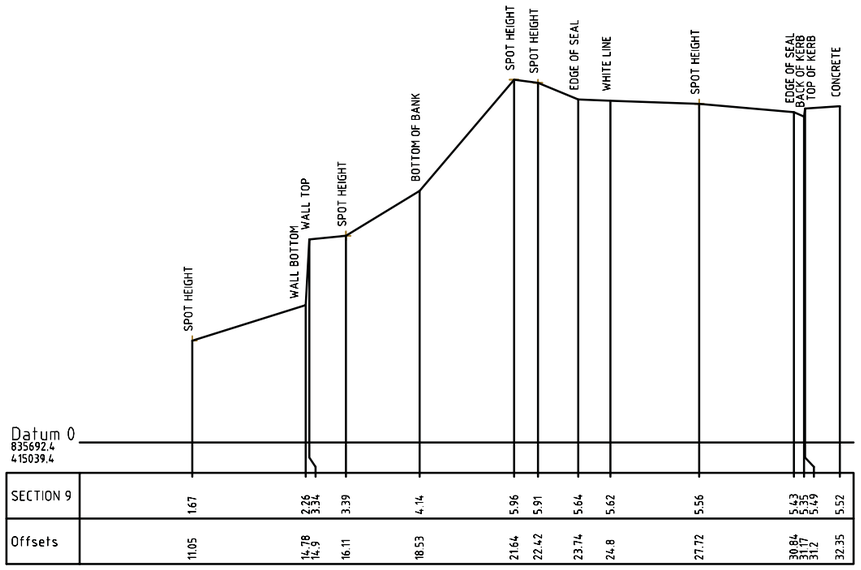

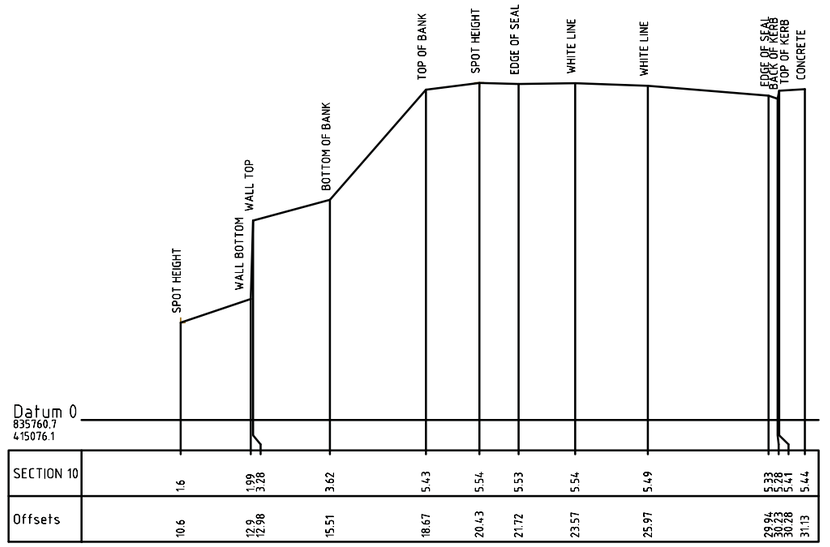

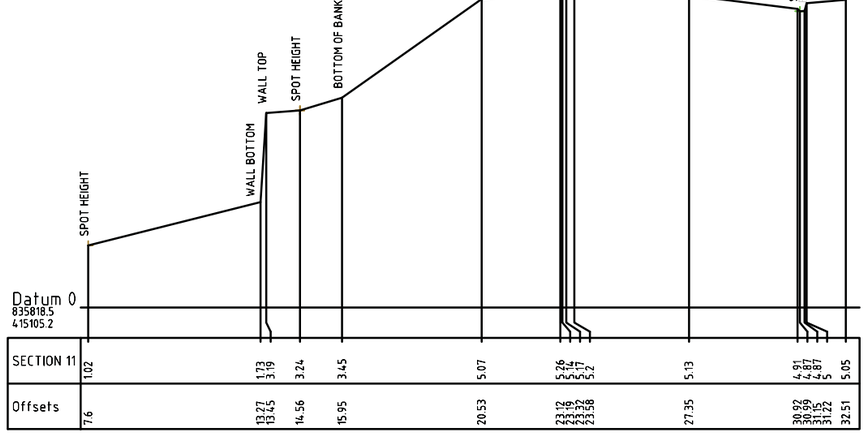

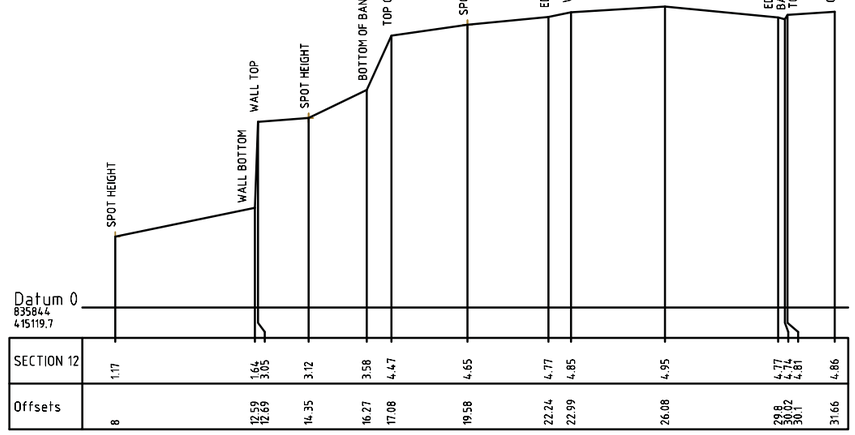

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PROFILE SURVEYS

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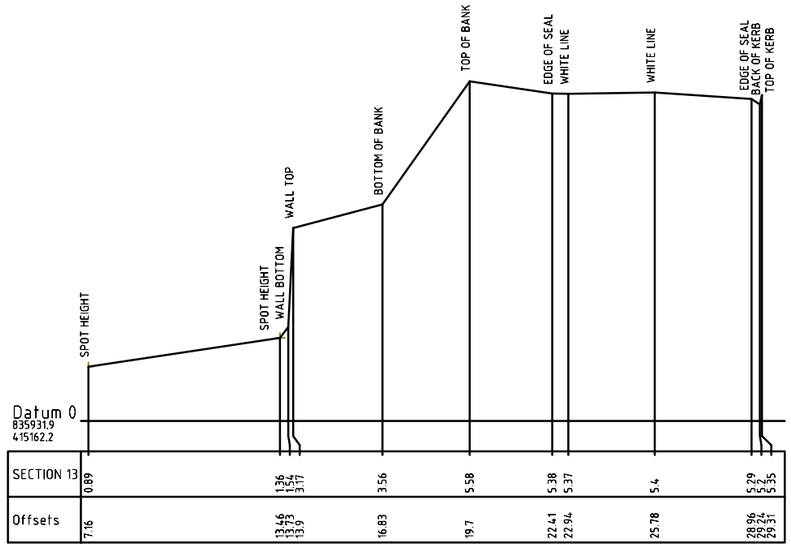

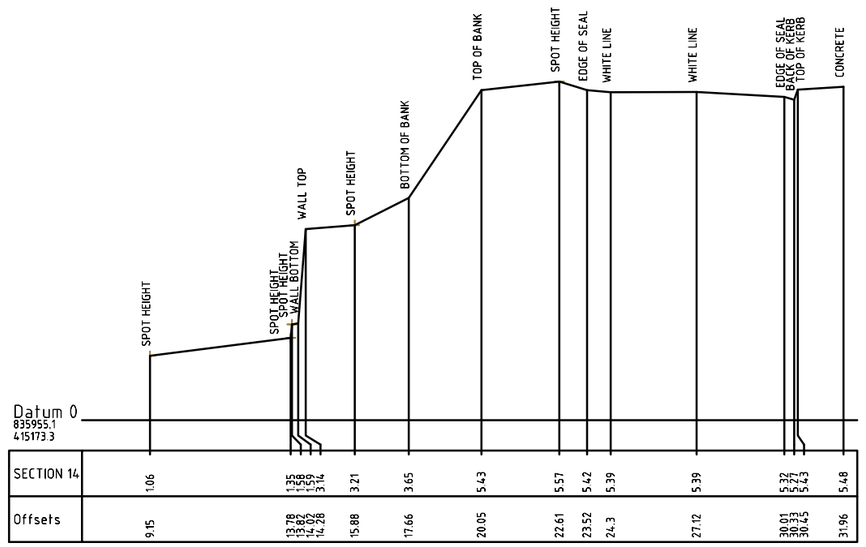

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Title: ROAD CROSS SECTIONS

Discipline: SURVEY

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PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

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REVISION: L
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Appendix B

Alternatives Assessment

Report for Consultation

Assessment of Coastal Management Options for Paekakariki, Kapiti Coast

Prepared for Kapiti Coastal District Council (Client)

By Beca Carter Hollings & Ferner Ltd (Beca)

15 April 2013

Revision History

Revision N°	Prepared By	Description	Date
A	Susan Jones, Nathan Baker, Richard Frankland	First draft report for client review	Feb 2013
B	Nathan Baker, Richard Frankland	Report for Consultation	April 2013

Document Acceptance

Action	Name	Signed	Date
Prepared by	Susan Jones, Nathan Baker	NBaker	4/13
Reviewed by	Graham Spargo	pp NB.	4/13
Approved by	Richard Frankland	pp NB	4/13
on behalf of	Beca Carter Hollings & Ferner Ltd		

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1 Introduction

1.1 Overview

The purpose of this report is to provide a high level assessment of coastal management options for Paekākāriki, Kapiti Coast. Specifically, Paekākāriki's main stretch of coastline along The Parade from The Sand Track to the southern extent of the rock revetment north of Tangahoe Street is assessed. Essentially, this is the stretch of existing timber seawall between the southern and northern rock revetments.

The findings of this report will be used to help inform further community consultation and decision-making around coastal management of Paekākāriki's coastline. The key steps in the process are:

i. This options report for discussion;

ii. Community consultation;

iii. Feedback Community Board;

iv. Further investigation and recommendation on a preferred solution;

v. Final recommendation to Council on a preferred solution;

vi. Council decision – approval to progress the solution to planning approvals and design/build;

vii. Planning approvals process; and

viii. Construction (indicative start 2015).

Paekākāriki is a close coastal community and has a strong connection to the coastal environment on which it sits. Public and private assets have been developed immediately adjacent to the coastline and have historically been affected by erosion, over at least the last 100 years. There have been episodes of more significant erosion, particularly in the mid 1950's and mid to late 1970's and more recently in the mid 1990's.

Looking northwards along The Parade

In response to these episodes of erosion, timber seawall construction began following the 1950's storms and was rebuilt after damage during the major storm in the late 1970's. Subsequently rock toe protection has been added overtime to reinforce and protect the timber wall and more recently the 4m high rock revetment (approximately 0.5km in length) has been completed to the south of The Sand Track. Undoubtedly, coastal erosion remains an ongoing threat to both public and private property in this area.

A significant body of coastal processes investigations along the Kapiti Coast have been undertaken over the years, most notably the studies undertaken by Dr Jeremy Gibb during the late 1970's and 1980's and more recently the work by John Lumsden and Dr Roger Shand. These studies are referenced in this report to provide context and have informed the assessment of coastal management options in this report.

There is general consensus that Paekākāriki's coastline is being starved of a natural supply of longshore drift material by the growing headland at Paraparaumu that is preventing the southward transport of sand. As a result there is less sand reaching the beach. Some of the sand that does arrive at the beach is transported seaward during storms. Not all of the sand returns to the beach following the storms, resulting in more net loss from the system. An undeveloped coastline would contribute some material to the beach system, however the timber seawall and to a lesser extent the rock revetment effectively prevents this from happening. This has lead to the systematic shoreline erosion that is currently seen in this location. More detail on the causes of erosion are provided at Section 1.3

The construction of State Highway 1 along the coast has also been referenced as a contributing factor in preventing any natural supply of gravel to the beach from the scree slopes south of Paekākāriki (for example Gibb 1980).

The Kapiti Coast District Council (the Council) is responsible for the management of this coastline and the public assets adjacent to it. Council's Coastal Strategy has been developed to guide management of the coastal environment and sets management objectives for coastal activities, access, recreation, harvesting, the natural and built environments, and coastal hazards.

Looking south towards the rock revetment

The New Zealand Coastal Policy Statement sets a general hierarchy of preference for the management of coastal hazards. In general, that preference is to favour planning solutions (such as land use planning) over soft solutions (such as dune restoration) and to favour soft solutions over hard solutions (such as sea walls and revetments).

Council's overall strategic response for hazards is to continue to maintain existing structures on the Kapiti Coast as much as practicable where they protect public assets. Council, where possible, employs soft engineering solutions such as dune restoration and native plantings as a first option.

However, some coastal stretches such as Paekākāriki require hard structures to provide a minimum level of protection. Specific to Paekākāriki, Council plans to protect the unique character of the village, provide education on coastal processes, review and upgrade access where necessary and continue to investigate protection options.

Council is not responsible for the protection of private property situated on or near the coastline. However it is responsible for regulatory control of land use activities affecting the coastline, which will generally include efforts by private property owners to address coastal hazards themselves. Greater Wellington Regional Council is responsible for regulating activities within the Coastal Marine Area proper and is an important partner of Council in terms of coordinating an integrated coastal management framework.

Council recognises that changes in climate with rising sea level and more intense storms could have a major effect on Paekākāriki. The present system of coastal protection at Paekākāriki will not always be sufficient to resist the erosive forces of the sea. However, Council does not have a policy to withdraw services and any decision to do so will be a community decision – most likely as a forced response to a major storm event that destroys protection structures and damages The Parade beyond feasible repair. Managed retreat is not considered further in this report.

With the above in mind, this report considers a range of coastal management options for 'holding the current line' now and over at least the next several decades against assessment criteria chosen as being important for this specific Paekākāriki project, including cost; performance; degree of difficulty, environmental impacts, community impacts and consistency with Council's Coastal Management Strategy. Options are presented at a high-level only (essentially basic scale and material definition) and specific design details of amenity, landscaping, access to the beach and impact on The Parade will be matters to address as this project develops. We expect there will be a good level of community feedback around design and detail of the final solution chosen.

All options assessed will be assumed to provide a comparable level of protection and therefore will be generally of a similar height and scale – similar to that of the existing rock revetment (around 3-4m in height and roughly level with The Parade). For example, for the existing timber wall to offer the same level of protection as the adjacent rock revetment, it would need to be increased to the same height as the revetment.

1.2 The Study Area

The study area covers Paekākāriki's main stretch of coastline along The Parade from The Sand Track to the southern extent of the rock revetment north of Tangahoe Street as shown in the Location Plan below. Essentially, this is the stretch of existing timber seawall between the southern and northern rock revetments.

The Parade provides the main public access to the coast and is set above beach level, retained by the revetment and timber seawall. There is a Surf Life Club at the northern end of The Parade and a large park (Campbell Park) located about midway along The Parade.

The existing timber sea wall at Paekākāriki has well-exceeded its original 20 year design life. During its life, failures have occurred, mostly along the northern part not protected by rock toe protection. Overall, it has served its purpose of protecting The Parade, however the timber seawall has become fragile in places and will require increasing maintenance as it continues to age. Council periodically repairs the timber seawall and maintains the rock revetment and attends to damage following periods of erosive storm events. The upgraded rock revetment has been designed to survive a 1 in 100 storm event, with only minor damage to the rock wall and perhaps some overtopping.

1.3 Previous Assessments

A significant body of coastal processes investigations along the Kapiti Coast have been undertaken over the years, most notably the earlier studies undertaken by Dr Jeremy Gibb in the 1970's and 1980's and more recently the work by John Lumsden and Dr Roger Shand. Such studies are referenced in the back of this report and they document the history of coastal erosion at Paekākāriki and wider coastal processes along the Kapiti Coast.

Previous investigations have found that the beach at Paekākāriki, in most years, has a typical seasonal summer/winter profile. Compared to the neighbouring Kapiti Coast beaches to the north, Paekākāriki beach has a tendency to erode and is narrower as a consequence.

A range of explanations for the erosion that has occurred have been offered over the years. A significant factor identified is the growth of the headland at Paraparaumu acting as a groyne and starving the southern beaches at Raumati and Paekākāriki. The construction of State Highway 1 along the coast cutting off the gravel supplies from the scree slopes to the south of Paekākāriki is also considered a factor. The net sediment deficit has at least in part resulted from the previous hardening of the coastline by the construction of the seawall.

There has been some debate over the years as to the most appropriate form of coastal protection for Paekākāriki, ranging from support for soft solutions such as beach drainage through to hard solutions such as seawalls. Studies and observations have shown that the seawall at Paekākāriki has generally performed satisfactorily since it was constructed in so far as it has adequately protected The Parade road. Because of the reflective nature of the wall, sand is removed from the beach more quickly under storm conditions.

Now most recently, the Kapiti Coast Erosion Hazard Assessment 2012 by Coastal Systems Limited is under community consideration and is informing Council's District Plan Review around coastal management. This assessment includes projected shoreline maps showing where the shoreline could be in 50 to 100 years under managed and unmanaged scenarios. As mentioned in the introduction, this report assesses coastal management options for the shorter term and any potential longer term (50 to 100 years) scenarios are not assessed.

2 Multi Criteria Assessment

2.1 Assessment Criteria

Multi-criteria assessment (MCA) is a decision-making tool that provides a recognised, systematic approach to assessing the merits of alternative options. The MCA framework for this report has been tailored to address the key issues for coastal management at Paekākāriki. The assessment criteria have been chosen to cover the range of matters that are considered most important to making decisions around coastal management.

MCA can be as 'high-level' or detailed as required to suit the complexity of the issue under consideration. The important focus is to find criteria that differentiate the options. At the higher level, that comparison can be more comparative rather than quantitative. In addition, weightings can be applied to criteria to indicate the degree of importance for a project – for example "Environment" might be given a higher weighting than "Degree of Difficulty". At this early stage of option assessment, each criteria is considered to have an equal weighting or level of importance for the purpose of this report.

Another key advantage of this approach is to screen out options that have very high risk, cost or other negative attributes that are unacceptable to the community and Council. This allows any further investigations on options to more quickly focus on those that have a higher probability of success.

With that in mind, the following criteria have been selected:

Assessment Criteria	Description
Cost	The comparative cost of construction and maintenance. This does not include the cost of consenting, consultation and any legal process which is considered under Degree of difficulty.
Performance: Risk of failure	Risk of failing to protect public assets; not resilient to climate change effects; risk of design failure.
Degree of difficulty	Practical difficulty in implementing the option; property/land and access issues; potential for legal risk and liability; difficulty with construction and ongoing maintenance.
Difficulty in obtaining resource consent	Difficulty in obtaining resource consent due to adverse effects and conflict with GWRC policy for coastal management.
Potential for adverse effects on the environment	Potential for adverse effects on coastal environment due to construction and the ongoing presence of any structure.
Potential for adverse effects on Paekākāriki community	Restricts or impacts adversely on: public access; recreation; amenity; noise and vibration; safety; heritage; culture; sense of place and the community's close connection to the coastal environment; loss of useable beach.
Conflicts with Council's Coastal Management Strategy	Inconsistent with Council's Coastal Management Strategy and specific management approach for Paekākāriki.

It is accepted that there is some overlap between these criteria. For example, Council's Coastal Management Strategy has clear objectives to minimise adverse effects on the environment. Similarly, an option that has high adverse effects on the environment and/or community will likely have a higher degree of difficulty to implement and consent. However, these criteria do reflect those matters that will fundamentally drive a decision on a future coastal management solution. They will therefore help to inform the following discussion in this report to differentiate between options.

At this early stage we have not consulted in detail with the community on options – therefore the criteria covering the potential impact on Paekākāriki community will need to be confirmed through community feedback. In this report we have simply scored this criteria on the basis that any option that protects the community from coastal erosion is good (ie a low 'green' score). We understand the community is highly interested in the potential impacts (short- and long-term) of these options under consideration. We also know that some in the community do not support the existing revetment as a protection measure and others have a range of ideas around coastal management and design along The Parade. Council is committed to providing the community the available background information to support decision-making; seek feedback on these criteria to ensure they reflect community values; develop early concept plans in consultation with the community and ultimately design and consent the best practicable option for the study area.

It is also important to note that MCA is simply one tool for making decisions. The findings of this assessment will require further scrutiny and investigation and consultation with the community.

2.2 Rating

The assessment criteria will be assigned a rating of Low, Medium or High for each option. A "High" rating equates to a worse outcome – a high cost or a high risk of failure for example. This 'traffic-light' approach is often used to try to more quickly and efficiently identify clear winners or main points of differentiation between options at a high level. Should clear differentiation not be achieved, a more detailed qualitative and quantitative assessment can be undertaken – obviously at further time and cost. The most favourable option will therefore be the one with the lowest overall ranking.

Rating	Colour
Low	
Medium	
High	

3 Option Assessment

3.1 Discounted Options

Based on our review of previous coastal process studies and the history of coastal erosion in this study area, we consider that coastal protection options for this stretch of coastline are limited. Firstly, the beach is relatively narrow and does at times experience high wave action, threatening The Parade and beyond. Secondly, there are well-established hard structures already in place here (rock revetment and timber wall) and therefore any option under consideration should integrate well with those in terms of design and amenity. Thirdly, the cost of options under consideration cannot be prohibitive to the Council and community it serves.

We therefore consider that a number of potential options can be discounted without undertaking a full MCA on their merits. A brief explanation to these discounted options is provided in Table 1.

Table 1: Discounted Options

Potential Option	Reason for discounting
Do Nothing	A do nothing option will involve no intervention to address erosion. The shoreline will most likely erode and move inland, damaging both public and private assets. Without maintenance, the timber wall will fail resulting in The Parade eventually becoming impassable. Property inland may also be at risk of erosion. Council has a statutory obligation to manage coastal hazards and has a Coastal Management Strategy in place to guide that duty. The Council does not consider it appropriate to consider this as an option.
Maintain the existing timber seawall as best as possible, using rock toe protection where necessary.	Currently, Council maintains the existing timber seawall as much as practicable and this has involved placing rock toe protection in front of it to protect it from wave erosion, typically as an emergency response measure. This is considered by Greater Wellington Regional Council to be a temporary and reactive approach to coastal erosion and they have advised Council to move away from this and progress a more secure long-term approach. Ultimately, this measure will not provide the level of protection sought from the more long-term options counted and assessed in this report. Continuing this current approach is not considered sustainable and is discounted.
Beach nourishment	Beach nourishment is the process of importing sand and/or shingle from elsewhere onto an eroding shoreline to create a new beach or to widen the existing beach. The waves erode the nourished sand instead of destroying the beach further. Because nourishment does not stop erosion, nourishment must be repeated to maintain the beach. This is unlikely to be effective given the erosive nature of this location. It would be a high-maintenance option requiring regular re-nourishment, which in turn results in ongoing disruption to the beach. Costs are likely to be high as previous studies have not found suitable land based sand supplies. Marine sands will require dredging. For these reasons, at this stage beach nourishment is not being pursued as a feasible option.

Potential Option	Reason for discounting
Beach drainage	Beach drainage involves installing a drainage system in the sand below the high tide level. The drainage pipe conducts water to a collection point from where it is pumped out to the sea. By draining the high tide region, the water table is locally lowered and the sand is less mobile as a result and has a greater tendency to remain in place. This option has previously found favour with the Paekākāriki community during consultation in 2006 for the northern end of The Parade. However, Council investigated beach drainage and concluded that the risk of failure was too great, with approximately 50% of beach drainage projects around the world failing. The pipe system is at risk because it is built in the sand, which is erodible and as such is highly vulnerable to major storms. Once exposed under those conditions, it has a very low probability of survival. It is also moderately expensive to run. For these reasons this option is not considered further.
Groynes	Groynes are hard barriers (such as rock, timber, concrete) constructed at right angles to the beach. They trap material when it is moved along the coast by longshore drift, generally building up material on the up-drift side and with a much lower level on the down-drift side. Groynes create a wider beach where material is trapped, which helps absorb energy from waves, reducing the rate of erosion. However, the wider beach is intersected by the groynes and so the nature of the beach (for example, walking along it) is radically changed. The more successful the groyne field is, the more difficult it is to walk along the high tide beach. Groynes work best when there is a lot of longshore transport of sand. While more recent measurement indicate there may be a net southward drift, the net volumes are not high at Paekākāriki. Groynes could be employed as artificial headlands, encouraging accumulation of pocket beaches between them. However, they would then represent a highly effective barrier to any longshore drift that was occurring and careful study would be required to determine the extent of any downdrift effects. For these reasons, groynes are rejected as an effective option and are not considered further.
Steel Sheet Pile Wall	This option would involve replacing the existing timber seawall between the rock revetments with a steel-sheet pile wall. Given the existing beach level in comparison with The Parade, the wall would be about 3-4m in height towards the southern end and this would potentially taper downwards towards the northern end keeping level with The Parade. The steel sheet pile wall would integrate with the existing rock revetments at either end.This option has been discounted due to the difficulty in obtaining resource consent as there would likely be no support from GWRC in terms of hazard management or consenting. It would introduce a completely different hard amenity to the beach and would likely be more costly than other hard options under consideration.

3.2 Rock Revetment

Revetments are layers of less erodible material (usually rock) laid over the coastal edge. They depend on the coastal edge for support and can be vulnerable to undermining and overtopping if not adequately designed. They have the added benefit that some of the incoming wave energy is dissipated as the waves break on the wall. The remainder of the energy is reflected.

Paekākāriki already has a rock revetment in place along the southern third of The Parade. This option would involve extending that existing southern rock revetment northwards and integrating it with the northern revetment. A complete line of rock revetment would be established. A similar level of planting, amenity and access track would be provided to that existing along the current revetment.

Assessment Criteria	Rating
Cost	
Risk of failure	
Degree of difficulty	
Difficulty in obtaining resource consent	
Potential for adverse effects on the environment	
Potential for adverse effects on Paekākāriki community	
Conflicts with Council's Coastal Management Strategy	

- The cost of rock revetment depends on the supply of suitable quality rock. Suitable rock is available and the costs are well understood. As costs are purely comparative at this stage (no design undertaken) the cost of the rock wall is taken as the "standard" with all other costs considered either higher or lower.
- Risk of failure is low if properly engineered. Other parts of the beach protected by rock armour are performing well.
- Degree of difficulty should be moderate, given that the existing rock revetments are performing adequately, have been approved in the past and form part of the existing environment.
- Relative to the other options, it is expected that integrating a rock revetment into the existing rock revetments at either end would be preferable to consent given its ability to absorb wave energy, trap some sand and provide habitat opportunities (e.g. burrows for penguins and rock slopes for seals).
- Potential for adverse effects on the environment – overall these are considered moderate, but subjective factors in terms of amenity will have some impact (ie revetment hard structures will unlikely find favour with all, either because of pure visual effects or because a different type of hard structure is preferred). There is a benefit in that the existing stormwater outlets/flumes can be integrated with the rock revetment relatively easily so as to not appear obtrusive. Equally, the finished amenity should be that of a 'complete' rock revetment.
- Potential for impact on Paekākāriki community is likely to be low assuming the revetments work as planned and protect the community.
- Conflicts with the Coastal Management Strategy – considered moderate because it is a hard structure solution, but not a high conflict as hard solutions are provided for if softer solutions are not feasible.

3.3 Timber Wall

This option involves persevering with the current timber seawall, essentially upgrading it to a similar level of protection as the existing rock revetment at the southern end of The Parade. The timber seawall would be approximately 3-4m in height and potentially could be stepped. The rock toe protection placed in front of failed sections of the existing timber wall would be removed. A similar level of planting, amenity and access tracks would be provided to that existing along the current timber seawall.

Assessment Criteria	Rating
Cost	
Risk of failure	
Degree of difficulty	
Difficulty in obtaining resource consent	
Potential for adverse effects on the environment	
Potential for adverse effects on Paekākāriki community	
Conflicts with Council's Coastal Management Strategy	

- The cost of a timber wall is likely to be slightly higher than a rock revetment, particularly as the timber wall will require more maintenance over time, especially of any metal components, which corrode rapidly in such environments. The expected working life of a timber wall is much less than for rock, which is far more durable. Over time, the timber wall will is expected to have a higher cost than the rock revetment. However, this option will not be as costly as the other options considered in this report (for example concrete and breakwater) and is rated amber overall.
- Risk of failure can be managed by conservative design, however relative to the rock revetment there is a higher risk of failure over time. Existing timber walls have generally performed well but are occasionally exposed by fluctuations in sand levels and at times have experienced damage and/or failure as a result of coastal erosion.
- Degree of difficulty should be moderate, given that this option is essentially upgrading an existing timber seawall, albeit at an increased height and level of protection to that existing.
- We would anticipate a moderate difficulty in obtaining resource consent – acknowledging that there is an existing timber wall that forms part of the existing environment. GWRC would consider the need for rock toe protection and maintenance over time as a disadvantage and therefore not the best practicable option. In addition, it is impermeable and therefore deflects energy and will not provide any great habitat value or promote public access.
- Potential for adverse effects on the environment – overall these are considered moderate, but subjective factors will have some impact (for example the timber wall may be more popular than rock walls in terms of amenity for some). The timber wall will likely present more of a physical barrier to the beach than the rock revetment (the rock can be walked over more easily), however access steps/tracks could be provided. They are typically more reflective of wave energy than rock slopes and therefore will not promote the retention of useable beach.
- Potential for impact on Paekākāriki community is likely to be low assuming the walls work as planned to protect the community.
- Conflicts with the Coastal Management Strategy – considered moderate because it is a hard structure solution, but not a high conflict as hard solutions are provided for if softer solutions are not feasible.

3.4 Concrete Wall

This option would involve replacing the existing timber seawall between the rock revetments with a new purpose-built concrete wall. Given the existing beach level in comparison with The Parade, the concrete wall would be about 3-4m in height towards the southern end and this would potentially taper downwards towards the northern end keeping level with The Parade. Concrete walls can take a variety of forms such as stepped, curved, or vertical walls. In the case of Paekākāriki, a linear concrete wall, reducing in height from south to north and including a number of staged access points (concrete steps and access ramps) is envisaged. The concrete wall would integrate with the existing rock revetments at either end.

Assessment Criteria	Rating
Cost red	
Risk of failure	
Degree of difficulty	
Difficulty in obtaining resource consent	
Potential for adverse effects on the environment	
Potential for adverse effects on Paekākāriki community	
Conflicts with Council's Coastal Management Strategy	

- The cost of a concrete wall will be much higher than other options. This is because while other options rely at least to an extent on the existing ground for support, a concrete structure such as this must be completely self-supporting. This generally means excavation or piling to found on hard strata. Once built, a well engineered concrete wall will be the most durable and reliable of the options considered.
- Risk of failure is very low if properly engineered. Coastal defences have traditionally used this material.
- Degree of difficulty may be higher as there may some negative reaction to introducing a completely different hard structure to the coastal environment.
- It would be difficult to obtain a resource consent for a concrete wall at the subject site. Unlike the rock revetment and timber solutions that already form part of the existing coastal environment, introducing a concrete wall would unlikely find favour with GWRC. In addition to having a new hard visual impact, it introduces the similar issues created by the timber seawall – in terms of being impermeable and a deflector of wave energy, low habitat value and issues with public access.
- Potential for adverse effects on the environment – overall these are considered moderate, but again subjective factors will have some impact, including those preferring a timber or rock revetment solution. A concrete wall will generally be reflective of wave energy and therefore will not promote the retention of useable beach.
- Potential for impact on Paekākāriki community is likely to be low assuming the walls work as planned to protect the community and does not block views from private property along The Parade.
- Conflicts with the Coastal Management Strategy – considered moderate because it is a hard structure solution, but not a high conflict as hard solutions are provided for if softer solutions are not feasible. Compared to say a rock revetment, a concrete structure is far less easy to remove.

3.5 Offshore Breakwaters/Reef

Off-shore breakwaters are shore-parallel structures built normally with rock and may consist of one or more structures perhaps 50 to 100 metres long depending on the length of beach to be protected. These may be wholly or partly submerged and are designed basically to reduce wave energy in their lee. At this stage, the details of whether a detached breakwater (exposed) and a reef (submerged) is used are not explored in detail, but rather pros and cons of both are noted.

Assessment Criteria	Rating
Cost	
Risk of failure	
Degree of difficulty	
Difficulty in obtaining resource consent	
Potential for adverse effects on the environment	
Potential for adverse effects on Paekākāriki community	
Conflicts with Council's Coastal Management Strategy	

- The cost of a series of offshore breakwaters will be much higher than most other options. Construction is difficult and large amounts of large armour rock are required. Considerable investigation and planning is required and they are difficult and expensive to construct. The structure is built in the sea so is at higher risk of damage from conditions exceeding the design event. Repairs will be difficult and costly.
- Risk of failure is low if properly engineered. Such defences have been built before but they are not commonplace. However, may be ineffective during storm surge conditions and therefore marked moderate relative to other options.
- Degree of difficulty may be higher as there may some negative reaction to a new form of wall. The breakwaters form considerable obstruction to boats and partially remove the view of the horizon if exposed, when viewed at beach level.
- Although there may well be some merit to this option from a coastal processes perspective, it would be very difficult in obtaining resource consent for this as a full solution as either a submersible or floating structure within the Coastal Marine Area. The assessment of environmental effects investigations to support a resource consent application alone would be a significant undertaking.
- Potential for adverse effects on the environment – this will introduce environmental factors that will require considerable investigation and may be difficult to determine without comprehensive pilot study and environmental impact assessment. Exposed breakwaters will have a high visual impact. There will also likely be some benefits, such as the potential for enhanced marine ecology and some recreational benefits (swimming/surfing).
- Potential for impact on Paekākāriki community will be moderate, assuming they work as planned, but expect community will not like the visual nature of these structures in the water (potentially could be red, subject to community consultation).
- Conflicts with the Coastal Management Strategy – considered counter to most coastal policy and radical alternative to others considered in this report.

4 Discussion

The table below summarises the rating of each option against the assessment criteria. The table shows that even at this higher-level of assessment, there is some differentiation between the options under consideration, with the options to the left of the table having a more favourable rating against assessment criteria than those on the right. This is a good starting point for discussion and community consultation around coastal management options for Paekākāriki.

	Rock Revetment	Timber Wall	Concrete Wall	Offshore Breakwaters / Reef
Cost				
Risk of Failure				
Degree of Difficulty				
Difficulty in obtaining resource consent				
Potential for adverse effects on the environment				
Potential for adverse effects on Paekākāriki community				
Coastal Management Strategy				

Paekākāriki's shoreline has a history of erosion and undoubtedly the erosion hazard remains an ongoing threat to both public and private property in this area. Council has a challenging task in finding the best practicable option for coastal management. This is a high-profile community matter, with an interested local community and recently completed works to the south of The Sand Track perhaps setting an expectation in terms of the level of protection and design amenity.

By all accounts the timber seawall has worked reasonably well as a protection structure, albeit now far exceeding its design life and needing rock toe protection or significant upgrade to remain effective. Similarly, the 4m high rock revetment at the southern end of The Parade is working well as a protection structure as is the rock revetment to the north of the study area. The revetment has a different visual impact than the timber wall and perhaps won't find favour with all – however for this highly erosive shoreline one can either accept the need for a hard structure protection of this sort and scale or otherwise accept coastal erosion and retreat inland.

Based on the above assessment, a hard structure solution will be required for 'holding the current line' now and over at least the next several decades. This report will help to inform future consultation and discussion to decide what solution will be the best practicable option to protect Paekākāriki's shoreline.

As stated earlier in this report, we understand that the community is highly interested in the potential impacts (short- and long-term) of these options under consideration. Options are presented at a high-level only and specific design details of amenity, landscaping, access to the beach and impact on The Parade will be matters to be addressed as this project progresses. The future of The Parade will be a key matter to discuss, including the width of the road and opportunity for flexibility in design of the coastal protection structure (ie landward rather than further seaward). Although this is a highly erosive shoreline, retention and management of useable beach is also a key discussion point – some of the options under consideration such as timber and concrete walls will likely detract from that desire given their reflective nature.

We anticipate that the Paekākāriki community will have many ideas and significant local knowledge to feed into the decision-making process. Council is committed to providing the community the available background information to support decision-making; seek feedback on criteria to ensure they reflect community values; develop early concept plans in consultation with the community and ultimately design and consent the best practicable option for the study area.

5 Next Steps

The findings of this report will be used to help inform further community consultation and decision-making around coastal management of Paekākāriki's coastline. The key steps in the process are:

i. This options report for discussion;

ii. Community consultation;

iii. Feedback Community Board;

iv. Further investigation and recommendation on a preferred solution;

v. Final recommendation to Council on a preferred solution;

vi. Council decision – approval to progress the solution to planning approvals and design/build;

vii. Planning approvals process; and

viii. Construction (indicative start 2015).

Looking southwards along The Parade

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Appendix C

Paekākāriki Seawall Design Statement

Report

Paekākāriki Seawall Design Statement

Prepared for Kapiti Coast District Council

Prepared by Beca Ltd (Beca)

20 July 2015

Revision History

Revision Nº	Prepared By	Description	Date
A	Anne Lassé	For Resource Consent	20-July-2015

Document Acceptance

Action	Name	Signed	Date
Prepared by	Anne Lassé and Nathan Baker		20-July-2015
Reviewed by	Wade Robertson		20-July-2015
Approved by	Nathan Baker		20-July-2015
on behalf of	Beca Ltd		

1 Project Description

The coastal settlement of Paekākāriki is a tightknit community with a strong affinity with the coast. The Paekākāriki seawall project occupies the coastal edge between Sand Track and 124 The Parade. This stretch of coast is 960m in length and spans from the existing road seal edge of The Parade to the existing timber seawall.

This design statement should be read in conjunction with the Paekākāriki Coastal Edge Preliminary Concept Revision K dated August 2015.

2 Methodology

The existing timber sea wall at Paekākāriki has exceeded its original 20-year design life and needs to be replaced. Council has worked collaboratively with the community over the past two years to assess replacement options and select a preferred preliminary concept to take forward to resource consent stage. The key background tasks have included:

- **Initial Option Assessment Report, April 2013** – This Report considered a range of potential coastal protection options and assessed options against economic, environmental, technical and community values. Some options were discounted and others taken forward based on that report;
- **Community Open Day, May 2013** – This Open Day presented the findings of the Option Assessment Report and visual simulation of a number of high-level options;
- **Community Design Group process, last quarter 2013** – A community design group option was introduced for relative assessment against other high-level options;
- **Community Board Meeting to present the five short-listed options, January 2014** – Options presented were rock revetment; timber wall; concrete wall; community design group option and split revetment;
- **Community Design Group process 2014** – High-level costing of the five short-listed options presented. Refinement of options to a hybrid of rock-concrete-timber to reduce costs while still meeting community values;
- **Geotechnical investigation, last quarter 2014** – Completed to provide further information on ground conditions to refine design and costings;
- **Community Design Group process early 2015** – Workshops and refinement of a stepped-solution consisting of timber wall, concrete steps, and a rock wall.
- **Community Open Day, 2 May 2015** – To present the stepped-solution consisting of timber/concrete wall, concrete steps, and a rock wall as a preferred preliminary concept and seeking feedback on the overall design, mix of treatment materials, access points and accessibility.

- **Resource Consent Application, May 2015-present** – Community Board endorsement of preferred preliminary concept, further stakeholder consultation and preparation of resource consent application.

To assist in the development of an option that provides the appropriate level of protection from coastal erosion and also meets the communities' expectations with regard to amenity and visual impacts, the Paekākāriki Community Design Group was established. This voluntary group of local experts has worked closely with the Community Board and Council staff to develop the preferred preliminary concept. This has been a collaborative community-led design process, systematically working through option refinement based on community values, affordability and a design life of at least 50 years.

It is important to note that the project is at preliminary concept only and there will likely be opportunity for further refinement at developed and detailed design stage following resource consent. The current preliminary concept is for a stepped-solution consisting of timber or concrete front wall, concrete steps, a middle walkway and a rock wall. The exact details of the final mix of material treatments (timber, concrete and rock); the exact design and location of access points and steps; plantings; seating; and public art will be resolved during future design stages.

This is a significant community project for Paekākāriki. The existing timber seawall is a well-established feature of the coastal environment and an important part of Paekākāriki's history. The proposed preliminary concept to replace it has been developed through extensive community consultation and working collaboratively with the Paekākāriki Community Design Group. Overall, the new proposed seawall will have a number of positive effects - not only in terms of on-going protection for The Parade, but also in terms of improved amenity and public access to and from the beach.

3 Design Overview

The aim of the landscape design for the Paekākāriki Seawall is to provide a solution to the existing seawall erosion issue which also provides for public amenity, beach access and a positive user experience. The key elements that form part of the design include:

- A setting for the local residents in which they can reclaim and occupy the coastline;
- Creation of a destination where people can experience the elements, have views to the sea and reconnect with nature;
- Connection to the surrounding street network, key pedestrian routes and local amenity areas including Campbell Park;
- Formation of an engineered rock revetment and seawall (timber or concrete);
- Enhanced access to the beach with the inclusion of steps and ramps at key nodes;
- A split level edge treatment which allows for a full length coastal pathway and seating areas below road level;

- Minimising impacts on the existing coastal edge by ensuring the wall is no further seaward than what exists now;
- High quality landscape treatment that reflects the character of Paekākāriki;

The following key criteria have been considered throughout the design process.

3.1 Connectivity

The design provides for the following connections:

- Connection to the existing coastal pathway at the south end of the proposal;
- Connection to sand track – a key pedestrian link from Wellington Road to The Parade;
- Connection from road level to the coastal pathway and down to the beach at eight locations, with the major access point being opposite Campbell Park.

3.2 Character

The design reflects the raw nature of the coastal environment and acknowledges the cultural identity of Paekākāriki through the community driven design process. The design enhances the overall landscape experience; one that has a strong sense of place and is unified through common elements such as furniture, planting and materials. In addition, there is opportunity to provide a real sense of identity to this place through engaging with local artists. This may be in the form of sculptures or motifs and signage. Furniture, materials and plants all play a key role in the character of a place and are therefore further explained below.

3.3 Furniture and materials

The furniture and materials selected are bold and raw, reflecting the costal environment and including timber, rock and concrete. Both timber and rock provide a natural aesthetic with timber also being symbolic of the existing seawall.

The coastal pathway surface material will be exposed aggregate concrete providing durability and an aesthetic that is expressive of the way that natural wave action erodes and exposes the coastal edge. Concrete also features in wall elements and steps and has a raw and edgy feel to it. The colour and scale are complementary to the surrounding landscape.

3.4 Planting Palette

The existing vegetation plays a significant role in the expression of the exposed nature of the site as it has taken on a strong windswept form. With areas of existing planting needing to be removed the design proposes to reinstate areas of native planting and this will help to naturalise the coastal edge as well as playing an important role in creating a sense of place. The planting palette chosen for the proposal comprises species native to the area and therefore is reflective of the natural and cultural history of Paekākāriki.

3.5 Opportunities

Key Opportunities and future design refinement

During future design stages the following opportunities will be considered and developed further:

- Refinement of key aspects of the design, including furniture and wall finishes to further develop the design narrative and express the natural and cultural history of Paekākāriki.
- Incorporation of the existing storm water outlets needs resolving. The intention is to incorporate this into the design of the seawall and rock revetment.
- Refinement of the final ground/ finish levels to accommodate further ramp access and to soften these transition points.
- The project would benefit from areas of road narrowing and traffic speed control to further enhance pedestrian connections.

4 Feedback from Community Open Day 2 May 2015

The Open Day on 2 May was well attended with about 60 people sharing their views of the concept designs. A total of 34 written submissions were also received following the Open Day. The following key themes came through from that community feedback:

4.1 Overall Concept

Overall, there was a general consensus that the existing timber wall needed replacement. Feedback was largely in support of the overall preliminary concept, being a vertical front wall of similar height to the existing timber wall (either timber or concrete), a middle walkway, and a top rock revetment between the walkway and the parade roadway. This stepped concept was generally supported.

4.2 Accessibility

Accessibility was raised as a key theme in terms of opportunities to access the beach along the seawall. Access for the elderly and disabled was also raised as a key consideration. Some support for the 'concrete' option was in relation to the increased accessibility aspect – i.e. more steps along the beach linking beach to the middle walkway.

4.3 Resilience

Design life and resilience of the seawall was raised as a key consideration. There was a general understanding that Council must work within an appropriate budget for this project, however cost should not compromise the longevity of the seawall chosen. The seawall has been designed with a 50-year design life. This is a relatively standard design life for such a coastal structure and has regard to the future potential impacts of climate change and also potential changes to the future approaches to coastal management. Both timber and concrete treatment of the front wall can meet this 50-year design life.

Concrete does have the potential to have an extended life beyond timber.

4.4 Future Design Matters

A number of matters were raised at the community open days that at are most appropriately addressed during future design phases, rather than preliminary concept matters for resource consenting. Such matters included:

- Final details of the treatment of the seawall, including the mix of timber and concrete;
- Final details of the access locations and design;
- Final design of the stormwater outlets and how they integrate with the seawall.
- Seating design and arrangement
- Waste disposal design
- Public art design.
- Penguin boxes in the wall
- Provision of bike stands
- Narrowing the Parade and options for traffic calming.

5 Tāngata Whenua

Tāngata whenua have a strong physical and spiritual connection to the coastal environment. The tāngata whenua of the District are Te Āti Awa ki Whakarongotai, Ngāti Raukawa, Ngāti Toa Rangatira, including their whānau and hapū.

In terms of cultural effects, this is a relatively straightforward application to replace an existing seawall with a new proposed seawall. The overall outcome will be positive in that The Parade will continue to be protected from coastal erosion and there will be an improvement of beach access and amenity. This is positive for the community and people of the district, of which iwi are an integral part.

Rather than any adverse cultural effects, there is opportunity to incorporate cultural design elements and narratives during future design phases should iwi be interested. For this application, we have engaged primarily with Jennie Smeaton and Carol Reihana, Ngāti Toa Rangatira. The feedback has been positive in terms of support for the collaborative process of working with the Community Design Group towards the preferred concept.

Tāngata whenua will be interested in having involvement and input into the design, with opportunity to integrate cultural values into the design of the seawall, either through pou markers, cultural design and art along the seawall and coastal edge.

Appendix D

Paekakariki Coastal Edge Geotechnical Factual Report

Report

KCDC Paekakariki Coastal Edge Geotechnical Factual Report

Prepared for Kapiti Coast District Council (KCDC)

Prepared by Beca Ltd (Beca)

10 November 2014

Revision History

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1	Kylie Johnson	Draft Report for Client Comment	9/10/2014
2	Kylie Johnson	Final	10/11/2014
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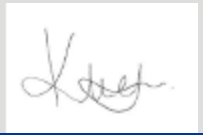
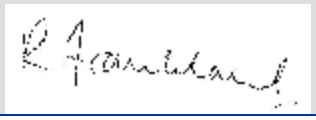
4			
5			

Document Acceptance

Action	Name	Signed	Date
Prepared by	**Kylie Johnson**		10/11/2014
Reviewed by	**Harry Wahab**		10/11/2014
Approved by	**Richard Frankland**		10/11/2014
on behalf of	Beca Ltd		

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Appendices

Appendix A

Exploratory Hole Location Plan

Appendix B

Machine Borehole Logs

Appendix C

Machine Borehole Photographs

Appendix D

Test Pit Logs

Appendix E

Test Pit Photographs

Appendix F

Laboratory Testing Results

1 Introduction

Beca Ltd (Beca) has been commissioned by Kapiti Coast District Council (KCDC) to assist in the development of potential options to replace the existing seawall, located along the beach adjacent to The Parade, Paekakariki. The scope of services undertaken by Beca is presented within our letter titled 'Paekakariki Coastal Protection – Ground Investigation Scope and Cost Estimate', dated 4 August 2014.

This report presents the factual data obtained from the geotechnical investigations.

1.1 Object and Scope of Investigations

Site investigations were undertaken along The Parade in Paekakariki. These investigations were scoped in order to confirm the soil profile and inform the detailed design and construction of the proposed seawall replacement.

This report presents the results of the ground investigations. No interpretation of the data collected has been undertaken.

1.2 Site Location and Description

The seawall is approximately 960m long, extending parallel to The Parade, Paekakariki, from Sand Track in the south to 124 The Parade in the north. The seawall comprises two different forms, either a 1.5m high timber pole retaining wall tied back to railway irons or a rock revetment. The carriageway of The Parade road is elevated approximately 1.5m – 4.0m above the beach. The Parade provides access to the beach, local amenities and coastal properties.

2 Field Investigations

Field investigations commenced on 22 September 2014 and were completed by 09 October 2014. The investigations comprised three machine drilled boreholes and two machine excavated test pits. The locations of the exploratory holes are presented in Appendix A. The field investigations were monitored and logged by a Beca Engineering Geologist.

A list of standards used during the field investigations are listed in Table 1, below.

Table 1: Summary of Standards Used in the Ground Investigations.

Field Procedure	Standard Used
Soil and Rock Logging	In general accordance with New Zealand Geotechnical Society Guidelines (NZGS, 2005).
Scala Penetrometer Testing	NZS4402: 1986, test 6.5.2 1988. New Zealand Standards – Methods of Testing Soils for Civil Engineering purposes
Standard Penetration Testing	ASTM D 1586 Rev A, 2008

2.1 Machine Boreholes

Machine boreholes were drilled by Griffiths Drilling (NZ) Ltd (Griffiths) using a 'FRASTE Sonic Samp' drill rig. Drilling was undertaken using the sonic drilling technique. Sonic drilling involves high frequency vibrations transmitted through the drilling rods liquefying the soil around and in front of the rods, allowing the drill string to fall in to the hole. In practice, the core barrel is first vibrated down, and then a larger diameter casing is vibrated around the core barrel to the target depth before the core barrel and sample are retrieved. A summary of all machine boreholes undertaken is provided in Table 2 below.

Table 2: Summary of Boreholes Drilled

BH Number	Location	Easting	Northing	Approximate Ground Level (m RL)	Total Depth (m)
BH1	Opposite the Sand track	1764228	5461343	4	21.50
BH2	Outside Community Centre	1764475	5461771	5	12.23
BH3	Opposite 130 The Parade	1764741	5462245	4	18.35
	Notes: All survey coordinates are in terms of NZTM, obtained from handheld GPS (stated accuracy ±5m). All Reduced Levels (RLs) are taken from Google Earth ™, which adopts the 'WGS84' Datum.				

In-situ testing comprised standard penetration tests, typically carried out at nominal 1.5m centres. The uncorrected N-values are recorded on the borehole logs.

All core samples were logged on site by a Beca Engineering Geologist. Machine borehole logs are presented in Appendix B and core photographs in Appendix C. A borelog key sheet is provided to clarify symbols used on the logs. After the core samples had been logged, they were placed in labelled core boxes before being transferred to Griffiths' yard for storage. The core samples will be stored for a period of three months following the delivery of this report.

Upon completion, all boreholes were backfilled with GAP 40 gravel and capped with a cold mix asphalt seal, which was compacted with hand tools.

2.2 Test Pits

Griffiths excavated test pits using a 12 tonne Hitachi Zaxis 120 excavator. The pits were approximately 3.5m by 1.0m in plan area and ranged from 2.8m to 3.1m in depth. Material excavated from the test pit was logged and sampled by a Beca Engineering Geologist. A summary of all test pits undertaken is provided in Table 3 below. The test pit logs are presented in Appendix D and the photographs in Appendix E.

Table 3: Summary of Test Pits Excavated

TP Number	Location	Easting	Northing	Approximate Ground Level (m RL)	Total Depth (m)
TP01	Opposite 80 The Parade	1764367	5461579	4	2.8
TP02	Opposite 108 The Parade	1764604	5461579	3	3.1
	Notes: All survey coordinates are in terms of NZTM, obtained from handheld GPS (stated accuracy ±5m). All Reduced Levels (RLs) are taken from Google Earth ™, which adopts the 'WGS84' Datum.				

One test pit listed in the ground investigation scope was not completed because a suitable location was not found along the seawall edge.

In-situ testing comprised Scala penetrometer testing within the test pit. Scalas were terminated at shallow depth because of instability in the test pits walls.

Bulk samples were taken from the beach in front of and within each test pit.

Upon completion, all test pits were backfilled and compacted with the excavated materials in typically 300mm increments.

2.3 Groundwater

Test pit groundwater levels were observed as seepage during excavation, and the borehole water levels were dipped the morning after drilling had been completed. At the time of measurement, casing had been removed and the boreholes had collapsed to the depths reported in Table 4 below.

Table 4 Groundwater Measurements

Investigation Number	Date/Time of Measurement	Depth to Collapse (m bgl)	Depth to Groundwater (m bgl)
BH01	24/09/2014 0830 hrs.	3.35	Dry
BH02	26/09/2014 1200 hrs.	3.2	Dry
BH03	23/09/2014 0830 hrs.	5.2	2.9
TP01	25/09/2014 1500 hrs.	2.8	2.7
TP02	25/09/2014 1300 hrs.	3.1	3.1

3 Laboratory testing

Disturbed samples were collected from machine boreholes and bulk samples were obtained from the test pits and at the beach front.

Geotest Ltd carried out testing of these samples. The tests undertaken, and the testing specifications, were as follows:

- Natural Moisture Content: NZS4402, 1986; test 2.1
- Wash Grading: NZS4402, 1986; test 2.8.1 (wet sieve)

The results of the laboratory testing are given in Appendix F together with a summary of the tests carried out.

4 Applicability Statement

This report has been prepared by Beca on the specific instructions of our Client. It is solely for our Client's use for the purpose for which it is intended in accordance with the agreed scope of work. Any use or reliance by any person contrary to the above, to which Beca has not given its prior written consent, is at that person's own risk.

This is a factual report of field investigations. The field investigations have been undertaken at discrete locations and no inferences about the nature and continuity of ground conditions away from the investigation locations are made. Furthermore logs are provided presenting description of the soils and geology based on our observation of the samples recovered in the fieldwork and may not be truly representative of the actual underlying conditions.

No interpretation of the investigation results has been made in this report. Should you be in any doubt as to the applicability of this report for the proposed development described herein, it is essential that you carry out independent investigations to satisfy your needs.

5 References

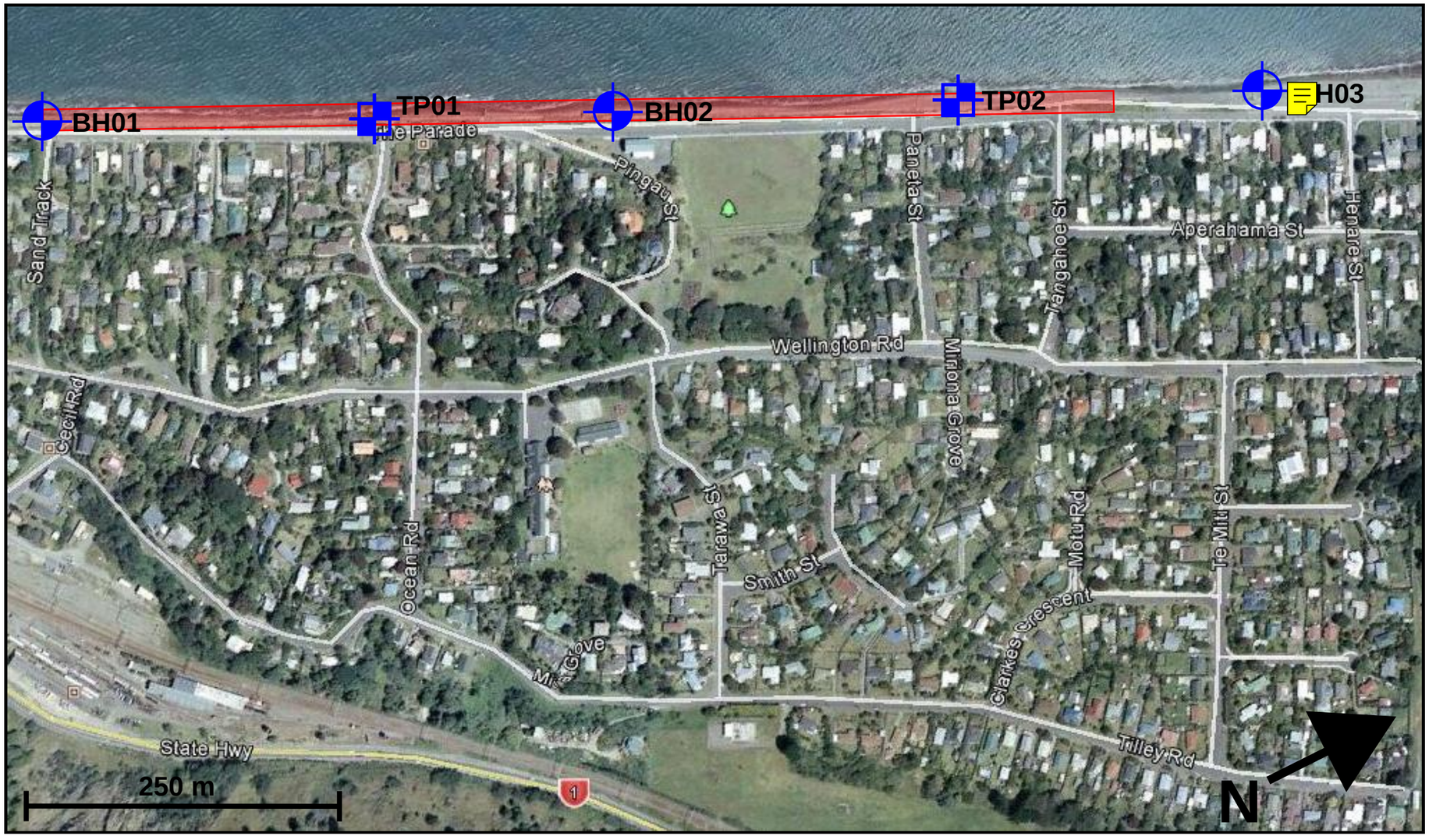
ASTM D 1586 REV A Standard Test Method for Standard Penetration Test (SPT) and Split-Barrel Sampling of Soils

NZ Geotechnical Society, 2005: Field Description for Soil and Rock

NZS4402: 1986, test 6.5.2 1988. New Zealand Standards – Methods of Testing Soils for Civil Engineering purposes

Appendix A

Exploratory Hole Location Plan



Key

Machine Borehole

Test Pit

Approximate position of seawall

Notes

The proposed Seawall is 960m long. The wall starts at the Sand Track and terminates at 124 The Parade (past Tangahoe Road).

PDF ONLY
NO DWG FILE

No.	Revision	By	Chk	Appd	Date
A	ISSUED FOR INFORMATION	BE	KJ	HW	8/10/14

Drawing Originator: Beca

Original Scale (A1)

Reduced Scale (A3)

Design	BE	8/10/14	Approved For Construction*
Drawn	BE	8/10/14	
Dsg Verifier	HW	8/10/14	
Dwg Check	KJ	8/10/14	Date

* Refer to Revision 1 for Original Signature

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI COASTAL PROTECTION PROJECT

Title: EXPLORATORY HOLE LOCATION PLAN

Discipline: GEOTECHNICAL

Drawing No.: 4261160 - SK - 601

Rev.: A

DO NOT SCALE

IF IN DOUBT ASK.

Appendix B

Machine Borehole Logs

BOREHOLE LOG KEY SHEET

CLASSIFICATION
Based on USBR Unified Soil Classification System

WATER

Water level on date shown

METHOD
shows drilling method

OB	open barrel
Wash	wash boring
TT	triple tube
UT	thin walled undisturbed tube
SPT	standard penetration test
MA	machine auger
PS	piston sample

SAMPLES

Dx	Disturbed sample, number x
Bx	Bulk sample, number x
Ux(d)	Undisturbed sample, number x, tube diameter d in mm
Wx	Water sample, number x

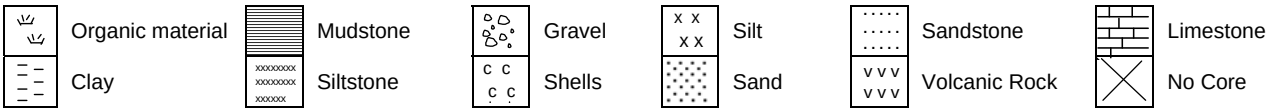
MOISTURE

D	Dry, looks and feels dry
M	Moist, no free water on hand when remoulding
W	Wet, free water on hand when remoulding
S	Saturated, soil below water table

CONSISTENCY

Cohesive Soils		Undrained Shear Strength (kPa)	Non-cohesive Soils		SPT – Uncorrected
VS	Very soft	<12	VL	Very loose	0 to 4
S	Soft	12 to 25	L	Loose	4 to 10
F	Firm	25 to 50	MD	Medium dense	10 to 30
St	Stiff	50 to 100	D	Dense	30 to 50
VSt	Very stiff	100 to 200	VD	Very dense	>50
H	Hard	>200			

GRAPHIC LOG (1 or a combination of the following)



ORGANIC SOILS
Von Post Classification

H1	Completely unconverted and mud-free peat, when pressed gives clear water and plant structure is visible.
H2	Practically unconverted and mud-free peat, when pressed gives almost clear water and plant structure is visible.
H3	Very slightly decomposed or very slightly muddy peat, when pressed gives marked muddy water, no peat substance passes through the fingers and plant structure is less visible.
H4	Slightly decomposed or slightly muddy peat, when pressed gives marked muddy water and plant structure is less visible.
H5	Moderately decomposed or very muddy peat with growth structure evident but slightly obliterated.
H6	Moderately decomposed or very muddy peat with indistinct growth structure.
H7	Fairly well decomposed or very muddy peat but the growth structure can just be seen.
H8	Well decomposed or very muddy peat with very indistinct growth structure.
H9	Practically decomposed or mud-like peat in which almost no growth structure is evident.
H10	Completely decomposed or mud peat where no growth structure can be seen, entire substance passes through the fingers when pressed.

SOIL AND ROCK DESCRIPTIONS
Soil and Rock Descriptions are generally as described in the NZ Geotechnical Society "Field Description of Soil and Rock – Guideline for the Field Classification and Description of Soil and Rock for Engineering Purposes", dated December 2005.
Vane Shear Strength measurements in accordance with the NZ Geotechnical Society "Guideline for hand held shear vane test" dated August 2001.

INSITU TESTS

SV	= 40/10	Insitu shear strength and remoulded shear strength respectively, as measured by Pilcon Shear Vane
τ	= 50/12	Vane shear strength and remoulded vane shear strength respectively, corrected to BS1377
UTP	=	Unable To Penetrate with Shear Vane
N	= 15	SPT uncorrected blow count for 300mm penetration

★	**Laboratory Test(s) carried out:**
AL	Atterberg limits
UU	Unconsolidated undrained triaxial
PSD	Particle size
CU	Consolidated undrained triaxial
CONS	Consolidation
COMP	Compaction
UCS	Unconfined compression

WEATHERING

CW	Completely weathered
HW	Highly weathered
MW	Moderately weathered
SW	Slightly weathered
UW	Unweathered

BOREHOLE No: BH01

MACHINE BOREHOLE LOG

SHEET 1 of 3

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Opposite the Sand Track

COORDINATES: N 5,461,343 m — R L: 4 m

E 1,764,228 m — DATUM: WGS84

DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
				Asphalt (100mm).		
		GP	M	'Medium dense', fine to coarse GRAVEL, some medium to coarse sand; brown; moist, non plastic. Gravel: SW, angular, greywacke. **[BASECOURSE]**		
		SP	M	Medium dense, fine to coarse SAND, minor fine gravel; brown; moist, non plastic. Gravel: UW, rounded, greywacke.		
1						3
				1.8m, trace shell fragments.		
2				1.9m, trace wood.		2
		SP	M	Wood.		
				Medium dense, fine to medium SAND, minor shell fragments; brown; moist, non plastic. 2.2m, trace shell fragments.		
3			W	Wet		1
				Brown mottled orange.		
4						0
				Loose.		
		SP	W	Loose, coarse SAND, minor wood, minor fine to medium gravel; orange - brown; wet, non plastic. Gravel: SW, rounded, greywacke.		
5		SP	W	Medium dense, fine to medium SAND; grey; wet, non plastic. 4.9m, very thin (10mm) fibrous organic bed.		-1
		PT	W	ORGANICS; spongy, fibrous (decomposing seaweed and wood); dark brown; wet.		
		SP	W	'Loose', coarse SAND; brown; wet, non plastic.		
		PT	W	ORGANICS; spongy, fibrous (decomposing seaweed and wood); dark brown; wet.		
6		SP	W	Medium dense, fine to medium SAND, trace fine gravel; grey; wet, non plastic. Gravel: UW, rounded, greywacke.		-2
7						-3
8						-4
9				Trace shell fragments.		-5

Quaternary Beach Deposits

DRILLING						IN-SITU TESTS			SAMPLES
FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	RQD	CASING	SV	τ (kPa)	SPT 'N'	
		0 %	Vaccum Excavation						
		55 %	SPT					1 0 5 2 2 2 N=11	
		100 %	Sonic						
		75 %	SPT					3 2 4 3 4 5 N=16	
		100 %	Sonic						
		82 %	SPT					1 2 1 2 2 2 N=7	
		100 %	Sonic						
		100 %	SPT					2 2 3 3 34 N=13	
		100 %	Sonic						
		82 %	SPT					2 2 3 3 3 4 N=13	
		100 %	Sonic						
		100 %	SPT					2 2 4 5 6 7 N=22	
		100 %	Sonic						

DATE STARTED: 23/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 23/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Heaving sands at 4.3m. Groundwater not encountered (at 0830hrs, 24/09/2014), hole collpased to 3.35m. 0.0 - 1.6m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\426\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

BOREHOLE No: BH01

MACHINE BOREHOLE LOG

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Opposite the Sand Track

COORDINATES: N 5,461,343 m — R L: 4 m

E 1,764,228 m — DATUM: WGS84

DRILLING: FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
			Sonic					3				SP	W	Medium dense, fine to medium SAND, trace fine gravel, trace shell fragments; grey; wet, non plastic. Gravel: UW, rounded, greywacke.		
		80 %	SPT					2 4 6 7 8 N=25		11						-7
		100 %	Sonic													
		80 %	SPT					4 3 6 6 8 8 N=28		12						-8
		100 %	Sonic							13						-9
		100 %	SPT					3 2 1 2 3 4 N=10		14			S	Saturated.		-10
		100 %	Sonic													
		62 %	SPT					3 3 5 5 6 8 N=24		15						-11
		100 %	Sonic							16						-12
		100 %	SPT					2 3 5 4 5 8 N=22				SP	W	Medium dense, shelly medium to coarse SAND; grey; wet, non plastic.		
												SP	W	Medium dense, fine SAND, minor silt; grey; wet, non plastic.		
		100 %	Sonic							17		SP	W	Medium dense, fine to medium SAND; grey; wet, non plastic.		-13
		66 %	SPT					5 5 8 9 11 12 N=40		18				Dense.		-14
		100 %	Sonic							19				19.0m, minor shell fragments. 19.1m, fine to coarse sand, trace shell fragments, trace fine rounded gravel.		-15
		100 %	SPT					1 0 3 2				SP	S	19.35 - 19.4m, fine to medium sand. Medium dense, medium to coarse SAND, minor shell fragments, minor fine gravel; grey; saturated, non plastic. Gravel: UW, rounded, greywacke.	**Quaternary Beach Deposits** *(Contd.)*	

DATE STARTED: 23/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 23/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Heaving sands at 4.3m. Groundwater not encountered (at 0830hrs, 24/09/2014), hole collpased to 3.35m. 0.0 - 1.6m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\426\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

BOREHOLE No: BH01

MACHINE BOREHOLE LOG

SHEET 3 of 3

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Opposite the Sand Track

COORDINATES: N 5,461,343 m — R L: 4 m

E 1,764,228 m — DATUM: WGS84

DRILLING: FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	RQD	CASING	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
		100 %	Sonic					3 4 N=12				SP	S	Medium dense, medium to coarse SAND, minor shell fragments, minor fine gravel; grey; saturated, non plastic. gravel: UW, rounded, greywacke.	Pleistocene Beach Deposits	
		77 %	SPT					7 8 11 14 14 11 for 60mm N=50+		21		SP	S	Very dense, fine SAND; grey; saturated, non plastic.		-17
														END OF LOG @ 21.5 m		
										22						-18
										23						-19
										24						-20
										25						-21
										26						-22
										27						-23
										28						-24
										29						-25

DATE STARTED: 23/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 23/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Heaving sands at 4.3m. Groundwater not encountered (at 0830hrs, 24/09/2014), hole collpased to 3.35m. 0.0 - 1.6m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\426\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 1 of 2

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Outside Community Centre

COORDINATES: N 5,461,771 m — R L: 5 m

E 1,764,475 m — DATUM: WGS84

DRILLING: FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
		0 %	Vaccum Excavation							0			D	Asphalt (100mm).		
												GP	D	'Medium dense', fine to coarse GRAVEL, minor medium to coarse sand; brown, dry, non plastic. Gravel: SW, angular greywacke. **[BASECOURSE]**		
												SP	M	Loose, fine to medium SAND; brown; moist, non plastic.		
		100 %	SPT					0 1 0 0 1 1 N=2		1						4
		80 %	Sonic													
										2						3
														2.65 - 2.8m, no recovery.		
		80 %	SPT					2 2 1 1 2 2 N=6				SP	S	Loose, fine to coarse SAND; brown; saturated, non plastic.		2
		100 %	Sonic							3				3.1m, trace fine gravel: UW, angular, greywacke. 3.25m, greyish brown mottled brown.		
														3.7m, thin silt bed (40mm).		
		88 %	SPT					1 2 2 2 3 4 N=11		4				4.34m, medium dense, fine to medium sand.		1
		100 %	Sonic											4.65m, thin coarse sand bed (30mm).		
										5						0
												SP	W	Medium dense, fine to medium SAND, some shell fragments, trace fine gravel; grey; wet, non plastic. Gravel: UW, rounded, greywacke. 5.4m, no shell fragments. 5.7 - 5.75m, some fibrous organics. (wood)	**Quaternary Beach Deposits**	
		100 %	SPT					5 4 3 4 5 5 N=17		6						-1
														6.1 - 6.12m, some shell fragments. 6.2 - 6.35m, minor amorphous organics.		
		100 %	Sonic											6.45 - 6.5m, minor amorphous organics.		
										7				6.75m, trace shell fragments.		-2
		71 %	SPT					2 2 2 3 3 4 N=12								
		100 %	Sonic							8						-3
		88 %	SPT					2 2 3 4 5 6 N=18								
		100 %	Sonic							9						-4

DATE STARTED: 24/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 24/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Groundwater not encountered (at 1200hrs, 26/09/2014), hole collpased to 3.2m. 0.0 - 1.6m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\426\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

BOREHOLE No: BH02

MACHINE BOREHOLE LOG

SHEET 2 of 2

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Outside Community Centre

COORDINATES: N 5,461,771 m — R L: 5 m

E 1,764,475 m — DATUM: WGS84

DRILLING: FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	RQD	CASING	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
		100 %	Sonic					2				SP	W	Medium dense, fine to medium SAND, trace shell fragments, trace fine gravel; grey; wet, non plastic. Gravel: UW, rounded, greywacke.	**Quaternary Beach Deposits** *(Contd.)*	
		88 %	SPT					4 6 6 8 9 N=29		11						-6
		100 %	Sonic													
		88 %	SPT					2 3 4 6 8 11 N=29		12						-7
														END OF LOG @ 12.23 m		
										13						-8
										14						-9
										15						-10
										16						-11
										17						-12
										18						-13
										19						-14

DATE STARTED: 24/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 24/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Groundwater not encountered (at 1200hrs, 26/09/2014), hole collpased to 3.2m. 0.0 - 1.6m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\4264261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

BOREHOLE No: BH03

MACHINE BOREHOLE LOG

SHEET 1 of 2

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Opposite 130 The Parade

COORDINATES: N 5,462,245 m — R L: 4 m

E 1,764,741 m — DATUM: WGS84

DRILLING: FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	ROD	CASING	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
		0 %	Vaccum Excavation							0		GW	D	Asphalt (100mm).		
												SP	D	'Medium dense', fine to coarse GRAVEL, minor medium to coarse sand; brown; dry, non plastic. Gravel: SW, angular greywacke **[BASECOURSE]**		
														Loose, fine to medium SAND; brown; dry, non plastic.		
		88 %	SPT					3 2 1 2 1 2 N=6		1						3
														Minor shell fragments.		
		44 %	Sonic							2				Trace shell fragments.		2
														2.1 - 2.66m, no recovery.		
													M	ORGANICS, fibrous (wood), minor fine to medium sand; brown; moist.		
	23/09/2014	84 %	SPT					1 1 1 1 1 2 N=5		3		SP	W	Loose, fine to medium SAND, some fibrous organics (wood), minor silt; brown; wet, non plastic.		1
														3.09m, minor organics.		
														3.31m, some organics; grey.		
		100 %	Sonic									SP	M	Medium dense, fine to coarse SAND; grey; moist, non plastic.		
										4				3.91m, brown.		0
		100 %	SPT					2 2 3 3 4 5 N=15						4.3m, some shell fragments; brownish grey. 4.4m, trace shell fragments.		
														4.75 - 4.85m, some shell fragments, trace fine gravel: UW, rounded, greywacke.		
		100 %	Sonic							5				5.25 - 5.3m, some shell fragments, trace fine gravel: UW, rounded, greywacke. 5.35 - 5.4m, thin organic silt beds. 5.4 - 5.5m, some shell fragments, trace fine gravel: UW, rounded, greywacke.		-1
		51 %	SPT					2 2 2 2 2 2 N=8						5.7m, fine to medium sand. 5.79m, loose; grey.		
										6				6.24m, trace fine gravel: UW, rounded, greywacke.		-2
		100 %	Sonic												Quaternary Beach Deposits	
		100 %	SPT					3 3 4 5 6 7 N=22		7			W	Medium dense, wet.		-3
		100 %	Sonic							8				8.6 - 8.65m, some shell fragments.		-4
		100 %	SPT					1 2 5 6 6 6 N=23		9				9.2m, thin coarse sand bed (30mm).		-5
		100 %	Sonic													

DATE STARTED: 22/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 22/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Heaving sands at 8.9m. Groundwater measured at 0830hrs, 24/09/2014. 0.0 - 1.15m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\4264261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

BOREHOLE No: BH03

MACHINE BOREHOLE LOG

SHEET 2 of 2

PROJECT: Paekakariki Coastal Edge — JOB NUMBER: 4261160

SITE LOCATION: The Parade, Paekakariki — CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM — BOREHOLE LOCATION: Opposite 130 The Parade

COORDINATES: N 5,462,245 m — R L: 4 m

E 1,764,741 m — DATUM: WGS84

DRILLING: FLUID LOSS	WATER LEVEL	CORE RECOVERY	METHOD	RQD	CASING	IN-SITU TESTS: SV	τ (kPa)	SPT 'N'	SAMPLES	DEPTH (m)	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	R L (m)
		100 %	SPT					2 2 5 5 5 9 N=24		11		SP	M W	Medium dense, fine to medium SAND, trace fine gravel, trace shell fragments; grey; wet, non plastic. gravel: UW, rounded, greywacke.	**Quaternary Beach Deposits** *(Contd.)*	-7
		100 %	Sonic											10.4 - 10.45m, some coarse sand.		
		100 %	SPT					3 7 9 10 11 12 N=42		12				Dense		-8
		100 %	Sonic											12.2 - 12.25m, some coarse sand.		
		100 %	SPT					3 3 5 6 11 11 N=33		13						-9
		100 %	Sonic							14						-10
		100 %	SPT					3 6 9 11 14 16 for 70mm N=50+		15				Very dense.		-11
		100 %	Sonic											No shell fragments.		
		100 %	SPT					2 3 10 12 14 14 for 60mm N=50+		16						-12
		100 %	Sonic							17				16.9 - 16.95m, some shell fragments.		-13
		100 %	SPT					6 9 10 13 15 12 for 60mm N=50+		18				17.75 - 17.9m, core disturbed by drilling. 18.05 - 18.1m, some shell fragments, trace fine gravel: UW, rounded, greywacke.		-14
														END OF LOG @ 18.35 m		
										19						-15

DATE STARTED: 22/9/14 — DRILLED BY: Griffiths Drilling (NZ) Ltd

DATE FINISHED: 22/9/14 — EQUIPMENT: SonicSamp Drill CRS-F-XL Duo

LOGGED BY: KMJ — DRILL METHOD: Sonic

SHEAR VANE No: N/A — DRILL FLUID: Water

DIAMETER/INCLINATION: 140 mm / 90°

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Heaving sands at 8.9m. Groundwater measured at 0830hrs, 24/09/2014. 0.0 - 1.15m logged downhole during vacuum excavation.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:50

MACHINE_BOREHOLE P:\426\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

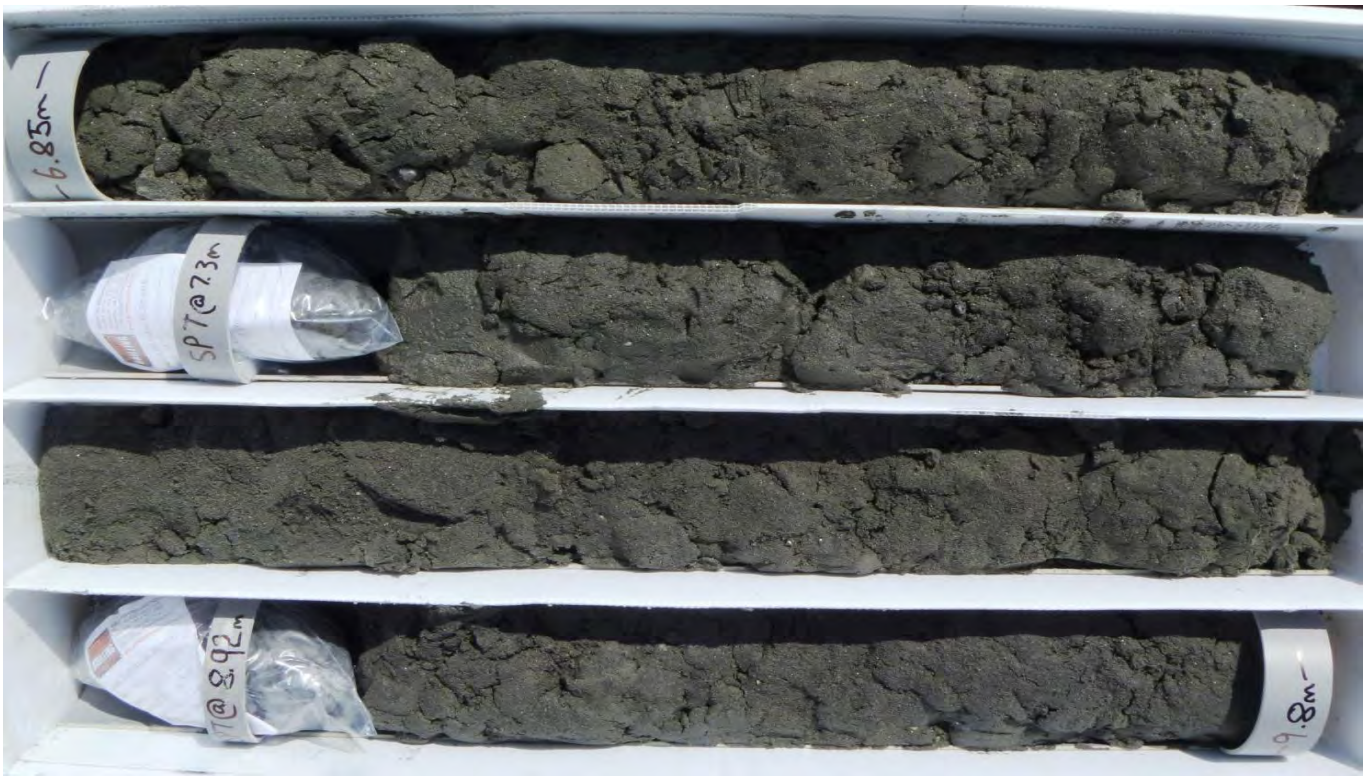
Appendix C

Machine Borehole Photographs

Paekakariki Coastal Edge

BOX: 1 **DEPTH: 0.0 to 3.85m**

BOX: 2 **DEPTH: 3.85 to 6.85m**



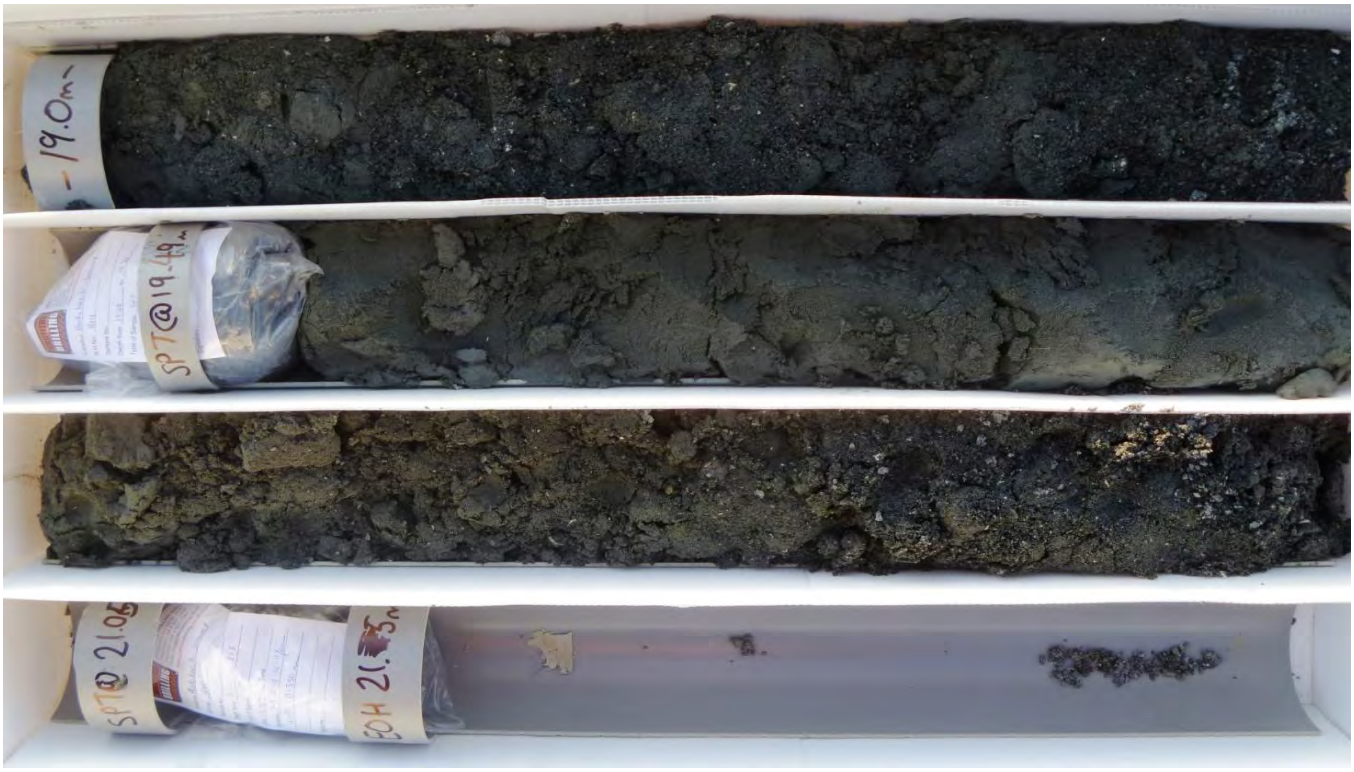
BOX: 3 **DEPTH: 6.85 to 9.8m**

BOX: 4 **DEPTH: 9.8 to 12.75m**

BOX: 5 **DEPTH: 12.75 to 15.8m**

BOX: 6 **DEPTH: 15.8 to 19.0m**

Paekakariki Coastal Edge



BOX: 7 **DEPTH: 19.0 to 21.5m**

Paekakariki Coastal Edge

BOX: 1 **DEPTH: 0.0 to 3.94m**

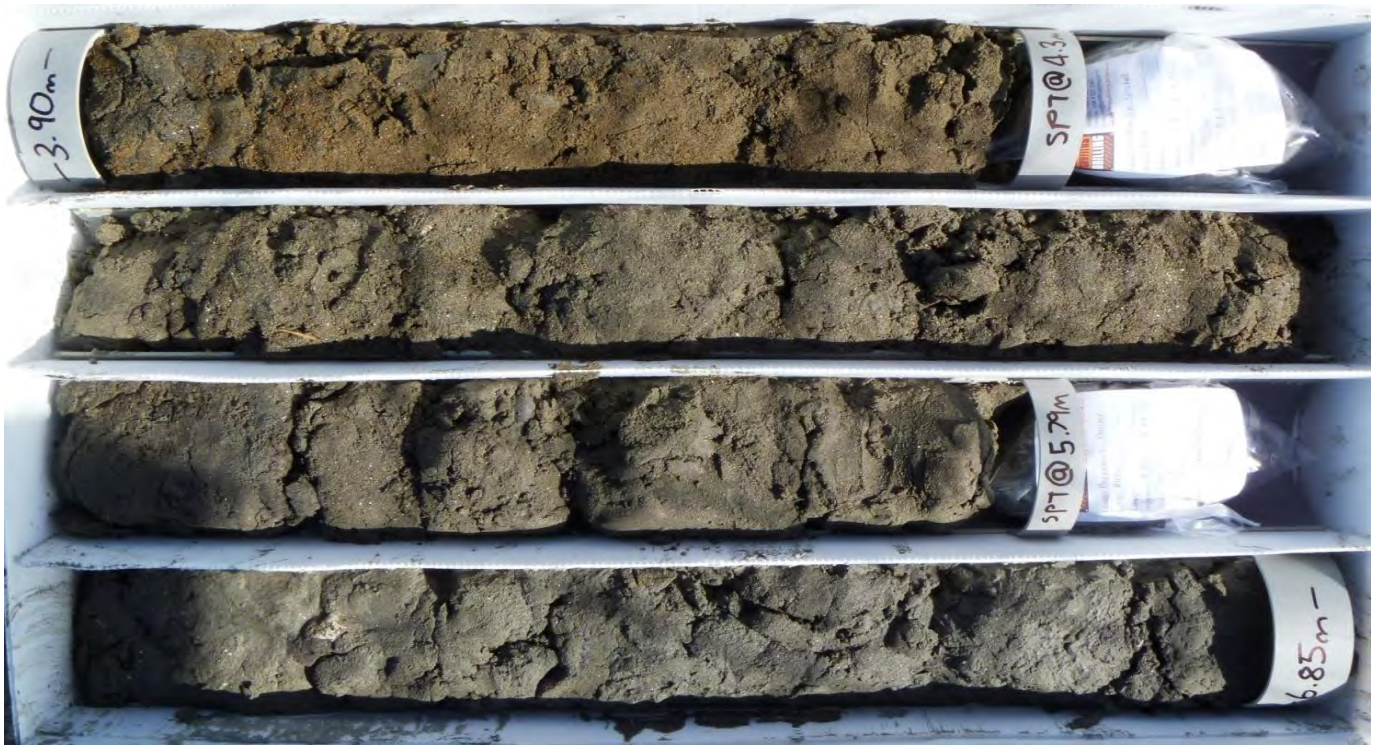
BOX: 2 **DEPTH: 3.94 to 7.0m**

BOX: 3 **DEPTH: 7.0 to 9.95m**

BOX: 4 **DEPTH: 9.95 to 12.23m**

Paekakariki Coastal Edge

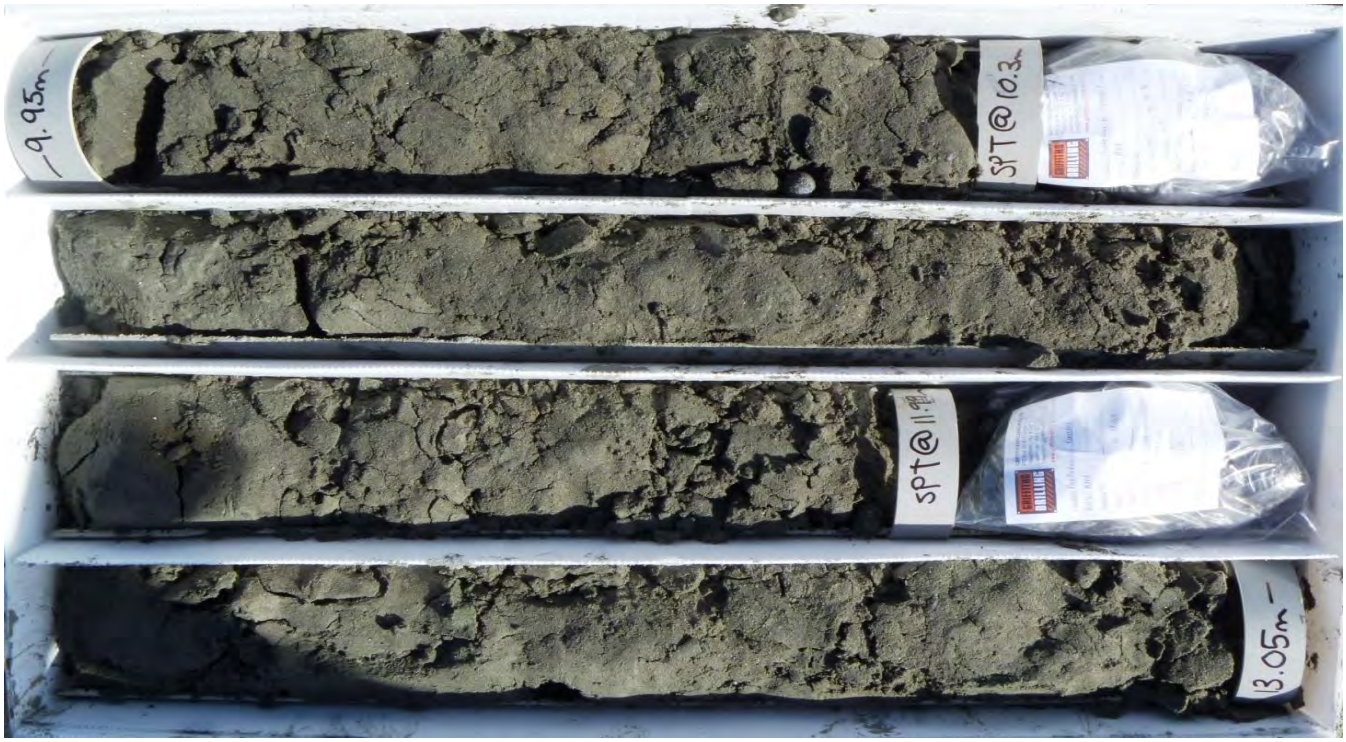
BOX: 1 **DEPTH: 0.0 to 3.9m**



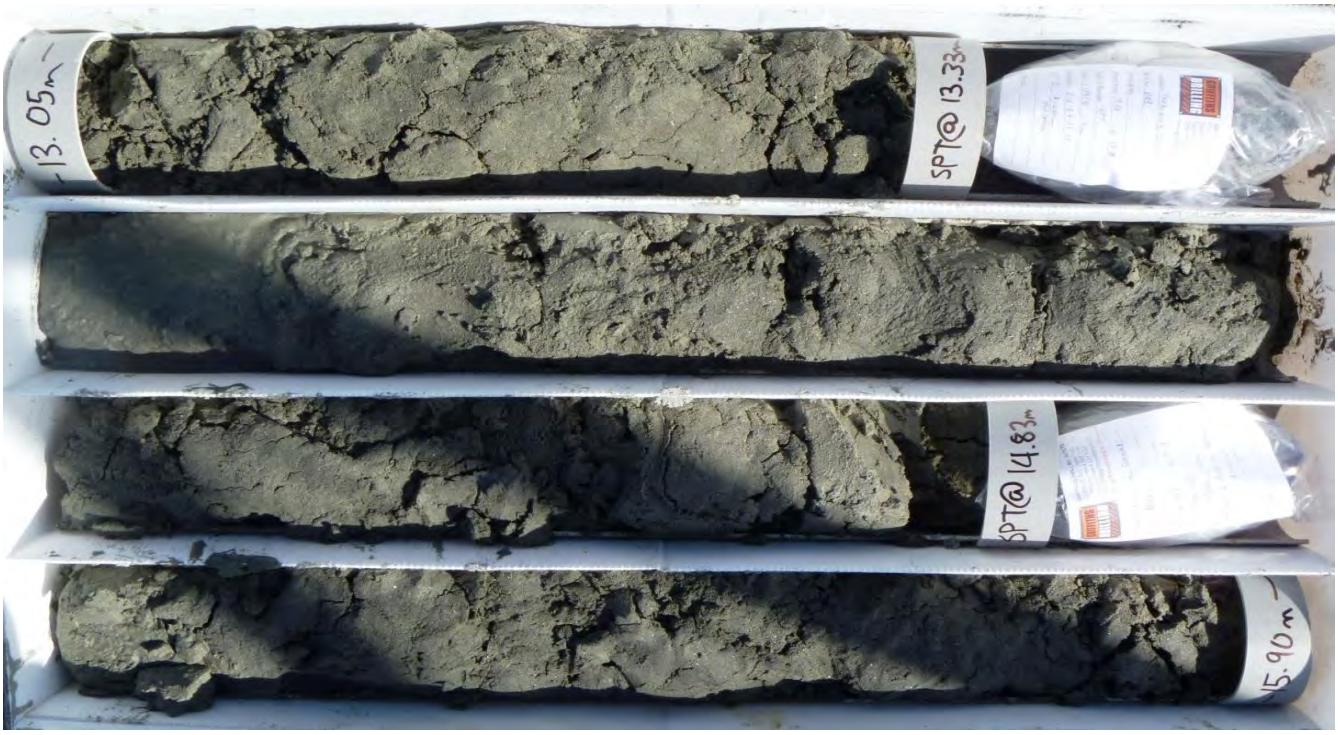
BOX: 2 **DEPTH: 3.9 to 6.85m**

Paekakariki Coastal Edge

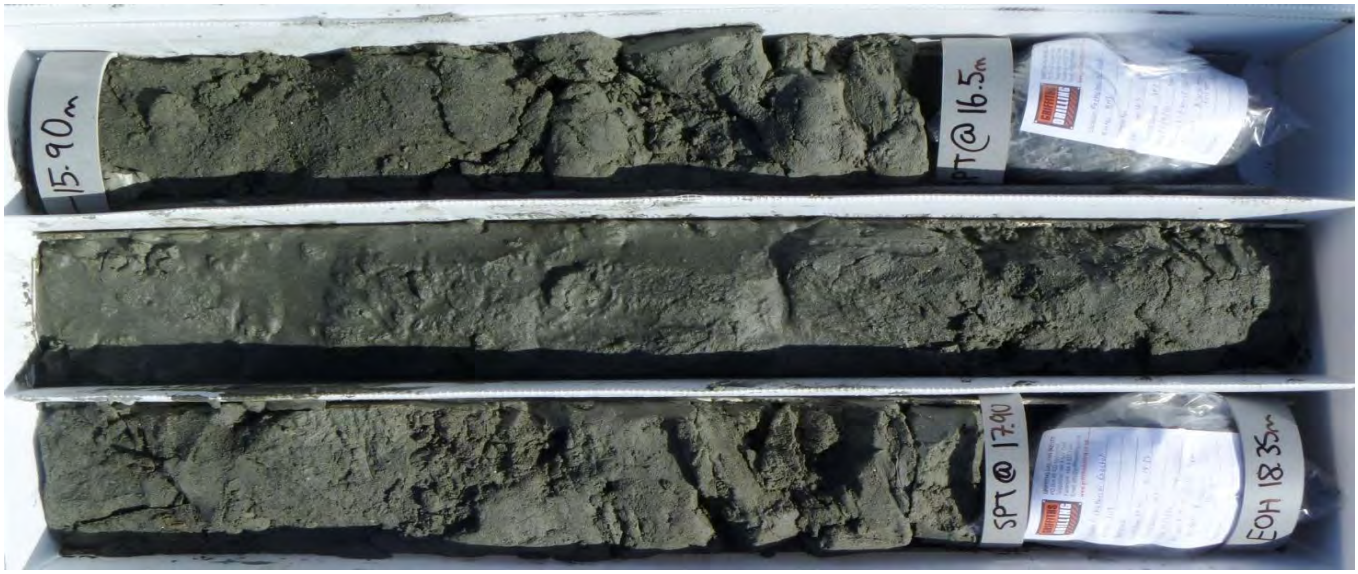
BOX: 3 **DEPTH: 6.85 to 9.95m**



BOX: 4 **DEPTH: 9.95 to 13.05m**



BOX: 5 **DEPTH: 13.05 to 15.9m**



BOX: 6 **DEPTH: 15.90 to 18.35m**

Appendix D

Test Pit Logs

TEST PIT No: TP01

TEST PIT LOG

SHEET 1 of 1

PROJECT: Paekakariki Coastal Edge
JOB NUMBER: 4261160
SITE LOCATION: The Parade, Paekakariki
CLIENT: Kapiti Coast District Council

CIRCUIT: NZTM
COORDINATES: N 5,461,579 m
E 1,764,367 m
TEST PIT LOCATION: Opposite 80 The Parade
R L: 4 m
DATUM: WGS84

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala (Blows/150mm)	SV	τ (kPa)	SAMPLES	R L (m)
			SP	D	'Loose', shelly fine to coarse SAND; grey; dry, non plastic.						
			GM	M	'Medium dense', silty fine to coarse GRAVEL, minor shell fragments, trace clay; brown; moist, low plasticity (matrix). Gravel: SW, angular, greywacke.	Fill					
0.5											3.5
					0.8 - 0.9m, logs.		0			B1	
					0.9m,1x brick.		1				
1.0			SP	M	'Medium dense', fine to coarse SAND, some shell fragments; brown; moist, non plastic.		1 for 5mm				3.0
					1.2m, trace shell fragments.						
1.5						Quaternary Beach Deposits				B2	2.5
2.0											2.0
					2.4 - 2.5m, wood.						
2.5	▽										1.5
	25/09/2014		SP	S	'Medium dense', fine to medium SAND, trace shell fragments; grey; saturated, non plastic.						
					END OF LOG @ 2.8 m						
3.0											1.0
3.5											0.5
4.0											0.0
4.5											-0.5

DATE EXCAVATED: 25/9/14
LOGGED BY: KMJ
SHEAR VANE No: N/A
CONTRACTOR: Griffiths Drilling (NZ) Ltd
EQUIPMENT: Hitachi Z-axis 12
METHOD: Machine excavation

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Position on approx 20°slope. Groundwater seepage slow (at 1500hrs). Scala test terminated due to hole collapse and striking logs. Adjacent seawall 1.4m high.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:25

TEST_PIT P:\4261\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

TEST PIT No: TP02

TEST PIT LOG

SHEET 1 of 1

PROJECT:	Paekakariki Coastal Edge	JOB NUMBER:	4261160
SITE LOCATION:	The Parade, Paekakariki	CLIENT:	Kapiti Coast District Council

CIRCUIT: NZTM
COORDINATES: N 5,461,579 m
E 1,764,604 m
TEST PIT LOCATION: Opposite 108 The Parade
R L: 3 m
DATUM: WGS84

DEPTH (m)	WATER LEVEL	GRAPHIC LOG	USCS	MOISTURE	SOIL / ROCK DESCRIPTION	GEOLOGICAL UNIT	Scala (Blows/150mm)	SV	τ (kPa)	SAMPLES	R L (m)
			SP	D	'Very loose', fine SAND; brown; dry, non plastic.	Fill	0				2.5
			GW	M	'Medium dense', fine to coarse GRAVEL, some silt, trace cobbles; brown; moist, low plasticity (matrix). Gravel/cobbles: SW, angular to subangular, greywacke.		1				
0.5			SP	M	Loose, fine to coarse SAND, minor shell fragments; brownish grey; moist, non plastic.		3				
							2				
1.0							3			B1	2.0
			SP	W	1.4m, some fine to coarse pumice.	Quaternary Beach Deposits					
1.5					'Medium dense', fine to coarse SAND, trace shell fragments, trace fibrous organics; grey mottled orange; wet, non plastic.					B2	1.5
2.0											1.0
2.5					2.6 - 2.7m, wood.						0.5
					2.7m, trace fine gravel: UW, rounded, greywacke. No organics; grey.						
3.0	▽ 25/09/2014			S	3.0m, saturated.						0.0
					END OF LOG @ 3.1 m						
3.5											-0.5
4.0											-1.0
4.5											-1.5

DATE EXCAVATED:	25/9/14	CONTRACTOR:	Griffiths Drilling (NZ) Ltd
LOGGED BY:	KMJ	EQUIPMENT:	Hitachi Z-axis 12
SHEAR VANE No:	N/A	METHOD:	Machine excavation

COMMENTS:
Coordinates obtained by handheld GPS (stated accuracy ±5m), RL estimated from Google Earth. Position on approx 20°slope. Groundwater seepage slow (at 1300hrs). Scala test terminated due to hole collapse.

FOR EXPLANATION OF SYMBOLS AND ABBREVIATIONS SEE KEY SHEET

Revision A

A4 Scale 1:25

TEST_PIT P:\4261\4261160\TGE\4.0 SITE INVESTIGATIONS SEP 2014\GINT\SEP_2014_SITE_INVESTIGATIONS.GPJ BECA.GDT 9/10/14

Appendix E

Test Pit Photographs

Paekakariki Coastal Edge

Paekakariki Coastal Edge

Appendix F

Laboratory Testing Results

21 Pitt Street
P O Box 6345
Auckland 1141
Ph. 300-9380

SUMMARY OF TEST RESULTS

Report:
1820L:01

Job Name: Paekakariki Coastal Edge **Job No:** 4261160/403

Client: Kapiti Coast District Council **Date:** 20 October 2014

Test Pit No.	Sample No.	Depth (m)	Sample Type	Sample Description	Natural		Atterberg Limits		Grading (Wash)	Pσ t/m³	Clay Index	Consol	CBR	Compaction	Perm k m/s	Triaxial CUPP
					WC%	Bulk Density t/m³	LL/ CPL	PL								
-	M959	beach	SD	Medium to coarse SAND, trace fine gravel, trace shells; greyish brown, speckled white; moist, non plastic.	16.1				X							
-	M960	beach	SD	Medium to coarse SAND, some fine gravel, trace shells; dark greyish brown, speckled white; moist, non plastic.	9.0				X							
BH01	M961	4.85-5.4	SD	Fine to coarse SAND, trace fine gravel, minor silt and clay; dark bluish grey, speckled white; moist, non plastic.	37.8				X							
BH02	M962	4.79-5.74	SD	Fine to coarse SAND, trace fine gravel, some silt and clay, trace shells; bluish grey, speckled white; moist, non plastic.	38.8				X							

ENVIROLAB GEOTEST IS ACCREDITED BY INTERNATIONAL ACCREDITATION NEW ZEALAND. ALL TESTS REPORTED HEREIN HAVE BEEN PERFORMED IN ACCORDANCE WITH THE LABORATORY'S SCOPE OF ACCREDITATION. THIS REPORT MAY NOT BE REPRODUCED EXCEPT IN FULL
NOTE: IANZ ENDORSEMENT DOES NOT COVER SOIL DESCRIPTIONS.

REPORT RELATES ONLY TO SAMPLES TESTED, SAMPLING WAS UNDERTAKEN BY OTHERS.

X = DATA ATTACHED, SD = SMALL DISTURBED SAMPLES

TEST STANDARDS:

NZS 4402: 1986; Test 2.1,2.8.1

AUTHORISED SIGNATORY

N.Agarkova – Authorised Signatory

Sheet 1 of 5

geotest

21 Pitt St
PO Box 6345
Auckland 1141
Ph (09) 300 9380

PARTICLE SIZE DISTRIBUTION

Job Name: Paekakariki Coastal Edge
Client: Kapiti Coast District Council
Date: 20 October 2014

Job No.: 4261160/403
Tested By: S.Shah
Checked By: N.Agarkova

Bore/Test Pit No.: -
Sample No.: M959
Depth (m): Beach

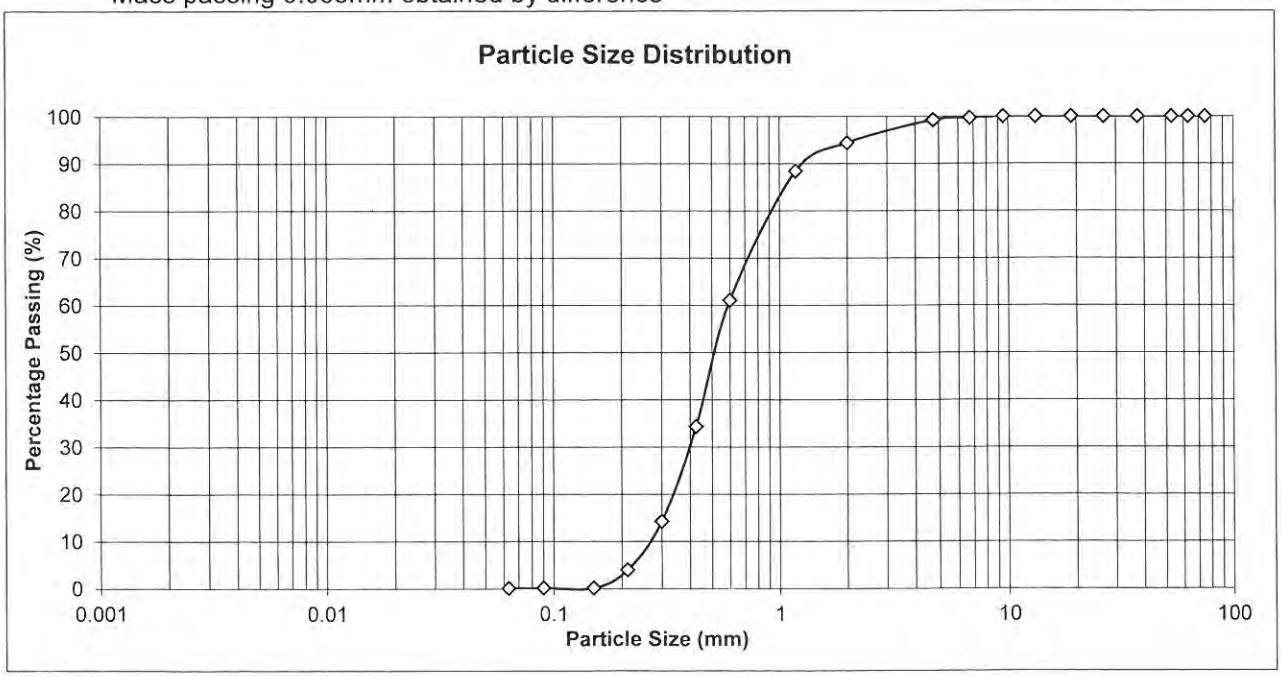
Sample Type: Bulk
History: As Received
Report No: 1820L:01

Sample Description: Medium to coarse SAND, trace fine gravel, trace shells; greyish brown, speckled white; moist, non plastic.

Test Standard: NZS 4402:1986, Test 2.8.1

Coarse & Intermediate Fraction		Fine Fraction	
Sieve Size	% Passing	Sieve Size	% Passing
75mm	100	2.00mm	94
63mm	100	1.18mm	88
53mm	100	600μm	61
37.5mm	100	425μm	34
26.5mm	100	300μm	14
19mm	100	212μm	4
13.2mm	100	150μm	0
9.5mm	100	90μm	0
6.7mm	100	63μm	0
4.75mm	99	<63μm*	0

*Mass passing 0.063mm obtained by difference



Authorised Signatory:.....
N.Agarkova - Authorised Signatory

geotest

21 Pitt St
PO Box 6345
Auckland 1141
Ph (09) 300 9380

PARTICLE SIZE DISTRIBUTION

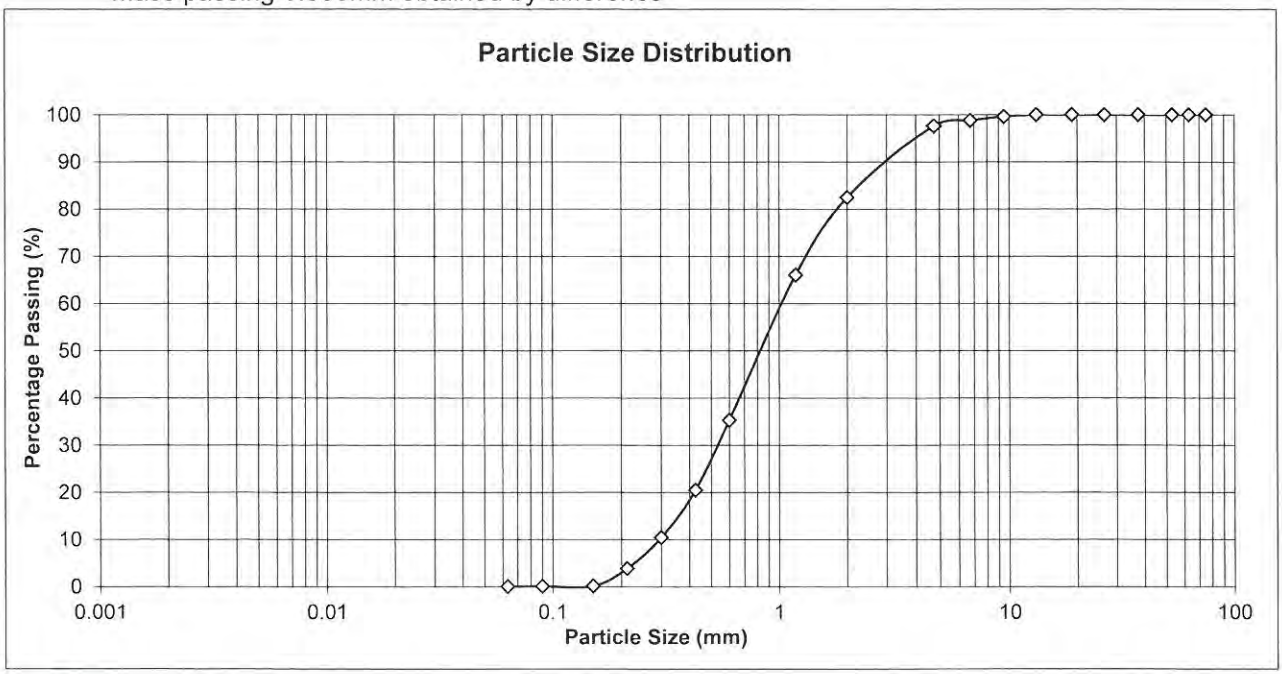
Job Name: Paekakariki Coastal Edge
Client: Kapiti Coast District Council
Date: 20 October 2014
Job No.: 4261160/403
Tested By: S.Shah
Checked By: N.Agarkova
Bore/Test Pit No.: -
Sample No.: M960
Depth (m): Beach
Sample Type: Bulk
History: As Received
Report No: 1820L:01

Sample Description: Medium to coarse SAND, some fine gravel, trace shells; dark greyish brown, speckled white; moist, non plastic.

Test Standard: NZS 4402:1986, Test 2.8.1

Coarse & Intermediate Fraction		Fine Fraction	
Sieve Size	% Passing	Sieve Size	% Passing
75mm	100	2.00mm	82
63mm	100	1.18mm	66
53mm	100	600μm	35
37.5mm	100	425μm	20
26.5mm	100	300μm	10
19mm	100	212μm	4
13.2mm	100	150μm	0
9.5mm	100	90μm	0
6.7mm	99	63μm	0
4.75mm	98	<63μm*	0

*Mass passing 0.063mm obtained by difference



Authorised Signatory:.....
N.Agarkova - Authorised Signatory

geotest

21 Pitt St
PO Box 6345
Auckland 1141
Ph (09) 300 9380

PARTICLE SIZE DISTRIBUTION

Job Name: Paekakariki Coastal Edge
Client: Kapiti Coast District Council
Date: 20 October 2014

Job No.: 4261160/403
Tested By: S.Shah
Checked By: N.Agarkova

Bore/Test Pit No.: BH01
Sample No.: M961
Depth (m): 4.85-5.4

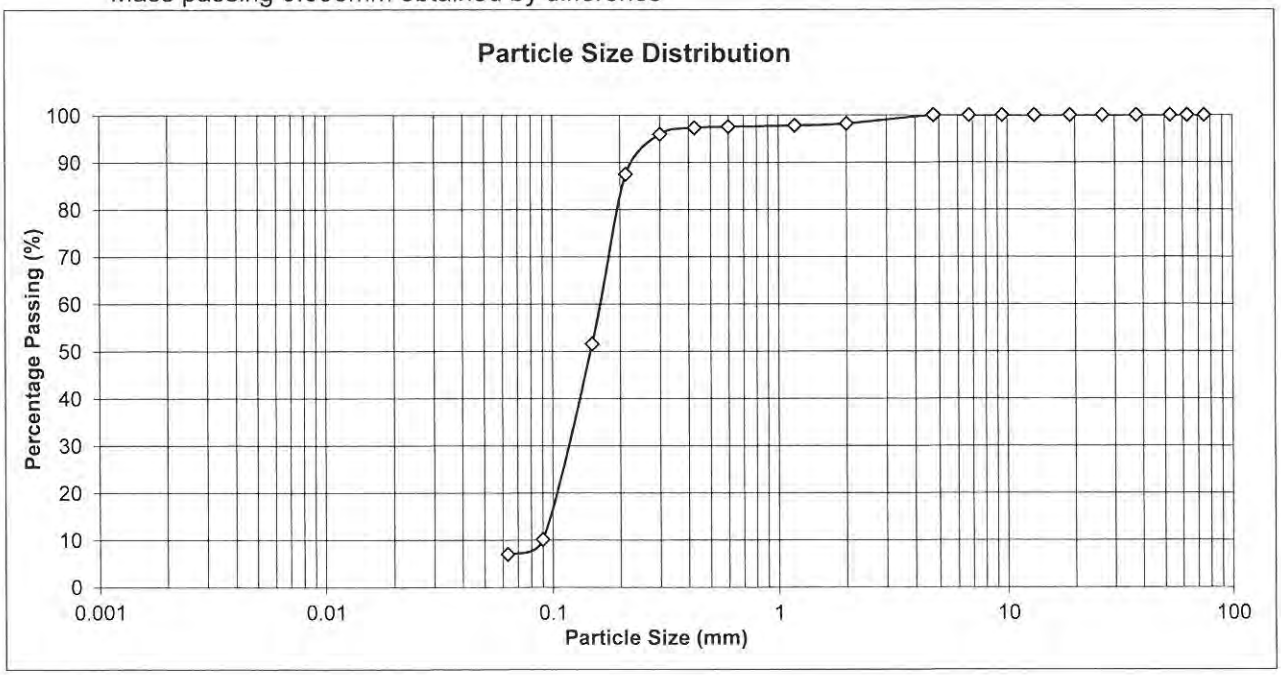
Sample Type: Bulk
History: As Received
Report No: 1820L:01

Sample Description: Fine to coarse SAND, trace fine gravel, minor silt and clay; dark bluish grey, speckled white; moist, non plastic.

Test Standard: NZS 4402:1986, Test 2.8.1

Coarse & Intermediate Fraction		Fine Fraction	
Sieve Size	% Passing	Sieve Size	% Passing
75mm	100	2.00mm	98
63mm	100	1.18mm	98
53mm	100	600μm	98
37.5mm	100	425μm	97
26.5mm	100	300μm	96
19mm	100	212μm	87
13.2mm	100	150μm	52
9.5mm	100	90μm	10
6.7mm	100	63μm	7
4.75mm	100	<63μm*	7

*Mass passing 0.063mm obtained by difference



Authorised Signatory:.....
N.Agarkova - Authorised Signatory

geotest

21 Pitt St
PO Box 6345
Auckland 1141
Ph (09) 300 9380

PARTICLE SIZE DISTRIBUTION

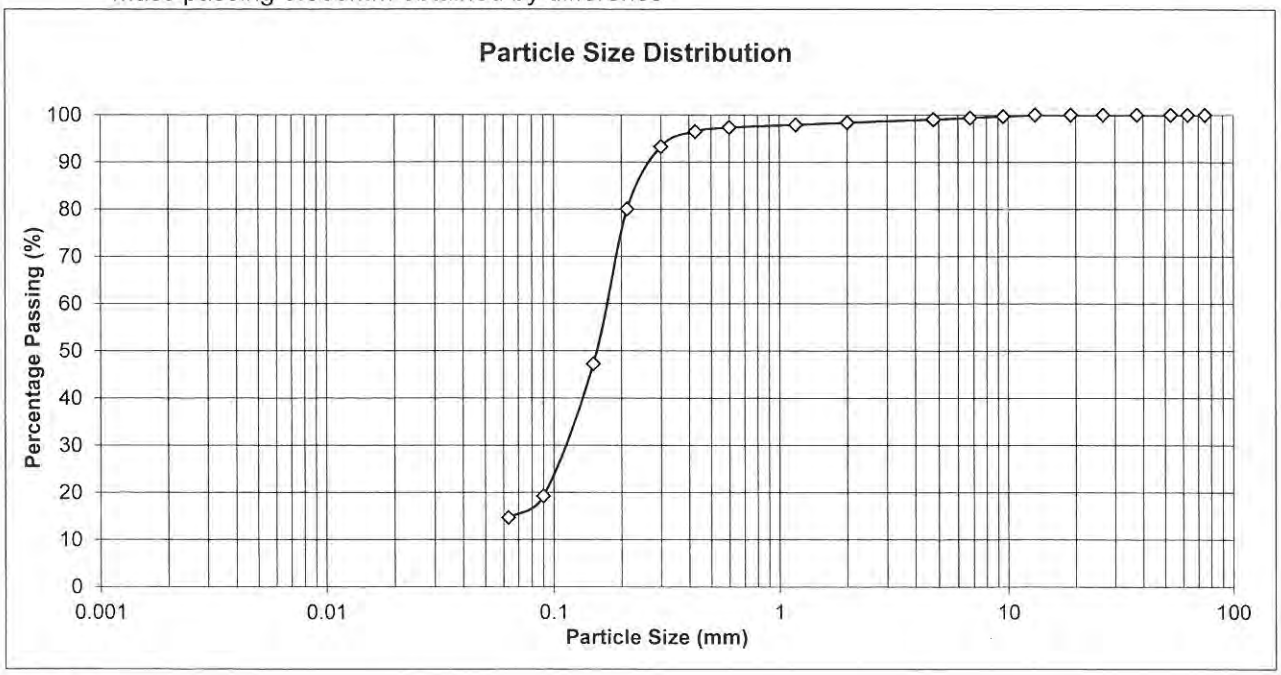
Job Name: Paekakariki Coastal Edge
Client: Kapiti Coast District Council
Date: 20 October 2014
Job No.: 4261160/403
Tested By: S.Shah
Checked By: N.Agarkova
Bore/Test Pit No.: BH02
Sample No.: M962
Depth (m): 4.79-5.74
Sample Type: Bulk
History: As Received
Report No: 1820L:01

Sample Description: Fine to coarse SAND, trace fine gravel, some silt and clay, trace shells; bluish grey, speckled moist, non plastic.

Test Standard: NZS 4402:1986, Test 2.8.1

Coarse & Intermediate Fraction		Fine Fraction	
Sieve Size	% Passing	Sieve Size	% Passing
75mm	100	2.00mm	98
63mm	100	1.18mm	98
53mm	100	600μm	97
37.5mm	100	425μm	96
26.5mm	100	300μm	93
19mm	100	212μm	80
13.2mm	100	150μm	47
9.5mm	100	90μm	19
6.7mm	99	63μm	15
4.75mm	99	<63μm*	15

*Mass passing 0.063mm obtained by difference



Authorised Signatory:.....
N.Agarkova - Authorised Signatory

Appendix E

Community Board Resolution

Chairperson and Community Board Members
PAEKĀKĀRIKI COMMUNITY BOARD

14 JULY 2015

Meeting Status: **Public**

Purpose of Report: For Decision

PAEKĀKĀRIKI SEAWALL

PURPOSE OF REPORT

1 This report seeks the Paekākāriki preferred preliminary concept for the Paekākāriki Seawall Project and recommend to the Kāpiti Coast District Council ('the Council') that the preferred preliminary concept proceeds to detailed design and lodgement of the appropriate resource consents.

DELEGATION

2 The Paekākāriki Community Board has the delegated authority as at section D.10.4 of the Governance Structure:

> *Authority to listen, articulate, advise, advocate and make recommendations to Council on any matter of interest or concern to the local community.*

BACKGROUND

3 The existing timber seawall at Paekākāriki has well-exceeded its original 20-year design life and needs to be replaced. Beca Ltd has worked with Council and the community over the past two years to assess replacement options and select a preferred preliminary concept to take forward to resource consent stage.

4 The key background tasks have included:

- Initial Option Assessment Report
- Community Open Day
- Establish Community Design Group and engagement process
- Community Board Meeting to present five short-listed options
- Community Design Group input and review
- Geotechnical investigation
- Community Design Group input and review
- Community Open Day

5 To assist in the development of an option that provides the appropriate level of protection from Coastal erosion but also meets the communities' expectations with regard to amenity and visual impacts the Paekākāriki Community Design Group was established. This voluntary group of local experts has worked closely with the Board and with Council staff to develop the current preferred option.

6 This collaborative process will provide an important foundation to the resource consent application in demonstrating the preferred preliminary concept has been developed through a systematic process of option refinement based on community values, affordability and a design life of at least 50 years.

ISSUES AND OPTIONS

7 High-level costings of the preliminary concepts has demonstrated that a stepped-solution consisting of timber wall, concrete steps, and a rock wall can be delivered within Council's allocated budget of $10.9M. A full timber front wall with concrete steps has been costed at around $10.9M for construction costs. A full concrete front wall preliminary concept has been costed at around $14M for construction costs.

Flexibility for Resource Consent

8 The resource consent application will seek approval from Greater Wellington Regional Council ('GWRC') for the attached preliminary concept. That concept is for a stepped-solution consisting of timber or concrete front wall, concrete steps, a middle walkway and a rock wall. The exact details of the final mix of material treatments; the exact design and location of access points and steps; plantings; seating; and public art can be confirmed at detailed design. This is a practical way to address the different views on such detailed design matters, which do not need to be locked down at resource consent stage. GWRC are supportive of this approach.

Listening and responding to community feedback

9 The Open Day on 2 May was well attended with about 60 people attending to share their views and discuss the concept designs. A total of 34 written submissions were also received following the Open Day. The following key themes came through from that community feedback.

Overall Concept

10 Overall, there was a general consensus that the existing timber wall needed replacement. Feedback was largely in support of the overall preliminary concept, being a vertical front wall of similar height to the existing timber wall (either timber or concrete), a middle walkway, and a top rock revetment between the walkway and The Parade roadway. This stepped concept was generally supported.

Accessibility

11 Accessibility was raised as a key theme in terms of opportunities to access the beach along the seawall. Access for the elderly and disabled was also raised as a key consideration. Some support for the 'concrete' option was in relation to the increased accessibility aspect – ie more steps along the beach linking beach to the middle walkway.

Resilience

12 Design life and resilience of the seawall was raised as a key consideration. There was a general understanding that Council must work within an appropriate budget for this project, however cost should not compromise the longevity of the seawall chosen. The seawall has been designed with a 50-year design life. This is a relatively standard design life for such a coastal structure and has regard to the future potential impacts of climate change and also potential changes to the

future approaches to coastal management. Both timber and concrete treatment of the front wall can meet this 50-year design life. Concrete does have the potential to have an extended life beyond timber.

Detailed Design Matters

13 A number of matters were raised at the community open days that concerned issues that are most appropriately addressed during the detailed design phase, rather than preliminary concept matters for resource consenting. Such matters included:

- Exact details of the final treatment of the seawall, including the mix of timber and concrete
- Exact details of the access locations and design
- Final design of the stormwater outlets and how they integrate with the seawall
- Seating design and arrangement
- Waste disposal design
- Public art design
- Penguin boxes in the wall
- Provision of bike stands
- Narrowing The Parade and options for traffic calming

14 Following the resource consent approval of the preliminary design, It is proposed to involve the community input to such detailed design matters at detailed design. The opportunity to combine traffic calming works along The Parade could also be considered at this time.

CONSIDERATIONS

Policy considerations

15 The Council policy with regard to coastal protection is to protect public assets. In this instance the Paekākāriki Seawall provides protection for the public road (The Parade) and its replacement is therefore in compliance with current policy.

Legal considerations

16 Any legal considerations will be considered through the resource consenting process

Financial considerations

17 High-level costings of the preliminary concepts has demonstrated that a stepped-solution consisting of timber wall, concrete steps, and a rock wall can be delivered within Council's allocated budget of $10.9M. This budget has been approved through the recent Long Term Plan process as one of Council's major community projects.

Tāngata whenua considerations

18 Iwi is a key partner of Council in the management of natural resources, including the coastal environment. Prior to lodging resource consent with GWRC, pre-application engagement with Iwi will be an important foundation for the application. Jennie Smeaton, Ngāti Toa Resource Management Manager, has been identified as a key Iwi advisor for this project. Te Whakaminenga o Kāpiti will also be engaged with as required.

SIGNIFICANCE AND ENGAGEMENT

Degree of significance

19 This project was recognised as a key significant project in the current Council Long Term Plan (LTP). As such the special consultative process associated with the draft 2015/35 LTP included reference to the Paekākāriki Seawall replacement project.

20 The majority of submissions received through the LTP consultation were supportive of the project and the Council adopted the final 2015/35 LTP on the 25 June 2015 inclusive of the Paekākāriki Seawall replacement project.

Consultation already undertaken

21 The Board and community have been extensively consulted on this project as described above and through the LTP process.

Engagement planning

22 An engagement plan will be prepared for pre-application engagement with key stakeholders. GWRC has advised the resource consent application for this project will be publicly notified, providing a further opportunity for community engagement.

Publicity

23 This is a significant community project that has involved a community-led design process. A communications strategy will be prepared to help manage consenting risks and inform the community leading up to the public notification by GWRC.

Other considerations

24 There are no other considerations.

RECOMMENDATIONS

25 That the Paekākāriki Community Board recommends to Council that detailed design works proceed on the preferred preliminary concept, as attached as Appendix one to report IS-15-1634, for the replacement of the Paekākāriki Seawall. Noting the significant work done by the Community Design Group to get to this stage.

26 That the Paekākāriki Community Board recommends to Council that resource consent applications are lodged based on the preferred preliminary concept for the replacement of the Paekākāriki Seawall, as attached as Appendix one to report IS-15-1634.

27 That the detailed design will be brought back to the Board for final sign off. Noting that this will also require community input into the final design prior to sign off.

Report prepared by	Approved for submission	Approved for submission
Disna Pathirage	Sean Mallon	Wayne Maxwell
Coastal & Stormwater Asset Manager	**Group Manager...**	**Group Manager...**

ATTACHMENTS

1 Preferred Preliminary Concept Plans: Paekākāriki Seawall Project

Kāpiti Coast DISTRICT COUNCIL
Me Huri Whakamuri, Ka Titiro Whakamua

Beca

PAEKAKARIKI COASTAL EDGE

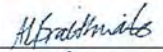
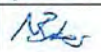
PRELIMINARY CONCEPT

Prepared for Kapiti Coast District Council
By Beca Ltd
July 2015

Revision History

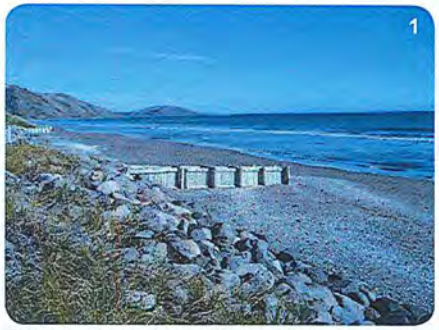
Revision No.	Prepared By	Description	Date
A	Anne Braithwaite	Draft for client review	10-01-2014
B	Anne Braithwaite	Draft for client review	22-01-2014
C	Anne Braithwaite	Final for community consultation	27-01-2014
D	Anne Braithwaite	Timber seawall with rock revetment for community consultation	04-02-2015
E	Anne Braithwaite	Timber seawall with rock revetment for community consultation	17-02-2015
F	Emily Kelly	Draft Carparking option	12-03-2015
G	Anne Braithwaite	Timber seawall with rock revetment for community consultation	19-03-2015
H	Anne Braithwaite	Timber seawall with rock revetment for community consultation	24-03-2015
I	Anne Braithwaite	For Community Open Day	13-04-2015
J	Anne Braithwaite	For Community Open Day	08-07-2015

Document Acceptance

Action	Name	Signed	Date
Prepared by	Anne Braithwaite		08-07-2015
Reviewed by	Wade Robertson		08-07-2015
Approved by	Nathan Baker		08-07-2015
on behalf of Beca Ltd.			

This document should be printed at A3.

Images in this document: Unless otherwise noted, drawings, illustrations, photos and other images have been provided directly by Beca. In all other instances, best efforts have been made to reference the image to its original source.



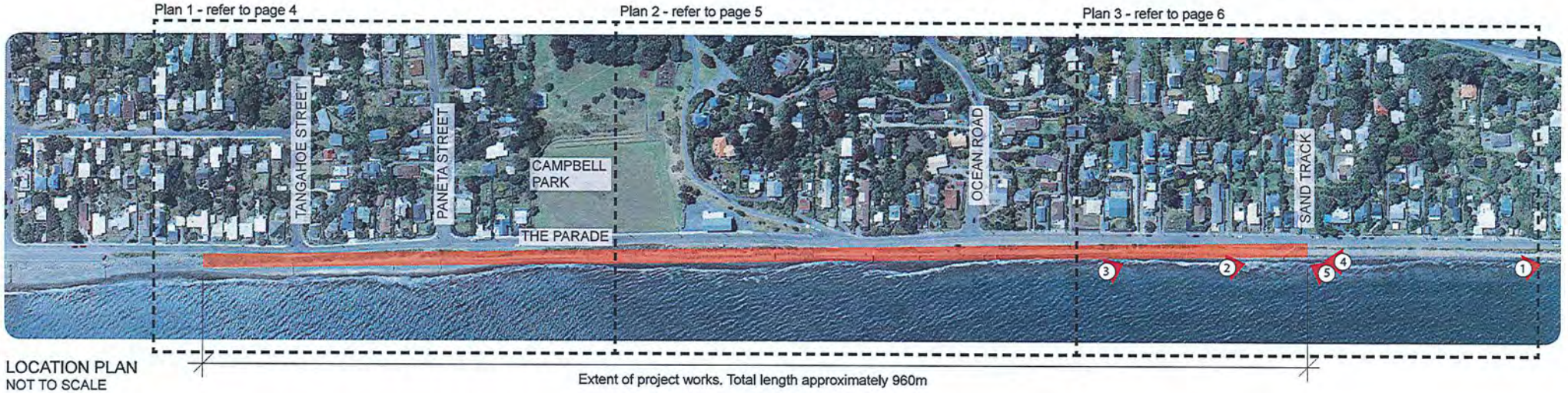
Existing rock revetment - looking south-east

Existing timber seawall

Existing timber seawall - looking south-east

Existing ramp through revetment

Existing revetment looking north-west



LOCATION PLAN
NOT TO SCALE

Extent of project works. Total length approximately 960m

Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
CONTEXT

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 3 OF 18

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

DETAIL PLAN
SCALE: 1:1000 @ A3

Note: Final design and position of access locations subject to design development.

Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PLAN 1 (TANGAHOE STREET - CAMPBELL PARK)

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 4 OF 18

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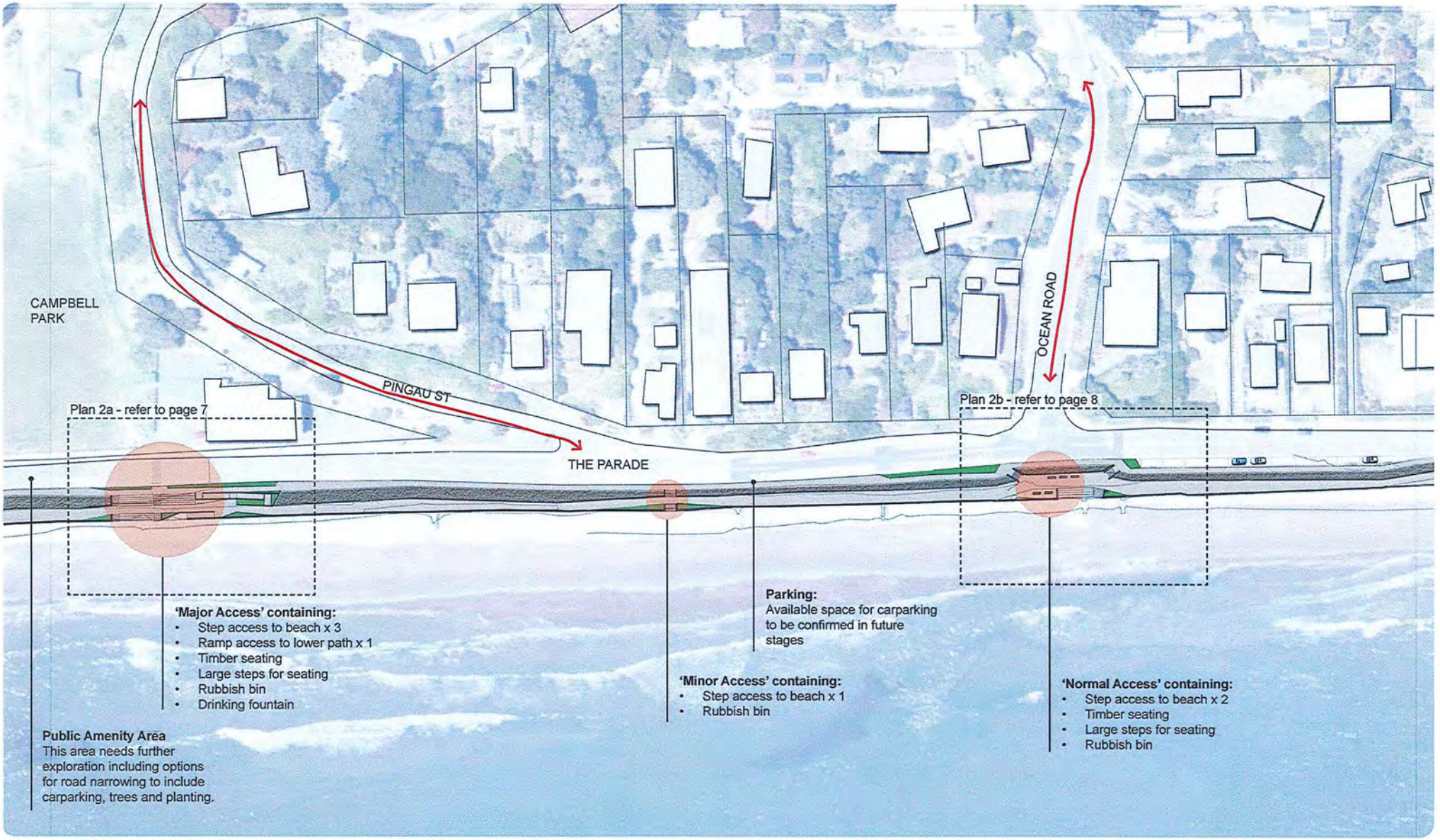

DETAIL PLAN
SCALE: 1:1000 @ A3

Note: Final design and position of access locations subject to design development.

Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PLAN 2 (CAMPBELL PARK - 70 THE PARADE)

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 5 OF 18

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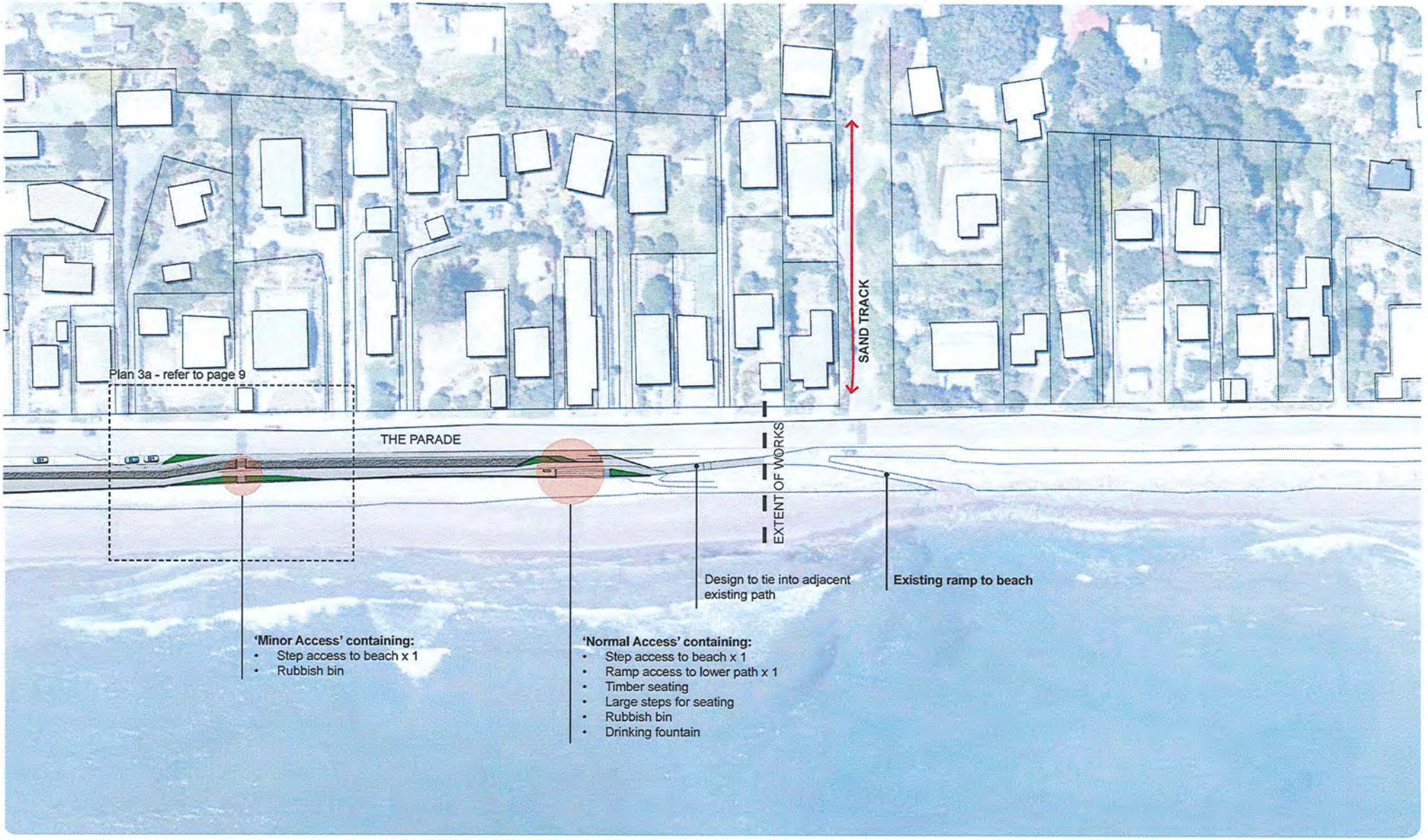

DETAIL PLAN
SCALE: 1:1000 @ A3

Note: Final design and position of access locations subject to design development.

Beca | Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT

PLAN 2 (70 THE PARADE - SAND TRACK)

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 6 OF 18

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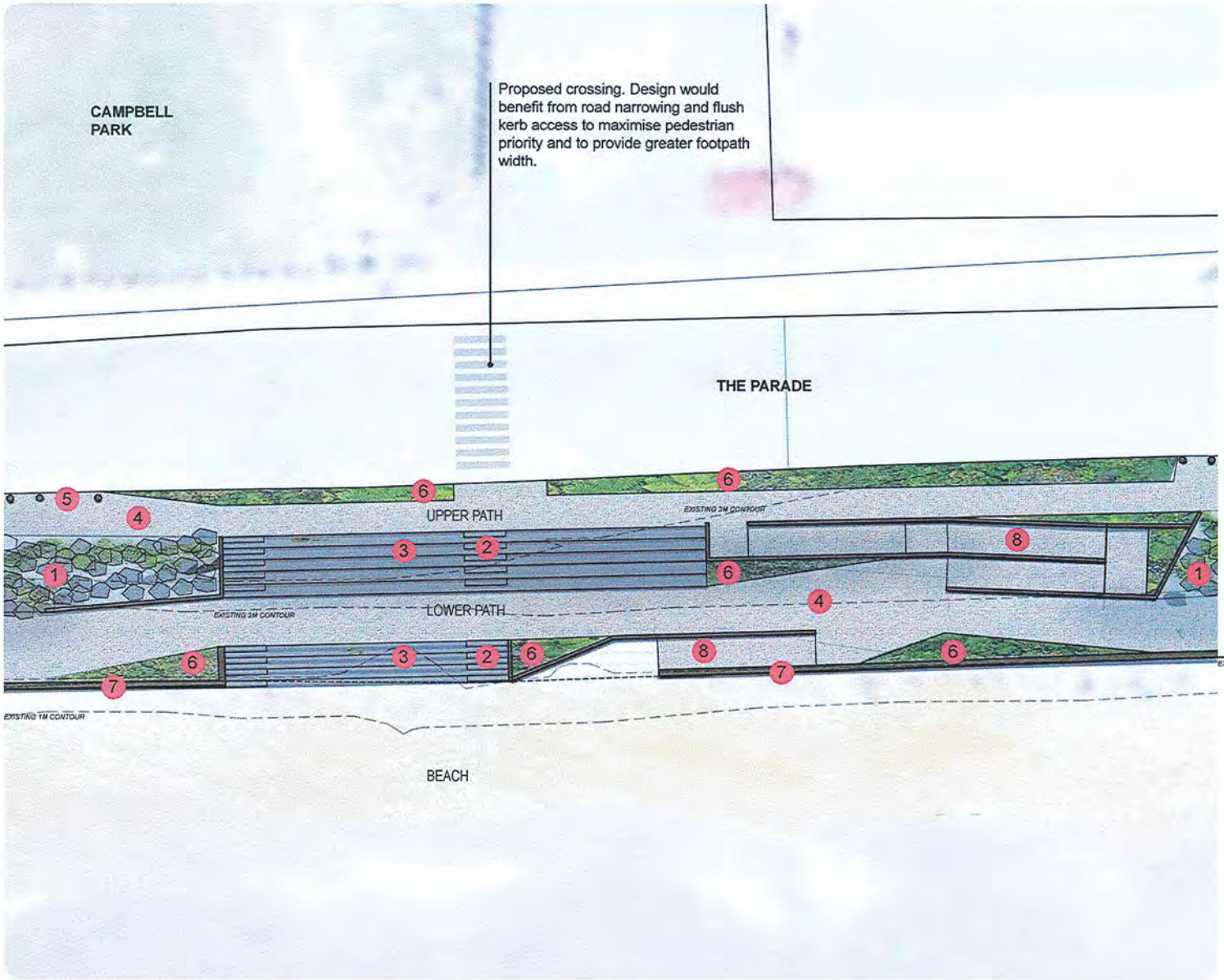


LEGEND

1. Rock revetment. Includes planting in bags of soil.
2. Concrete steps to provide beach access. Include handrails to both sides.
3. Large scale steps to provide informal seating.
4. Footpath - Concrete type 1. Refer to materials palette on page 10.
5. Round timber bollards with rope chain along road edge.
6. Native planting. For planting palette refer to page 12.
7. Timber seawall
8. Ramp at 1:12 with handrails both sides. Climbing plant species to be included in adjacent garden beds to be trained up ramp walls. Final design subject to design development.

ADDITIONAL NOTES:

Existing timber storm-water outlets would likely be integrated into the revetment design so they do not protrude seaward of the revetment.

For imagery of all furniture and material items refer to page 10.

Option to engage local artist to create sculptures at entry points using recycled timber from existing sea wall.

Access arrangements for discussion only and subject to design development.

DETAIL PLAN
SCALE: 1:200 @ A3

0 1 2 3 4 5 10 20 30 Metres

Beca Kāpiti Coast DISTRICT COUNCIL

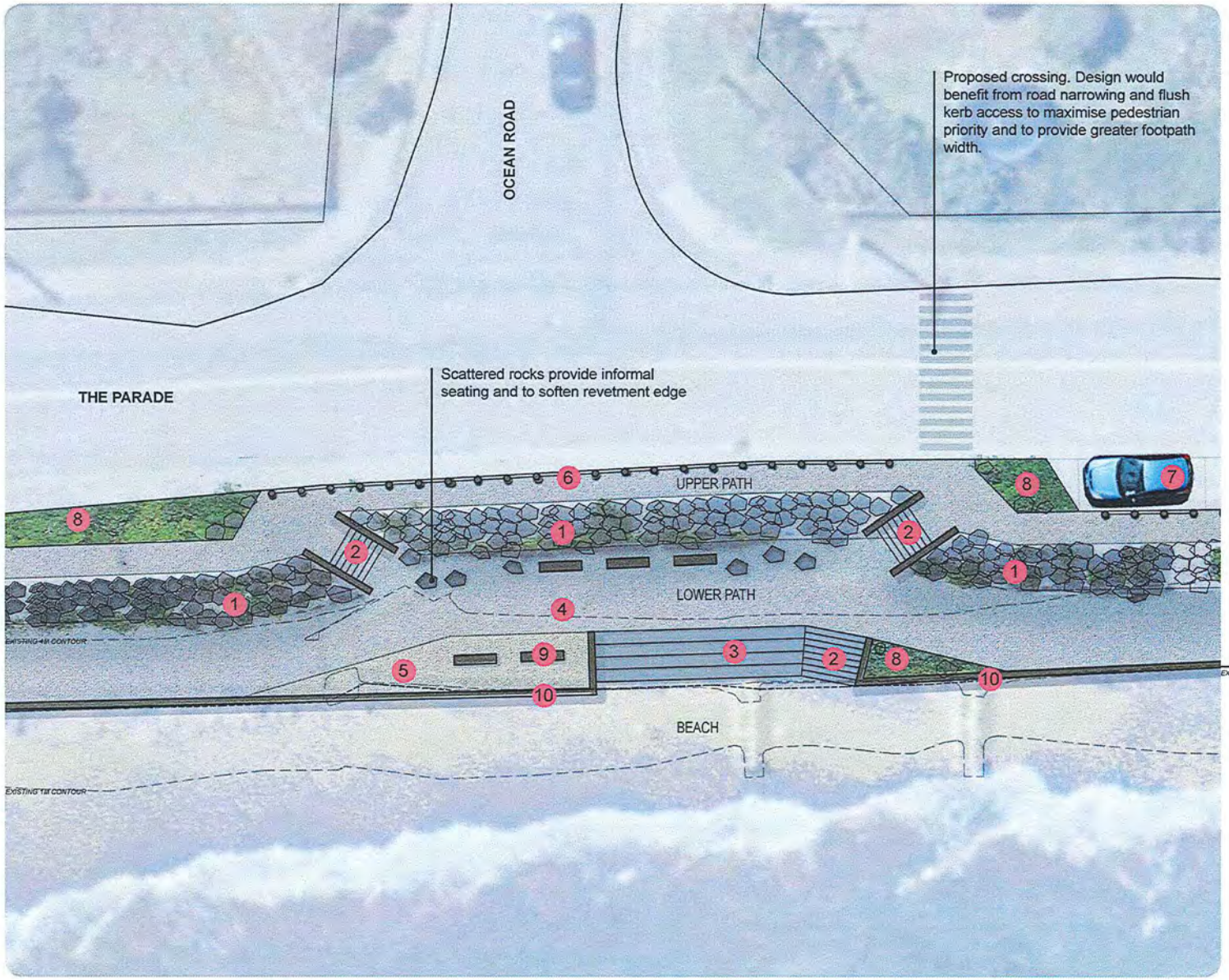
PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PLAN 2A - 'MAJOR ACCESS'

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 7 OF 18

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD



DETAIL PLAN
SCALE: 1:200 @ A3

0 1 2 3 4 5 10 20 30 Metres

LEGEND

1. Rock revetment. Includes planting in bags of soil.
2. Concrete steps to provide beach access. Include handrails to both sides.
3. Large scale steps to provide informal seating.
4. Footpath - Concrete type 1. Refer to materials palette on page 10.
5. Concrete type 2. Refer to materials palette on page 10.
6. Round timber bollards with rope chain along road edge.
7. Parallel parking.
8. Native planting. For planting palette refer to page 12.
9. Timber plinth seating.
10. Timber seawall.

ADDITIONAL NOTES:

Existing timber storm-water outlets would likely be integrated into the revetment design so they do not protrude seaward of the revetment.

For imagery of all furniture and material items refer to page 10.

Option to engage local artist to create sculptures at entry points using recycled timber from existing sea wall.

Access arrangements for discussion only and subject to design development.

Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PLAN 2B - 'NORMAL ACCESS'

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 8 OF 18

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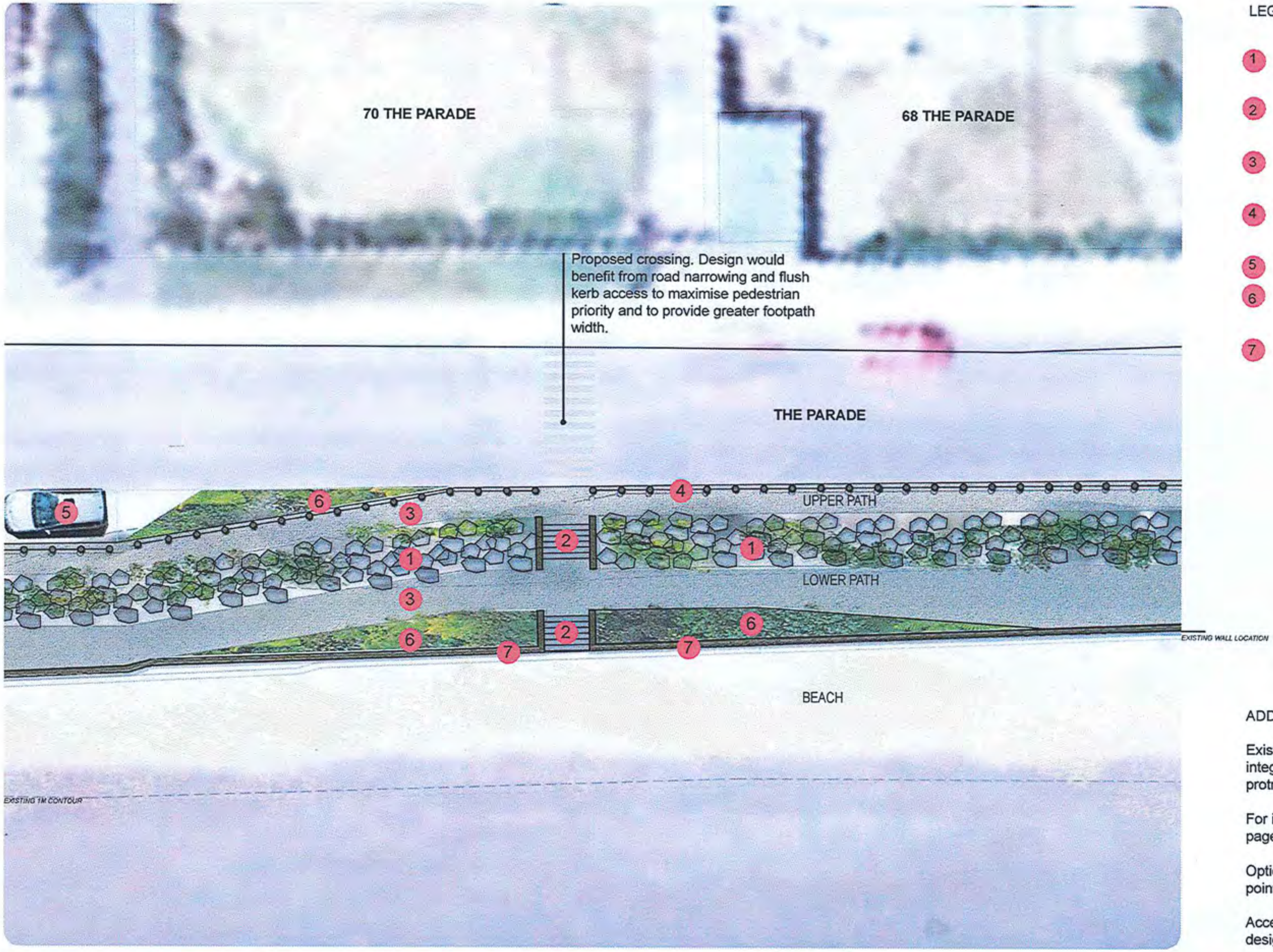

LEGEND

1. Rock revetment. Includes planting in bags of soil.
2. Concrete steps to provide beach access. Include handrails to both sides.
3. Concrete Type 1. Refer to materials palette on page 10.
4. Round timber bollards with rope chain along road edge.
5. Parallel parking.
6. Native planting buffer. For planting palette refer to page 12.
7. Timber seawall.

ADDITIONAL NOTES:

Existing timber storm-water outlets would likely be integrated into the revetment design so they do not protrude seaward of the revetment.

For imagery of all furniture and material items refer to page 10.

Option to engage local artist to create sculptures at entry points using recycled timber from existing sea wall.

Access arrangements for discussion only and subject to design development.

DETAIL PLAN
SCALE: 1:200 @ A3

0 1 2 3 4 5 10 20 30 Metres

Beca Kāpiti Coast District Council

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PLAN 3A ' MINOR ACCESS'

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3

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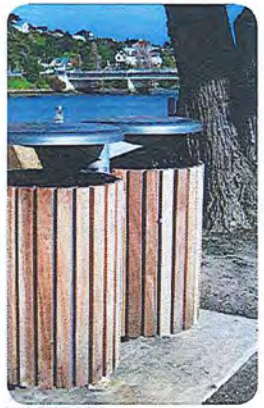
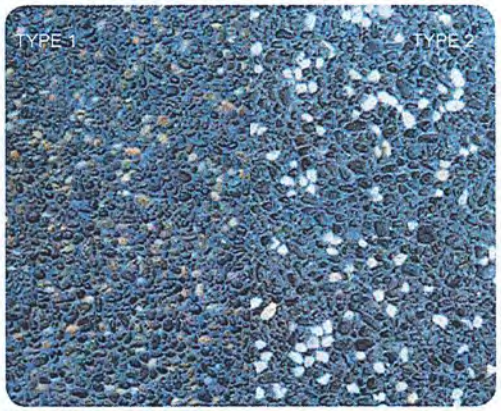
SKETCH - Typical 'Normal Access'
Timber Wall Option

TIMBER SEATING EXAMPLES.
Subject to design development



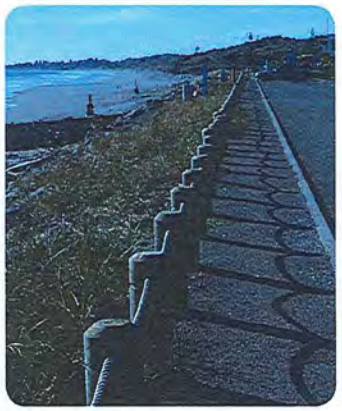
WASTE BIN

Option to include two bins per site for waste splitting



EXPOSED AGGREGATE

Use of two aggregate mixes using stone sourced from the Wellington region



BOLLARDS

To match existing

DRINKING FOUNTAIN

Option to include dog feeders and bottle fillers

Note:
1. There is an opportunity to include bike stands along the coastal edge; and
2. There is an opportunity for incorporation of sculpture throughout the design through engagment with a local artist during design development.

SKETCH - Typical 'Normal Access'
Timber Wall Option

Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
SKETCH

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 11 OF 18

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

SKETCH - Typical 'Normal Access'
Concrete Wall Option

SKETCH - Typical 'Normal Access'
Concrete Wall Option

Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
SKETCH

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 12 OF 18

P:\651\6519300\WP 201 - Paekakariki Seawall\LSC\Drawings\Working\Concept\INDD

Horokaka, Native ice plant
(Disphyma australe)

Pingao, Golden Sand Sedge
(Desmoschoenus spiralis)

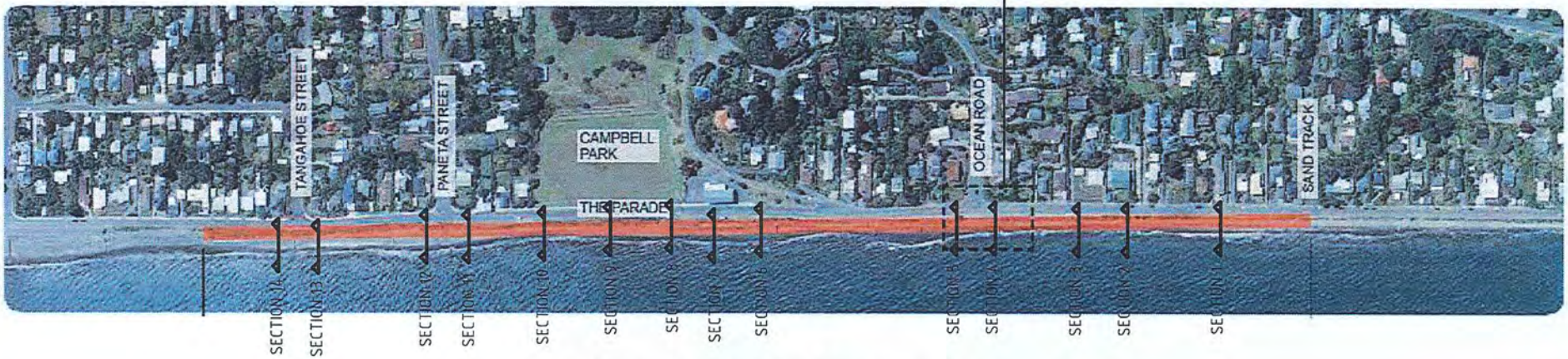
Wiwi, Knobby club rush
(Ficinia nodosa)

Harakeke, Flax
(Phormium tenax)

Tataraheke, Sand Coprosma
(Coprosma acerosa)

Shore Daphne
(Pimelea villisoa)

Taupata, Mirror plant
(Coprosma repens)



COASTAL ROAD CROSS SECTIONS LOCATION

www.beca.com

FOR INFORMATION
NOT FOR CONSTRUCTION

-	UNDER REVISION				
No.	Revision	By	Ckd	Appd	Date

Drawing Originator: Beca

Original Scale (A1)	NTS	Surveyed	JDC	JAN 15
Reduced Scale (A3)	NTS	Drawn	JDC	FEB 15
		Verifier	DRF	FEB 15
		Dwg Check		
		* Refer to Revision 1 for Original Signature		

Approved For Issue*: DRF
Date: FEB 15

Client: KAPITI COAST DISTRICT COUNCIL
Project: PAEKAKARIKI UPGRADE WORKS
Title: ROAD CROSS SECTIONS LOCATIONS
Discipline: SURVEY
Drawing No.: 4261160-GA-05
Rev.: A

DO NOT SCALE
Source Application
IF IN DOUBT ASK

Document No. 4261160-GA-05.01.DWG

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Beca Kāpiti Coast DISTRICT COUNCIL

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PROFILE SURVEYS

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 14 OF 18

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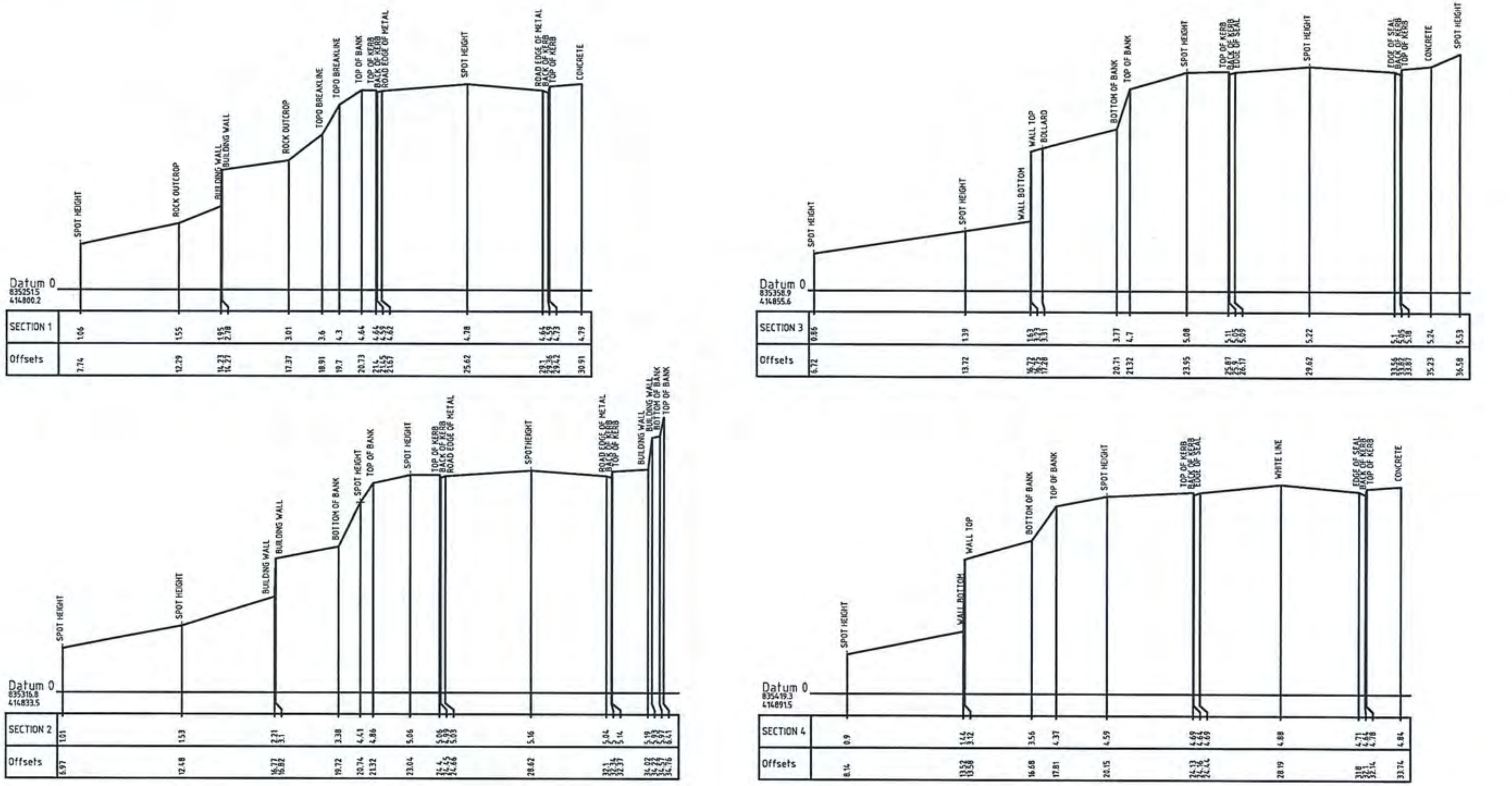


www.beca.com

COASTAL ROAD CROSS SECTIONS SHEET 1

FOR INFORMATION
NOT FOR CONSTRUCTION

Client	Project	Title	Discipline	Drawing No.	Rev.
KAPITI COAST DISTRICT COUNCIL	PAEKAKARIKI UPGRADE WORKS	ROAD CROSS SECTIONS	SURVEY	4261160-GA-01	A

No.	Revision	By	Chk	Appd	Date
-	UNDER REVISION				

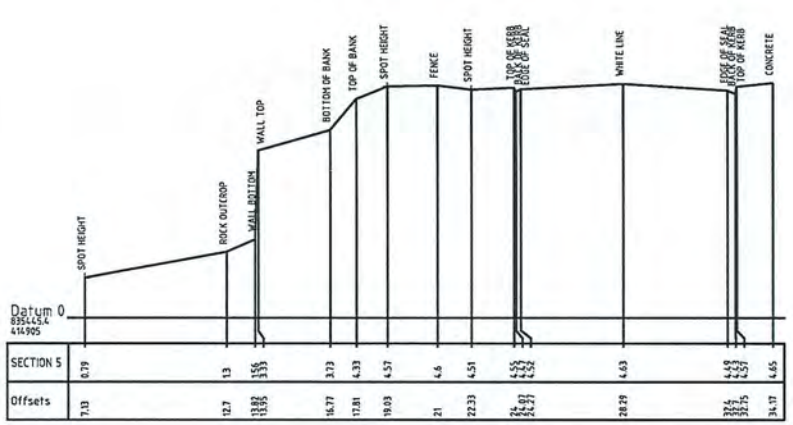
Beca

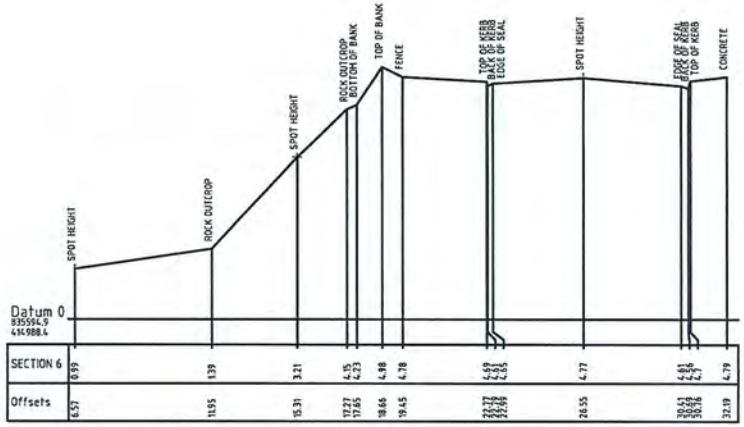
Original Scale (A1)	1:400
Reduced Scale (A3)	1:200

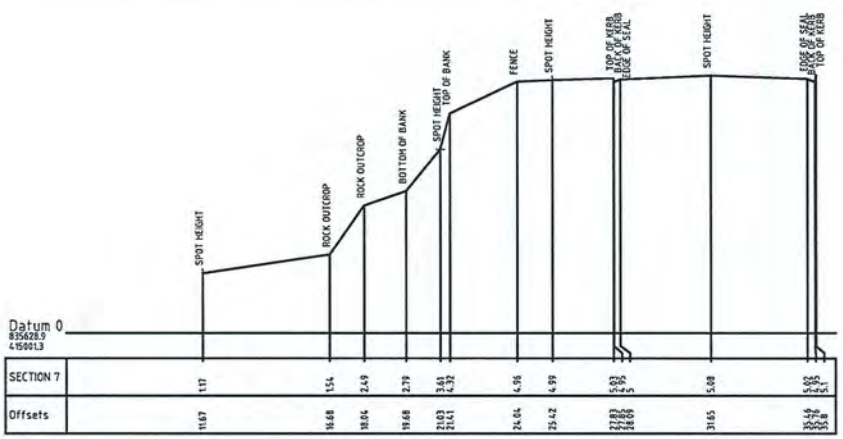
		Date
Surveyed	JDC	JAN 15
Drawn	JDC	FEB 15
Verifier	DRF	FEB 15
Dwg Check		

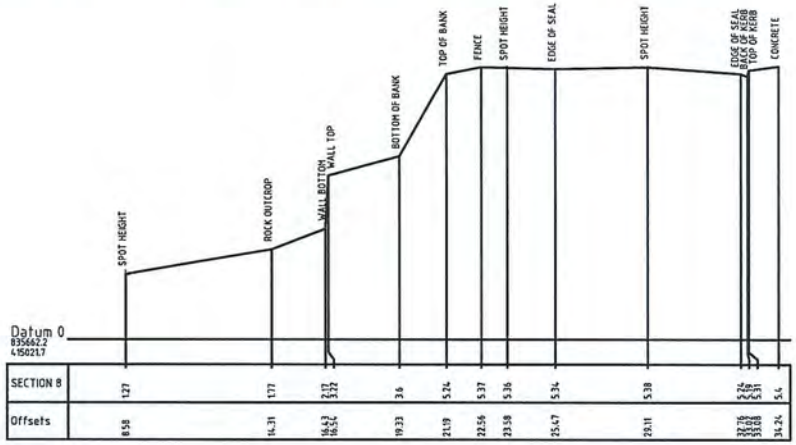
Approved For Issue* DRF Date FEB 15

DO NOT SCALE









COASTAL ROAD CROSS SECTIONS SHEET 2

FOR INFORMATION
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
-	UNDER REVISION				

Drawing Originator: Beca

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Reduced Scale (A3)	1:200	Drawn	JOC	FEB 15
		Verifier	DRF	FEB 15
		Dwg Check		

Approved For Issue: DRF
Date: FEB 15
* Refer to Revision 1 for Original Signature

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI UPGRADE WORKS

Title: ROAD CROSS SECTIONS

Discipline: SURVEY

Drawing No.: 4261160-GA-02

Rev.: A

Document No.: 4261160-GS001.DWG

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Beca | Kāpiti Coast DISTRICT COUNCIL Mo Muri Whakamua, Ka Tūtū Whakamua

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PROFILE SURVEYS

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 16 OF 18

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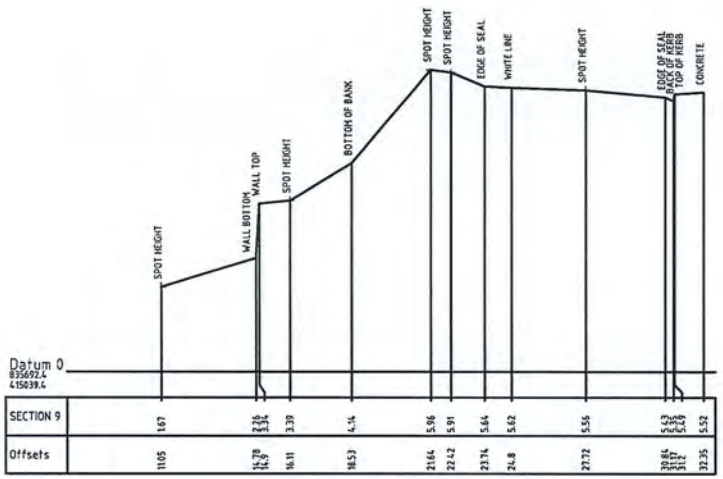

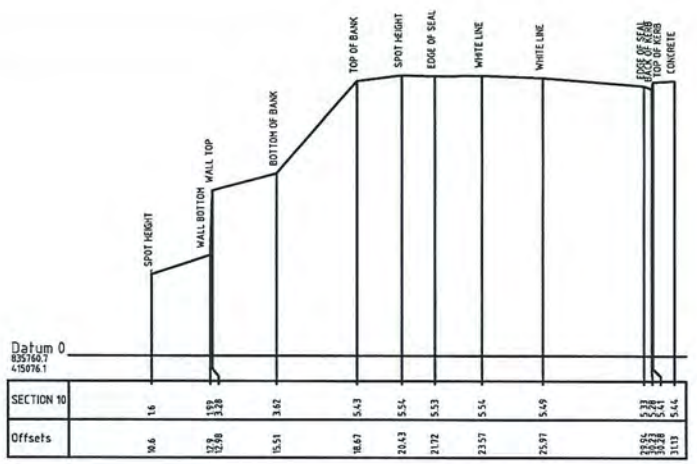

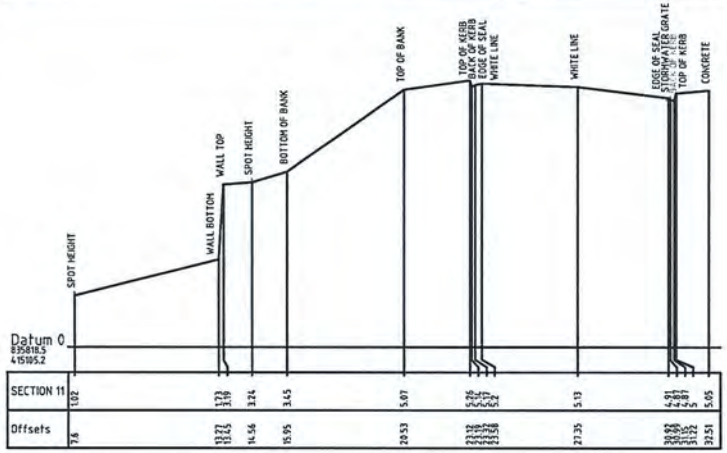

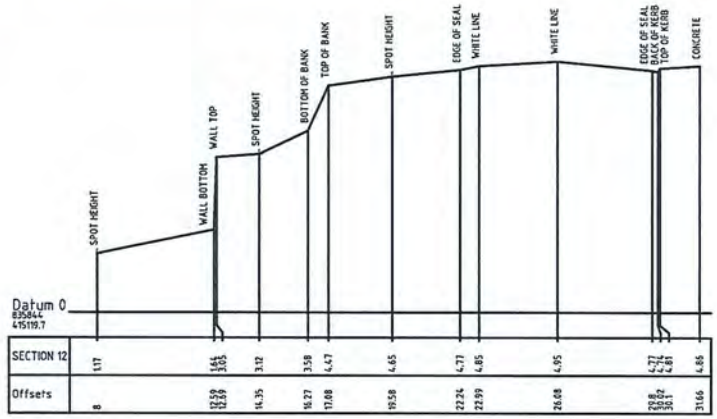

COASTAL ROAD CROSS SECTIONS SHEET 3

FOR INFORMATION
NOT FOR CONSTRUCTION

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No.	Revision	By	Chk	Apprd	Date
+	UNDER REVISION				

Drawing Originator: Beca

Original Scale (A1)	1:400	Surveyed	JOC	JAN 15	Approved For Issue*
Reduced Scale (A3)	1:800	Drawn	JOC	FEB 15	DRF
		Verified	DRF	FEB 15	
		Dwg Check			Date FEB 15
		* Refer to Revision 1 for Original Signature			

Client: KAPITI COAST DISTRICT COUNCIL
Project: PAEKAKARIKI UPGRADE WORKS
Title: ROAD CROSS SECTIONS
Discipline: SURVEY
Drawing No.: 4261160-GA-03
Rev.: A
Document No. 4261160-GA01.DWG

DO NOT SCALE — Source Application: — IF IN DOUBT ASK.

Beca | Kāpiti Coast DISTRICT COUNCIL Te Kaunihera o Kāpiti

PAEKAKARIKI COASTAL EDGE - PRELIMINARY CONCEPT
PROFILE SURVEYS

DESIGN: AB DRAWN: AB
REVIEWED: WR
BECA REF: 6519300

REVISION: J
FOR COMMUNITY CONSULTATION
JULY 2015

ORIGINAL SIZE: A3
SHEET 17 OF 18

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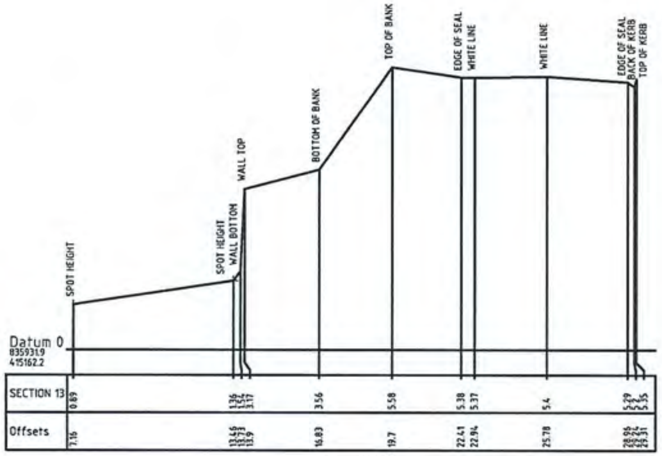

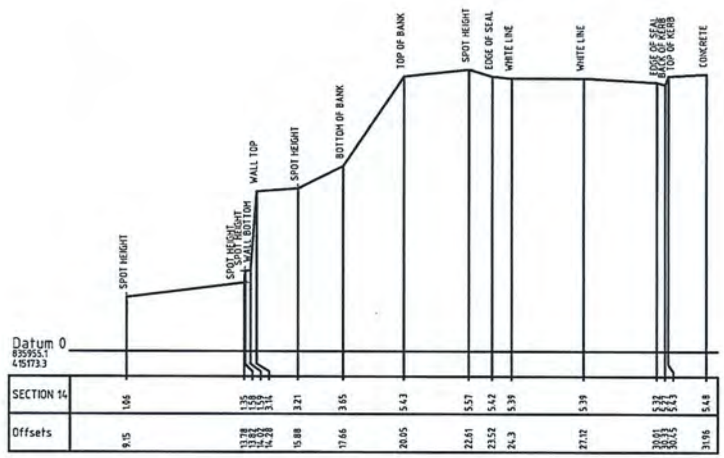

COASTAL ROAD CROSS SECTIONS SHEET 4

FOR INFORMATION
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
-	UNDER REVISION				

Beca

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	Drawn	JOC	FEB 15	
Reduced Scale (A3) 1:200	Verifier	DRF	FEB 15	
	Dsg Check			Date FEB 15

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI UPGRADE WORKS

Title: ROAD CROSS SECTIONS

Discipline: SURVEY

Drawing No. 4261160-GA-04 Rev. A

DO NOT SCALE

Mayor and Councillors
COUNCIL

27 AUGUST 2015

Meeting Status: **Public**

Purpose of Report: For Decision

REPORTS AND RECOMMENDATIONS FROM STANDING COMMITTEES AND COMMUNITY BOARDS

PURPOSE OF REPORT

1 This report presents reports and recommendations considered by Standing Committees and Community Boards from 8 June 2015 – 7 August 2015.

BACKGROUND

2 Meetings took place on the following dates:

Appeals Hearing Committee	16 June 2015
Environment and Community Development Committee	30 July 2015
Ōtaki Community Board	9 June 2015 21 July 2015
Paekākāriki Community Board	14 July 2015
Paraparaumu-Raumati Community Board	23 June 2015 14 July 2015
Regulatory Management Committee	11 June 2015 23 July 2015
Waikanae Community Board	16 June 2015 21 July 2015

3 In addition, the following meetings took place:

Te Whakaminenga o Kāpiti	14 July 2015
Kāpiti Coast Youth Council	22 June 2015, 20 July 2015, 3 August 2015
Kāpiti Coast Older Persons' Council	24 June 2015, 29 July 2015

<u>Appeals Hearing Committee</u>

4 The Committee met on 16 June 2015 to discuss the following:

- Development Contributions – L F Manning

Environment and Community Development Committee

5 The Committee met on 30 July 2015 to discuss the following:

- Proposed Lease of the Kiosk at Maclean Park
- Draft Submission on NES for Plantation Forestry

6 There was a presentation from the Wellington Free Ambulance.

7 There was one Matter of an Urgent Nature regarding repair work currently being undertaken at the Paekākāriki Stream (aka Wainui Stream).

Ōtaki Community Board

8 The Community Board met on 9 June 2015 to discuss the following:

- Consideration of Applications for Funding
- Update: Ōtaki i-Site Transition

9 There was one Matter of an Urgent Nature on the Ōtaki Courthouse Building Tender.

10 The Community Board also met on 21 July 2015 to discuss the following:

- Consideration of Applications for Funding
- 2015 Representation Review – Council's Initial Proposal

11 There was a recommendation for noting – this matter has been dealt with elsewhere on the agenda:

That the Ōtaki Community Board notes the decision made by Council on 18 June 2015 on its initial proposal for representation arrangements and basis of election for the 2016 local body elections, as required by the Local Electoral Act 2001, and endorses the initial proposal without amendment,

Paekākāriki Community Board

12 The Community Board met on 14 July 2015 to discuss the following:

- Consideration of Funding Application
- Paekākāriki Seawall
- 2015 Representation Review – Council's Initial Proposal for Community Board Consideration

13 There was a presentation from Kiwirail.

14 There were two recommendations for noting:

That the Paekākāriki Community Board recommends to Council that detailed design works proceed on the preferred preliminary concept, as attached as Appendix 1 to report IS-15-1634, for the replacement of the Paekākāriki Seawall.

That the Paekākāriki Community Board recommends to Council that resource consent applications are lodged based on the preferred preliminary concept for the replacement of the Paekākāriki Seawall, as attached as Appendix 1 to report IS-15-1634.

15 Appendix 1 to report IS-15-1634 is appended to this report for information. Work is proceeding.

16 There was another recommendation for noting – this matter has been dealt with elsewhere on the agenda:

That the Paekākāriki Community Board notes the decision made by Council on 18 June 2015 on its initial proposal for representation arrangements and basis of election for the 2016 local body elections, as required by the Local Electoral Act 2001, and endorses the initial proposal without amendment.

Paraparaumu-Raumati Community Board

17 The Community Board met on 23 June 2015 to discuss the following:

- Consideration of Applications for Funding

18 There was a presentation from the Alliance on pedestrian bridges.

19 The Community Board also met on 14 July 2015 to discuss the following:

- Consideration of Applications for Funding
- Future Use of the Kiosk at Maclean Park
- 2015 Representation Review – Council's Initial Proposal

20 There was a presentation from Opus on the Raumati Road Corridor.

21 There was one recommendation for adopting:

That the Paraparaumu-Raumati Community Board recommends Council take formal steps to express its concern to the Ministry of Conservation about the lack of best practice biosecurity management which includes a customised biosecurity hut for visitors to Kapiti Island.

22 There was another recommendation on the 2015 Representation Review for noting. The matter has been dealt with elsewhere on the agenda.

Recommends to Council that the initial proposal be varied in the following way:

That the Board membership be increased by one additional elected member in order to strengthen fair and effective representation for the Paraparaumu-Raumati community, especially in respect of an increased workload for Board members and in recognition of the Board's area of responsibility being the largest population in the District.

Regulatory Management Committee

23 The Committee met on 11 June 2015 to discuss the following:

- June Update on the Proposed District Plan
- Draft 2015 Speed Limits Bylaw

24 There were presentations on the Urban Tree Plan Variation, the Expressway, Building Consenting (Preparedness for IANZ, Proposed Changes to Building Legislation) and Flood Recovery Assistance.

25 The Committee also met on 23 July 2015 to discuss the following:

- Kāpiti Coast District Council Submission on the Building Act Emergency Management Proposal
- Submission on the Building (Earthquake Prone Buildings) Amendment Bill
- July 2015 Update on the Proposed District Plan
- Application for Exemption Under Section 6 of the Fencing of Swimming Pools Act 1987 – 64 Sims Road, Te Horo

26 There was a presentation on the Draft Submission on NES for Plantation Forestry.

Waikanae Community Board

27 The Community Board met on 16 June 2015 to discuss the following:

- Swearing in of member-elect Jill Lloyd
- Election of Chair of Waikanae Community Board
- Consideration of Applications for Funding
- Waikanae Traffic Report
- Board Members' Attendance at Meetings
- Update: Representation Review

28 There was a presentation from Transpower and a brief summary on the flooding of 14 May 2015.

29 The Chief Executive's nominee provided an Explanation of Legislation affecting Elected Members to the newly sworn-in member Jill Lloyd in accordance with statutory provisions.

30 The Community Board also met on 21 July 2015 to discuss the following:

- Consideration of Applications for Funding
- Update: Old Waikanae Beach Preservation Society
- 2015 Representation Review – Council's Initial Proposal

31 There was a recommendation on the 2015 Representation Review for noting. The matter has been dealt with elsewhere on the agenda.

Recommends to Council that the initial proposal be varied in the following ways and for the reasons outlined below:

The Board supports the Council's initial proposal with regard to the proposed boundary change between the Waikanae and Ōtaki Wards, but requests that this change also include meshblock 1998404 which would see the residents of the Waikanae Downs area (and specifically those of Aston Road/Kebbel Drive) included in the Waikanae Ward and Waikanae Community Board. The reason the Board is requesting this variation is to avoid splitting a community of interest, as per section 19V(3)(ii) of the Local Electoral Act 2001.

Te Whakaminenga o Kāpiti

32 The group met on 14 July 2015 to consider the following:

- Iwi Representation to the Kāpiti Economic Development Leadership Group
- Kāpiti Visitor Attraction Strategy
- July 2015 Update on the Proposed District Plan
- 2015 Representation Review – Council's Initial Proposal
- Iwi updates
- Council update

33 There was a recommendation for noting. The matter has been dealt with elsewhere on the agenda.

That Te Whakaminenga o Kāpiti notes Council's initial proposal as resolved by Council on 18 June 2015, relating to the review of representation and basis of election for the 2016 local body elections.

Kapiti Coast Youth Council

34 The Kāpiti Coast Youth Council met on 22 June 2015 to consider the following:

- Elected Members Update
- Kiosk Assessment Panel
- Youth Led Innovation Trust
- Youth Survey
- Youth Centre
- Youth2U Dollars Report Back
- Ministry of Youth Development Proposal
- Planning and Fun Day Idea
- Otaki Basketball Court

35 The Kāpiti Coast Youth Council also met on 20 July 2015 to consider the following:

- Elected Members Update
- Kiosk Assessment Panel
- Youth Led Innovation Trust – new Trustees
- Matariki
- Youth Council Planning Day
- Youth Survey

36 The Kāpiti Coast Youth Council also met on 3 August 2015 to consider the following:

- Councillors Update
- Otaki Basketball Court
- Safety in Communities
- Combined Schools Event
- Strategic Planning Items

Kapiti Coast Older Persons' Council

37 The Kāpiti Coast Older Persons' Council met on 24 June 2015 to consider the following:

- Age Friendly Update

38 At this meeting Raewyn Hailes from CCS Disability Action spoke to the group.

39 The Kāpiti Coast Older Persons' Council also met on 29 July 2015 to consider the following:

- Update: Age Friendly Steering Group

40 There was a presentation from Scott Dray on Emergency Preparedness.

RECOMMENDATIONS

41 That Council receives Report Corp-15-1656.

Report prepared by	**Approved for submission**	**Approved for submission**
Annette McLaughlin	Wayne Maxwell	Sharon Foss
Democracy Services Advisor	**Group Manager Corporate Services**	**A/g Group Manager Community Services**

MINUTES	MEETING	TIME
KĀPITI COAST DISTRICT COUNCIL	**THURSDAY 27 AUGUST 2015**	**10.05 AM**

Minutes of a six-weekly meeting of the Kapiti Coast District Council on Thursday 27 August 2015, commencing at 10.05 am in Council Chambers, Ground Floor, Kapiti Coast District Council, 175 Rimu Road, Paraparaumu.

PRESENT

Mayor	R	Church	Chair
Cr	D	Ammundsen	
Cr	M	Bell	
Cr	J	Elliott	
Cr	P	Gaylor	
Cr	K	Gurunathan	
Cr	J	Holborow	
Cr	D	Scott	
Cr	M	Scott	
Cr	G	Welsh	

ATTENDING

Mr	P	Edwards	(Chair, Paekākāriki Community Board)
Mr	J	Cootes	(Chair, Ōtaki Community Board)
Ms	F	Vining	(Chair, Paraparaumu-Raumati Community Board)
Mr	E	Gregory	(Chair, Waikanae Community Board)
Ms	A-M	Ellison	(Member, Te Whakaminenga o Kāpiti)
Mr	P	Dougherty	(Chief Executive)
Ms	S	Foss	(Acting Group Manager, Community Services)
Mr	S	McArthur	(Group Manager, Strategy and Planning)
Mr	S	Mallon	(Group Manager, Infrastructure Services)
Mr	W	Maxwell	(Group Manager, Corporate Services)
Mr	K	Currie	(Group Manager, Regulatory Services)
Ms	J	McDougall	(Communications Manager)
Ms	V	Starbuck-Maffey	(Democracy Services Manager - Minute-Taker)

The Mayor welcomed everyone to the meeting, explained the process today and read the Council blessing.

KCDC 15/08/423
APOLOGIES

MOVED (Mayor/M Scott)

That apologies are accepted from Cr Jackie Elliott for lateness.

CARRIED

It was noted that Cr Mike Cardiff was on leave of absence.

DECLARATIONS OF INTEREST

In relation to agenda item 7 on the Code of Conduct Complaints, declarations of interest were made by Cr Welsh, Cr Holborow, Cr Ammundsen, Cr Bell, Cr Michael Scott, and the Mayor. All indicated they would refrain from voting where they were the subject of the complaint.

Cr David Scott indicated he would read out a statement on behalf of Kerry Bolton (during the report item).

KCDC 15/08/424
PUBLIC SPEAKING TIME (FOR ITEMS RELATING TO THE AGENDA)

1. Jane Stevenson-Wright spoke about the Code of Conduct agenda item in support of Dr Bolton.

2. Max Trask spoke about the Code of Conduct item in support of Kerry Bolton saying there had been too many such complaints and, and he would like to see better handling of complaints in future.

3. Kathy Thomson read out a statement (circulated) about the Code of Conduct item in support of natural justice and this was not a fair and independent hearing as Dr Bolton the complainant could not be present (as he had been trespassed from the building). In response to a question Ms Thomson indicated she was not aware of any flyer being distributed around Paraparaumu signed by Dr Bolton and she had not helped to deliver it.
4. *Cr Elliott arrived at 10.25am.*

   Cr David Scott indicated that because Dr Bolton could not take part today he would sit in the public gallery during the debate on his Code of Conduct complaints. It was established that the Chief Executive had emailed Councillors the evening before with the flyer attached, and that Dr Bolton had been responsible for its distribution.

5. Kathy Thomson (on behalf of Dr Kerry Bolton) read out a statement (circulated) about the Code of Conduct agenda item with reference to the CCTV footage of the foyer area on 26 February. The CCTV footage clip (20 secs) was shown on the Chambers screen. After an interjection by Mr Trask the Mayor gave him a warning. After a further interjection Mr Trask was asked to leave and was escorted from the Chambers by Main Security.

6. Salima Padamsey spoke on behalf of Coastal Ratepayers United (CRU) about the Urban Tree Variation item on the agenda (submission circulated). The report being relied on today was full of mistakes and there was no evidence to support the Council's decision. In reference to a remark on an audio recording of a previous meeting there was confusion as to whether the remark had been made by Cr Holborow or Cr Gaylor. Cr Holborow said she recollected making the remark and was willing to retract it. She acknowledged that CRU represented a large organisation.

7. Dale Evans spoke to his submission (circulated) about the Code of Conduct complaints item, focussing on why there are so many complaints and saying Councillors had lost their focus.

The Mayor suspended the meeting at 10.47am and Mr Evans was asked to leave because he went off-topic, and he wouldn't stop shouting and criticising the Chief Executive. He was escorted from Chambers by Main Security.

The Mayor made a statement about the standards of behaviour that were acceptable at meetings saying that the Chambers was a workplace for Councillors and staff and some of the behaviour in the public gallery recently had been unacceptable. He would no longer tolerate any abuse of Councillors or staff.

In response to a further interjection from Ms Jenny Cronin in the public gallery the Mayor again suspended the meeting at 10.51am and Ms Cronin was asked to leave the room and was escorted out by Main Security. The meeting resumed.

8. Andrea and David Hadfield spoke about the renaming of the Nikau Valley Reserve to the Barry Hadfield Reserve, thanking the Council for this commemoration, and supporting the Mayor's decision to set standards of behaviour at meetings. The Mayor said he would allow comments as well as questions about Barry Hadfield. Cr Ammundsen said she had the pleasure of working with Mr Hadfield and had enormous respect for him. Cr Gurunathan also honoured the memory of Mr Hadfield.

9. Cr Jackie Elliott read out a statement which provided a verbal update on the work of the Regional Waste Forum, which had been attended by 29 members. She described the constitution of the Forum and some of the topics discussed. Greater Wellington Regional Council (GWRC) were benchmarking corporate waste with a view to developing targets. The Forum would meet again in mid-November. It was agreed that if time allowed this topic would be revisited later in the meeting.

10. John Le Harivel spoke about the Code of Conduct complaint and the Urban Tree Variation, asking if the Standens would have been prosecuted under the new regime (he believed they would have been). He asked when the natives he had planted reached the specified dimensions in the variation who would do the monitoring and when would they become protected?

    Cr M Scott left the meeting at 11.05am.

KCDC 15/08/425
MEMBERS' BUSINESS

(a) Responses to Public Speaking Time – the issues raised by public speakers would be dealt with during the agenda items.

(b) Leave of Absence - none was requested.

(c) Matters of an Urgent Nature – there were none.

The meeting adjourned at 11.09am and reconvened at 11.25am.
Cr M Scott returned to the meeting.

KCDC 15/08/426
CODE OF CONDUCT COMPLAINTS (CE-15-1667)

The Mayor said the report would be taken as read and invited Cr David Scott to make the statement on behalf of Dr Bolton, and then John Vickerman (also on behalf of Dr Bolton) would read out a statement about each of the subjects of Dr Bolton's complaints.

Cr Gurunathan foreshadowed he would move a motion that the report be left to lie on the table.

Cr David Scott read out the statement by Dr Kerry Bolton which protested about his not being allowed to attend this meeting which was a denial of his rights under the New Zealand Bill of Rights. What was alleged to have happened did not happen.

Cr Gurunathan moved his motion which was seconded by Cr David Scott. He believed the current process was unproductive and natural justice would be served in waiting for the Ombudsman's decision about two earlier complaints as this would provide clarity.

Although it was acknowledged there was some merit in waiting for the Ombudsman, other Councillors believed the complaints should be dealt with today, given that the Ombudsman's Office tended to progress cases slowly. An undesirable precedent could be set if Council waited; Council should make its own decisions. If necessary the Ombudsman's decision could be implemented later. One of the substantive principles of natural justice was that complaints were dealt with in a timely way.

Cr Elliott foreshadowed another motion which would seek to hold a workshop to review the Code of Conduct:

> *That Council vote to hold a workshop process chaired by an independent facilitator to rewrite the Code of Conduct policy and process and to facilitate discussion on the dissatisfaction in the governance delegations and to address current imbalances in the organization.*

It was agreed to revisit her motion once the motion under consideration had been dealt with.

MOVED (Gurunathan/D Scott)

> As the Code of Conduct does not specify when Council is required to investigate a breach of the Code, that this report and investigation be left lying on the table until after the Office of the Ombudsman's investigation of the two complaints by Ms Salima Padamsey relating to the Council's Code of Conduct is concluded.
>
> A division was requested:
> For the motion: Cr Gurunathan, Cr D Scott, Cr Elliott
> Against the motion: Cr Bell, Cr M Scott, Cr Welsh, Cr Holborow, Cr Gaylor, Cr Ammundsen, the Mayor
>
> LOST

Cr Gurunathan withdrew from debate during the rest of this item.

Cr David Scott said he would not be involved in any debate concerning Dr Bolton's complaints about Councillors but would return to the table for the complaints lodged by Cr Elliott.

Cr Elliott read out her motion again. The Chief Executive explained that this was debated and voted on six weeks ago, and he explained the conditions under Standing Orders whereby a previous resolution could be revoked and Cr Elliott's proposed motion did not fulfill these requirements. It was pointed out that there were two parts to the motion, the second part concerned governance processes and delegations which had not been previously voted on, and it was suggested the motion be split in two. Accordingly Cr Elliott reworded her motion:

> That Councillors vote to hold a workshop process with an independent facilitator to facilitate discussion and resolution of the dissatisfactions with the current imbalances in the governance delegations.

There was no seconder so the motion lapsed.

Cr David Scott left the Council table and sat in the public gallery.

The Mayor invited John Vickerman to the podium to read out the statements by Dr Bolton in relation to each Councillor.

<u>Cr Michael Scott</u>
John Vickerman read out Dr Bolton's statement pertaining to Cr Michael Scott. The Mayor allowed Cr Michael Scott to read out his prepared response (which had been circulated to all Councillors) which recommended that the matter be dismissed as the actions under consideration were under Standing Orders not the Code of Conduct:

- There is a statutory framework under which councils operate. This places specific statutory obligations on elected members and also provides for a secondary level of documents which enable councils to operate.

- At a secondary level there are documents such as Model Standing Orders for meetings which cover multiple levels of administration such as delegations as well as the mechanics of how meetings are run. This document is authorized and required by the primary statutory framework.

- There is also a tertiary level of document such as councils' Codes of Conduct. This document complements Council's Standing Orders but is not designed to override the Standing Orders, indeed it specifically states it must, especially in terms of the conduct of meetings, differ to Council's Standing Orders.

- The actions complained of in Dr Bolton's complaint occurred during a meeting in the Council Chambers where Standing Orders applied and where the Chair applied Standing Orders to the business of the meeting. The Chair had the ultimate authority under Standing Orders to deal with the conduct of the meeting and his decision was final.

- Thus, there is no scope for the Code of Conduct to be used to relitigate the decisions made by the Chair.

MOVED (Gaylor/Holborow)

That Council declines to uphold the complaint by Dr Kerry Bolton against Cr Michael Scott under the Council's Code of Conduct.

CARRIED

Cr Michael Scott abstained from voting.
Cr Elliott voted against the motion.

Cr Murray Bell
John Vickerman read out Dr Bolton's statement pertaining to Cr Bell and Cr Bell responded, recommending the complaint be dismissed.

Cr Elliott said the process was flawed and evidence incomplete, and referred to Local Government New Zealand's suggestion that complaints be heard by an independent panel comprising members of the public. There was also an allegation that Councillors had colluded about their reports, and the Mayor denied this.

MOVED (M Scott/Ammundsen)
That Council declines to uphold the complaint by Dr Kerry Bolton against Cr Murray Bell under the Council's Code of Conduct.
CARRIED

Cr Bell abstained from voting.
Cr Elliott voted against the motion.

Cr Penny Gaylor
John Vickerman read out Dr Bolton's statement pertaining to Cr Gaylor and Cr Gaylor responded, supporting Cr Michael Scott's point about the precedence of Standing Orders over the Code of Conduct, and said she was clear about what she saw. Cr Gaylor said she would not be voting on this issue.

Cr Welsh left the meeting at 12.28pm and returned at 12.29pm.

Cr Elliott disputed that Councillors saw what actually happened. Cr Bell asked that it be recorded that Cr Elliott was wrong.

MOVED (M Scott/Bell)

That Council declines to uphold the complaint by Dr Kerry Bolton against Cr Penny Gaylor under the Council's Code of Conduct.

CARRIED

Cr Gaylor abstained from voting.
Cr Elliott voted against the motion.

Cr Janet Holborow
John Vickerman read out the statement by Dr Bolton regarding Cr Janet Holborow who responded by saying she would not change her statement today as it had been truthful according to her

recollection. The incident in question had occurred in Council Chambers where there was no CCTV coverage. This Council was a White Ribbon Council and she supported the Mayor setting standards of respect today.

MOVED (Gaylor/Mayor)

That Council declines to uphold the complaint by Dr Kerry Bolton against Cr Janet Holborow under the Council's Code of Conduct.

CARRIED

Cr Holborow abstained from the voting.
Cr Elliott voted against the motion.

Cr Diane Ammundsen
John Vickerman read out the statement by Dr Bolton regarding Cr Ammundsen, who explained the nature of her earlier statement which was not an affidavit. She believed the complaints were an attempt to bully elected members and recommended they be dismissed.

Cr Elliott moved a motion that this complaint be referred to an independent panel for investigation but the motion lapsed for want of a seconder. Cr Gaylor pointed out that Cr Elliott had submitted a statement in support of Dr Bolton so it was inappropriate for her to be moving such motions.

MOVED (Bell/Holborow)

That Council declines to uphold the complaint by Dr Kerry Bolton against Cr Diane Ammundsen under the Council's Code of Conduct.

CARRIED

Cr Ammundsen abstained from voting.
Cr Elliott voted against the motion.

Cr Gavin Welsh
John Vickerman read out the statement by Dr Bolton regarding Cr Welsh, who said he stood by his earlier statement regarding events.

MOVED (Ammundsen/Mayor)

That Council declines to uphold the complaint by Dr Kerry Bolton against Cr Gavin Welsh under the Council's Code of Conduct.

CARRIED

Cr Welsh abstained from voting.
Cr Elliott voted against the motion.

Mr Eric Gregory
John Vickerman read out the statement by Dr Bolton regarding Waikanae Community Board Chair Eric Gregory. Mr Gregory said he stood by his earlier statement and didn't appreciate being called

a liar. Cr Michael Scott was doubtful that this complaint had any standing, as Mr Gregory was a Community Board Chair present at the Council table at the invitation of Council. Cr Holborow asked that it be noted that the language in Dr Bolton's statements and subsequent accusations of lying and collusion were an unacceptable way of communicating with this Council.

MOVED (Bell/Gaylor)

That Council declines to uphold the complaint by Dr Kerry Bolton against Mr Eric Gregory under the Council's Code of Conduct on the grounds that it had no standing.

CARRIED

Cr Elliott voted against the motion.

The Mayor

As he was the subject of this next complaint the Mayor vacated the Chair and Cr Gaylor took over this role. John Vickerman read out a statement by Dr Bolton regarding the Mayor. The Mayor said none of the statement was true.

MOVED (Ammundsen/Welsh)

That Council declines to uphold the complaint by Dr Kerry Bolton against the Mayor under the Council's Code of Conduct.

CARRIED

The Mayor abstained from voting.
Cr Elliott voted against the motion.

As the next complaint had been lodged by Cr Elliott against the Mayor Cr Gaylor continued in the role of Chair. Cr David Scott returned to the Council table to participate in the debate on these complaints.

Cr Bell pointed out that when conflicts of interest were declared at the beginning of the meeting Cr Elliott wasn't in the room and asked if she intended to participate in voting. If she did, it would not be fair for the Mayor to be excluded from voting. Cr Elliott confirmed her intention to vote. The Mayor was asked if he wished to reconsider his abstention and he reconfirmed he would not be voting.

Cr Elliott said her complaints related to breaches of simple manners and respect. The Mayor had not ensured respect and had failed to uphold Standing Orders principles, and she accused the Mayor and Councillors of intimidation, bullying and collusion. The Mayor responded by saying the conduct of meetings was managed under the provisions in Standing Orders relating to the Chair's powers, and it was inappropriate for this matter to be brought to the table as a Code of Conduct complaint.

MOVED (Welsh/Ammundsen)

That Council declines to uphold the complaint by Cr Jackie Elliott brought against the Mayor under the Code of Conduct.

CARRIED

The Mayor abstained from voting.

As the next complaint was against Cr Gaylor, she vacated the role of Chair and the Mayor resumed the Chair.

Cr Elliott made a statement explaining the basis of her complaint, including a breach of relationships with her colleague who had used a derogatory term in relation to her (as per an audio recording of the meeting), and also in regard to inappropriate conduct at meetings, and relationships with the community. Cr Gaylor responded saying that using points of order during a meeting was clearly covered by Standing Orders and the Chair makes the ruling which was final. She said it was not clear on the audio recording as to who had uttered the word 'stupid', and that the transcript provided as part of the complaint was prepared by Cr Elliott.

MOVED (Ammundsen/Mayor)

That Council declines to uphold the complaint by Cr Jackie Elliott brought against Cr Penny Gaylor under the Code of Conduct.

CARRIED

Cr Elliott and Cr D Scott voted against the motion.

The Mayor made a statement. This Council had been accused of all sorts of bad behaviour and he rejected this utterly. He was particularly angry about the term 'bullying' being used as this Council was a White Ribbon council.

Cr Elliott left the Chambers at 1.25pm.

The Mayor continued, saying the Council was doing a good job of working strongly and proactively with the majority of the community. Inevitably there would be a small number of people who were unhappy with decisions and called them undemocratic. The kind of behavior previously seen at meetings would no longer be tolerated. He rejected utterly all the accusations made today.

The meeting adjourned at 1.30pm and reconvened at 2.05pm.
Mr Gregory had left the meeting.
Cr Elliott rejoined the meeting.

KCDC 15/08/427
URBAN TREE VARIATION (SP-15-1675)

Consultant Planner Paul Thomas, Group Manager Strategy and Planning Stephen McArthur and Manager Research, Strategy and Planning Darryl Lew spoke to the report. Paul Thomas summarized key features, and acknowledged that iwi had been consulted and while further work

was to be done on culturally significant trees in the future, Variation 1 was supported by iwi and no substantive amendments were proposed today.

The submission period would be extended from 20 to 40 days to give the community plenty of time to consider the issues. Darryl Lew explained the process going forward and how it would dovetail into the Proposal District Plan (PDP) process. He noted that from the day the Variation was notified it would have immediate legal effect.

It was clarified that any Councillor voting today would not be conflicted in the event they were appointed as Hearing Commissioners for the PDP process.

Council could decide to amend the Variation today but significant changes could threaten the ability to meet the statutory due date of 4 September.
In response to a question it was clarified that if an unqualified arborist trimmed an urban native tree they could be vulnerable to prosecution, although prosecution was a tool of last recourse. Councillors were reminded of the Enforcement Policy adopted last year and its key features were explained by Acting Group Manager Community Services Sharon Foss.

Legal advice was sought on how to deal with ecological sites. These were largely retaining protection but there was some relaxation of rules around those sites in urban areas.

The consultation process was outlined.

It was noted that identification tags for trees had been suggested as part of a package of non-regulatory measures.

Resourcing further advice and even financial assistance for property owners was being considered.

The process for handling objections was discussed i.e. in the event someone found their property contained an ecological site. This scenario was unlikely as these sites had been identified in the PDP and affected landowners had been notified previously as part of the PDP process.

The cost of the consent fees was being further considered and would be brought back to Council for decision.

There was confusion about the number of trees under consideration and this was clarified.

There was some concern about the robustness of the section 32 report and it was suggested that the public/private benefit issue had not been covered sufficiently in the s32 assessment. The latter was acknowledged but not quantified in the s32 report. This was considered appropriate given the staged nature of the process.

Cr Michael Scott left the meeting at 2.50pm and returned at 2.54pm.

The Variation embraced the belief that people would look after their trees as long as it was done professionally and imposed a much lighter regulatory regime than previously in Kapiti.

A robust communications strategy would be implemented to make sure that the community fully understood all the rules and implications of the proposed new regime.

Philip Edwards left the meeting at 3.15pm and returned at 3.18pm.

Remission of fees was discussed. The charges could not be changed outright as they had already been adopted as part of the Long Term Plan but they could be remitted and a report could be brought back with information on the impact on revenue.

Cr Welsh left the meeting at 3.17pm and returned at 3.20pm.
Cr Elliott left the meeting at 3.26pm and returned at 3.30pm.

There were concerns about imposing regulations over people's private property and the possible cost of monitoring identified trees, as well as the longer-term implications, and the impact on non-qualified arborists. However another issue was the need for a regime in place as not everyone would obey the rules and it was too big a risk to leave trees unprotected.

Ann-Maree Ellison said that iwi had had a very short period of time to engage and that trees were very important to them. Iwi would be consulting with kaumātua and governance groups and bringing back any concerns.

MOVED (Welsh/Elliott)

That Council approves Variation 1 including only trees with an ecovalue of 10 out of 10.

A division was requested.
For the motion: Cr Welsh, Cr Elliott
Against the motion: the Mayor, Cr Bell, Cr Michael Scott, Cr Gurunathan, Cr David Scott, Cr Holborow, Cr Gaylor, Cr Ammundsen

LOST

MOVED (Bell/Ammundsen)

That the Council approve the public notification of Variation 1 to the Kapiti Proposed District Plan on Urban Trees as attached to SP-15-1675.

That the Council authorise the Mayor and Chief Executive to approve any minor amendments to Attachments 1-7 to SP-15-1675 prior to public notification.

A division was requested:
For the motion: Cr Bell, Cr Michael Scott, Cr Holborow, Cr Gaylor, Cr Ammundsen, the Mayor
Against the motion: Cr Gurunathan, Cr David Scott, Cr Elliott, Cr Welsh

CARRIED

MOVED (Gurunathan/M Scott)

That Council approves a remission of the current resource consent fee to zero for the trimming of protected trees.

A division was requested:

For the motion: Cr Welsh, Cr Holborow, the Mayor, Cr Bell, Cr Michael Scott, Cr Gurunathan, Cr Elliott
Against the motion: Cr Gaylor, Cr Ammundsen, Cr David Scott

CARRIED

MOVED (Ammundsen/Bell)

That Council approves the suspension of Standing Order 3.3.7 to allow discussions to continue.

CARRIED

The meeting adjourned at 3.51pm and reconvened at 4.05pm.

KCDC 15/08/428
2015 REPRESENTATION REVIEW – CONSIDERATION OF SUBMISSIONS AND FINAL PROPOSAL (CORP-15-1671)

Democracy Services Manager Vyvien Starbuck-Maffey spoke to this report, summarizing the process to date which involved pre-consultation coordinated by a Council-convened Working Party, recommendations by the Working Party to Council, an initial proposal which invited submissions, and the hearing of submissions. Today's decision point was to consider those submissions and decide whether the initial proposal should be amended in the light of those submissions. Under the provisions of the Local Electoral Act (LEA) 2001, the initial proposal could only be amended in response to the issues raised in submissions.

In regards to the request for an additional elected member on the Paraparaumu-Raumati Community Board (PRCB) it was clarified that remuneration ought not be a driving factor in decision-making around representation needs for communities. However the provisions of Schedule 3 in the Local Government Act 2002 relating to reorganization referred to the need to assess the impact of administrative changes including resources and so it was considered appropriate to treat remuneration as an issue. The Remuneration Authority was the body responsible for assessing elected member remuneration, including that for community boards, and this was calculated largely based on population.

The difference between appeals and objections was clarified. The boundary adjustment affecting Reikorangi and Huia had been made as part of Council's initial proposal; the further adjustment sought by submitters, if approved, would form part of the final proposal and therefore be open for objections.

The rating impact on residents being moved into the Waikanae Ward area would be nil.

There was debate about the proposed additional elected member on the PRCB. Some Councillors thought that population should be a deciding factor in which case the additional member should be approved. Other Councillors wanted to retain the status quo of four elected members, with a view to not increasing the overall number of 27 elected members for the District. The Chair of the PRCB said that the LGC had appointed both Ward Councillors in 2009 but after six years of experiencing the effect of this decision, advocacy, which was a key role of the Board, had been

diluted by Ward Councillors refraining from voting on certain issues. There were also multiple communities of interest being covered by the Board and a greater number and range of issues coming before the Board.

MOVED (Bell/Welsh)

That the Council receives Submissions 1 to 10 to the Council's initial proposal for representation arrangements, as adopted on 18 June 2015 and notes that these submissions are considered as part of the Council's deliberation and final proposal on representation arrangements for the 2016 local authority elections.

CARRIED

MOVED (Bell/Welsh)

Communities of interest
That after considering the submissions the Council confirms its initial proposal and identifies that the distinct geographic communities of interest for the Kapiti Coast District are as follows, and notes that these will form the basis for consequent decisions regarding fair and effective representation:

Community	Descriptor/Reasons
Ōtaki	**Separate township/s with associated rural areas, a major river and its own water supply**
Waikanae	**Separate geographic community of interest, with major river**
Paraparaumu	**Paraparaumu is the largest central community and therefore warrants separate recognition**
Raumati	**Although closely linked geographically with Paraparaumu it identifies itself as a distinct community**
Paekākāriki	**Separate village with a strong community of interest with a natural boundary at Queen Elizabeth Park in the north, and its own water supply**

MOVED (Bell/D Scott)

Number of Councillors
That after considering submissions Council confirms its initial proposal that for the 2016 local authority elections the Kapiti Coast District Council shall comprise a Mayor elected at large and ten Councillors, for the reasons that there has been no call for change, and that the number of members has been working well to provide representation for a District of this size.

CARRIED

MOVED (Welsh/Gaylor)

Ward system and basis of election
That after considering submissions Council confirms its initial proposal that for the 2016 local authority elections the Kapiti Coast District Council shall be divided into four wards to provide the various geographically distinct communities of interest with effective representation. The four wards will be:

Ōtaki Ward

Waikanae Ward

Paraparaumu Ward

Paekākāriki-Raumati Ward

CARRIED

MOVED (Welsh/Mayor)

That after considering submissions Council confirms its initial proposal that for the 2016 local authority elections the Kapiti Coast District Council shall comprise a mixed system of representation and that the ten Councillors shall be elected as follows:

- **1 member from the Ōtaki Ward**
- **1 member from the Waikanae Ward**
- **2 members from the Paraparaumu Ward**
- **1 member from the Paekākāriki-Raumati Ward (current boundary)**
- **5 members elected Districtwide**

CARRRIED

Reasons for decision:

- There has been no signal from the community for arrangements to be changed;
- The current mixed system is familiar to the community;
- The balance of Districtwide and Ward Councillors provides multiple points of access for representation for communities;
- Having both Districtwide and Ward Councillors caters to the dual nature of the Kapiti Coast District. The inclusion of Districtwide Councillors reflects the fact that many council services are funded on a districtwide basis and that the District is developing, while the inclusion of Ward Councillors provides representation for geographically distinct communities of interest and manifests the value the community continues to put on local democracy.

MOVED (M Scott/Bell)

That Council considers, in the light of submissions, to amend its initial proposal in respect of a change to ward boundaries:

Pursuant to clause 19V(3)(a)(ii) of the Local Electoral Act 2001, and in order to avoid splitting communities of interest across ward boundaries, the Council agrees:

(a) that the boundaries of the Ōtaki Ward and the Waikanae Ward be changed, to match those of the Ōtaki and Waikanae Community Boards, which will involve the addition of the following meshblocks to the existing Waikanae Ward (and removal of same from the Ōtaki Ward): 1883500, 1883600, 1883701, 1883703, 1883807, 1883808, 1883901, 1883902, 1883903, 1883904, 1884801, 1998502, 1998600, 1998700; and

(b) that the additional meshblock 1998404 be removed from the current Paraparaumu Ward and Paraparaumu-Raumati Community Board areas and added to the Waikanae Ward and Waikanae Community Board areas.

CARRIED

Reason for decision

Both these boundary adjustments are made in response to requests from the community and are made to avoid splitting a community of interest across ward boundaries, as enabled by clause 19V(3)(a)(ii).

MOVED (Gurunathan/Bell)
That, for the 2016 local authority elections the communities of the Kapiti Coast District will be represented by:

Ōtaki Community Board	4 elected members and 1 Ward Councillors
Waikanae Community Board	4 elected members and 1 Ward Councillors
Paraparaumu-Raumati Community Board	5 elected members and 2 Ward Councillors
Paekākāriki Community Board	4 elected members and 1 Ward Councillors

A division was requested:
For the motion: Cr Gurunathan, Cr D Scott, Cr Elliott
Against the motion: the Mayor, Cr Ammundsen, Cr Bell, Cr Gaylor, Cr M Scott, Cr Welsh, Cr Holborow
LOST

MOVED (Gaylor/Ammundsen)
That, for the 2016 local authority elections the communities of the Kapiti Coast District will be represented by:

Ōtaki Community Board	**4 elected members and 1 Ward Councillors**
Waikanae Community Board	**4 elected members and 1 Ward Councillors**

Paraparaumu-Raumati Community Board	**4 elected members and 2 Ward Councillors**
Paekākāriki Community Board	**4 elected members and 1 Ward Councillors**

CARRIED

Reasons for the decision

In coming to its decision the Council expressed confidence that four elected members, together with the two Ward Councillors, on the Paraparaumu-Raumati Community Board are sufficient to deal with the workload of that Board.

MOVED (Mayor/D Scott)
That the reasons for the amendment to the Council's initial proposal was pursuant to a new clause in the Local Electoral Act 2001 under 19V(3)(a)(ii) which would allow non-compliance with clause 19V(2) if compliance meant that communities would be divided across ward boundaries.

CARRIED

MOVED (Mayor/Welsh)

Pursuant to section 19N (2)(b) of the Local Electoral Act 2001, Council indicates that the submissions as listed at Appendix 3 of report Corp-15-1671 are accepted or rejected for the following reasons:

SUB	NAME	Accepted/Rejected because...
1	**Lynette Wharfe**	**Accepted - endorses the Council's initial proposal including the proposed boundary change**
2	**Federated Farmers of New Zealand**	**Rejected - the request for a Rural Advisory body is outside the scope of the Review**
3	**Waikanae Community Board**	**Accepted - s19V(3)(a)(ii) (not dividing a community of interest across ward boundaries)**
4	**Paraparaumu-Raumati Community Board**	**Rejected - four elected members and two Ward Councillors were deemed sufficient to carry out the Board's work**
5	**ART Forum**	**Accepted - endorsing the Council's initial proposal**
6	**Chrissie and John Greenhough**	**Accepted - s19V(3)(a)(ii) (not dividing a community of interest across ward boundaries)**
7	**Gwynn Compton**	**Accepted - supporting the Council's initial proposal**

8	**Kapiti Grey Power**	**Accepted - supporting the Council's initial proposal**
9	**Neil Woodbury**	**Accepted - supporting the Council's initial proposal**
10	**Murray Ballinger**	**Accepted - supporting the Council's initial proposal**

CARRIED

KCDC 15/08/429

RENAMING OF COUNCIL RESERVE FROM NIKAU TO BARRY HADFIELD NIKAU (CS-15-1597)

MOVED (Ammundsen/Gaylor)

That Council approves changing the name of the land described in Lot 1 DP 32725 from Nikau Reserve to Barry Hadfield Nikau Reserve.

CARRIED

KCDC 15/08/430

JOINT COMMITTEE – WELLINGTON REGIONAL WASTE MANAGEMENT AND MINIMISATION PLAN (IS-15-1674)

Group Manager Infrastructure Services Sean Mallon spoke to the report. It was clarified that Cr Gaylor had been appointed to the Joint Committee when it was first convened, but it had automatically been discharged at the end of the previous Triennium and so it was necessary to reconstitute the Joint Committee and appoint new members. It was clarified that the Joint Committee had not met in this Triennium but in the previous Triennium they had met to work on the Plan which, once finalized had been submitted to all Councils for their approval. Wellington City Council administers the Joint Committee and will continue to do so going forward. The Waste Management and Minimisation Plan would expire in 2017.

MOVED (M Scott/Bell)

That the Council approves the appointment of the Joint Committee for the Wellington Region Waste Management and Minimisation Plan implementation.

That the Council approves the Terms of Reference of the Joint Committee as set out in Appendix one of report IS-15-1674.

CARRIED

MOVED (M Scott/Gurunathan)

That the Council appoints Cr Elliott to the Joint Committee for the Wellington Region Waste Management and Minimisation Plan.

LOST

MOVED (Ammundsen/Bell)

That Council appoints Cr Gaylor to the Joint Committee for the Wellington Region Waste Management and Minimisation Plan with Cr Holborow as the alternate.

CARRIED

Cr David Scott voted against the motion.

Cr Elliott left the meeting at 4.56pm.

KCDC 15/08/431

REPORTS AND RECOMMENDATIONS FROM STANDING COMMITTEES AND COMMUNITY BOARDS (CORP-15-1656)

Paekākāriki Community Board

MOVED (Holborow/D Scott)

That Council notes the recommendation from the Paekākāriki Community Board that detailed design works proceed on the preferred preliminary concept (as at Appendix 1 of report IS-15-1634) for the replacement of the Paekākāriki Seawall.

CARRIED

James Cootes left the meeting at 5.04pm.

Paraparaumu-Raumati Community Board

MOVED (Gurunathan/Bell)

That Council take formal steps to express its concern to the Minister of Conservation about the lack of best practice biosecurity management which includes a customized biosecurity hut for visitors to Kāpiti Island.

CARRIED

MOVED (Bell/Holborow)

That Council receives Report Corp-15-1656.

CARRIED

After some discussion the meeting agreed to postpone consideration of some items to the next Council meeting.

MOVED (Mayor/Bell)

That agenda items 10 'Resident Opinion Survey 2015 (SP-15-1665) and 14 (Minutes of 16 July and 6 August 2015) be left lying on the table until the next Council meeting.

CARRIED

KCDC 15/08/432
PUBLIC SPEAKING TIME (COVERING OTHER ITEMS NOT ON THE AGENDA)

There were no other public speakers.

The Council meeting closed at 5.09pm.

Signed …….. / ……./ 2015
Mayor Ross Church, Chair

Appendix F

Coastal Process Assessment

Review of Coastal Processes Assessments at Paekakariki Beach and the Potential Impacts of the Proposed Replacement Seawall

Prepared for:

Kāpiti Coast DISTRICT COUNCIL
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Review of Coastal Processes Assessments at Paekakariki Beach and the Potential Impacts of the Proposed Replacement Seawall

Report Status

Version	Date	Status	Approved By:
V 1	21 December 2015	Final Draft	SO
V 2	28 February 2016	Rev 1	STM

It is the responsibility of the reader to verify the currency of the version number of this report.

Shaw Mead *BSc, MSc (Hons), PhD*

Sam O'Neill *BSc, MSc*

Cover Image: Photo of the Paekakariki coastline looking north.

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1 Introduction

1.1 Background

This report is a focussed review of existing coastal processes at Paekakariki Beach providing insight into beach dynamics and potential environmental effects in the context of the proposed seawall upgrade. The focus area for this report is illustrated by the red line in Figure 1.1, which indicates the extent of the current seawall, i.e. the proposed new seawall is in the same location as the existing one.

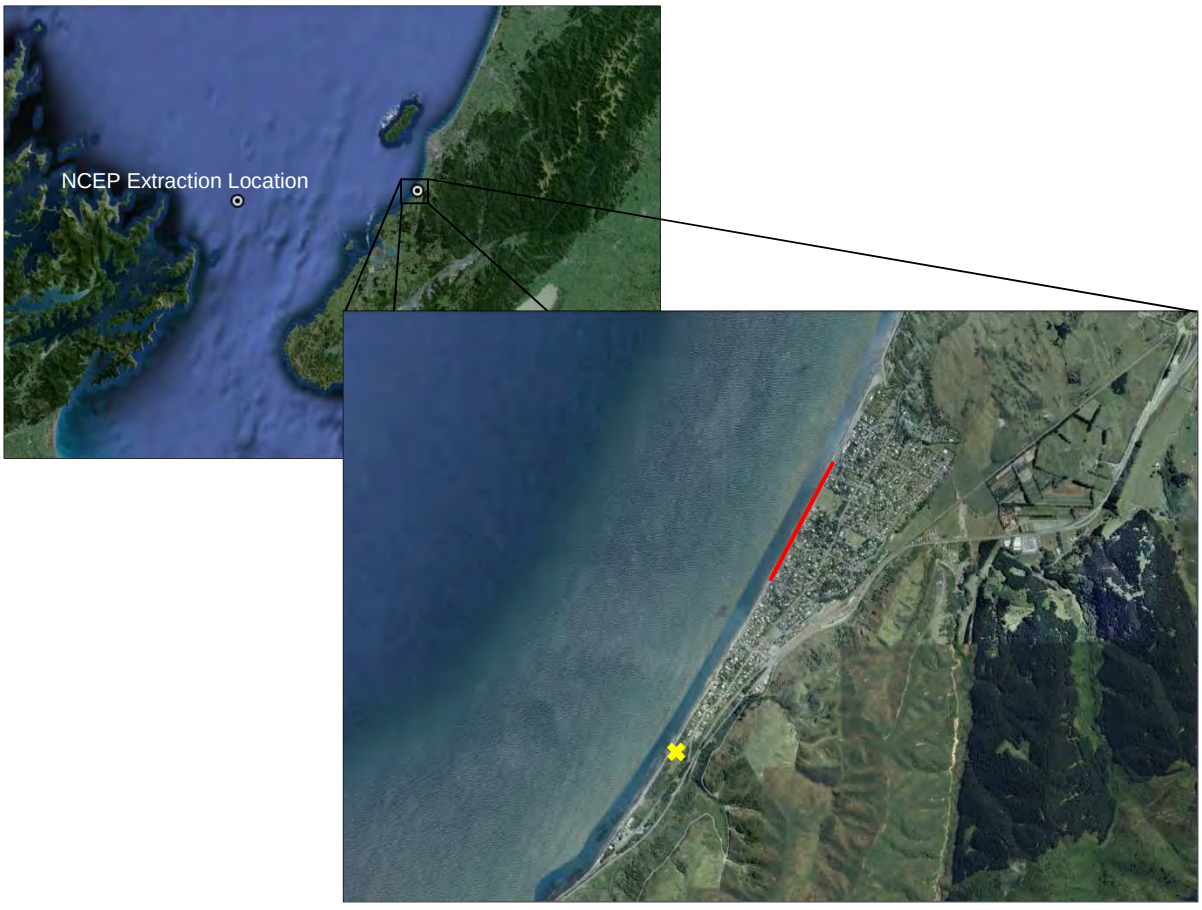

Figure 1.1. Location of the Paekakariki Beach seawall on the Kapiti Coast and the location of the global wave model extraction point. Red line indicates the extent of the current seawall and the yellow cross marks the location of the peg from which shorelines and beach widths are taken to consider erosion/accretion trends (Shand, 2008).

The first seawall was built in the mid-1950's in response to a severe storm in July 1954 and was subsequently exposed to a further series of storm events later that decade,

most notably in October 1957, leaving much of the structure in disrepair. A large storm event in September 1976 led to widespread erosion along this section of coastline and prompted the construction of a stronger wall, which has subsequently received numerous 'toe-rock' reinforcements throughout the following decades. The existing seawall is now some 15 years beyond its design life and requires replacement.

1.2 Site Description

Paekakariki Beach is situated to the south of the salient in the lee of Kapiti Island on the southwest coast of the North Island (Figure 1.1). This part of the coastline is characterised by narrow beaches with naturally eroding tendencies, high dune systems and dense residential settlements. It is proposed that the existing wooden seawall (Figure 1.2) is replaced with a more robust wooden seawall in the same location or landward of the existing seawall with a pathway above it and revetment and access-ways to the pathway and beach (Figure 1.3). The existing and proposed seawalls run along coast adjacent to The Parade from ~100 m north of Tangahoe Street to ~80 m north of Sand Track (Figure 1.1).

Figure 1.2. This existing Paekakariki Beach seawall.

Figure 1.3. The proposed new seawall to replace the failing existing seawall (Figure 1.2). (BECA, 2015).

Following a meeting to discuss the proposed seawall with Kapiti Coast District Council staff familiar with the site, Dr Iain Dawes from the Greater Wellington Regional Council and a representative from BECA who have developed the proposed seawall design, the full length of the seawall was viewed during mid-tide on 25 November 2015. At the time of the site visit, the sand level was considered fairly high, although the concrete toe remediation was visible in many locations. From this visual assessment

it was very clear that the existing seawall is in a very poor state, with several areas requiring rock placement in front to prevent total failure and severely degraded components (Figure 1.4).

Figure 1.4. Failing tie-backs (top), and placed rock protecting a section of failing seawall (bottom).

2 Existing Coastal Processes

2.1 Sediment Transport

With a predominant north to south littoral flow and a growing cuspate foreland in the lee of Kapiti Island, sediment transported southward from Cape Egmont and the South Taranaki Bight coastline is either trapped or deflected offshore forming an offshore bank (see Figure 2.1). Consequently, the southern portion of the Kapiti Coast is starved of sediment (i.e. the location of Paekakariki Beach. This effect has been exacerbated by the stifled supply of gravel from the greywacke hills to the south of Paekakariki resulting from the construction of State Highway 1 along the coast in the late 1930's. At Paekakariki, the local south to north alongshore drift (Figure 2.1), driven by infrequent southerly swell events, is the mechanism by which gravels are transported northward to nourish the beaches and over the past 80 years the 'removal' of sediment from the system has led to a retreating coastline and narrowing beach (Gibb, 1978).

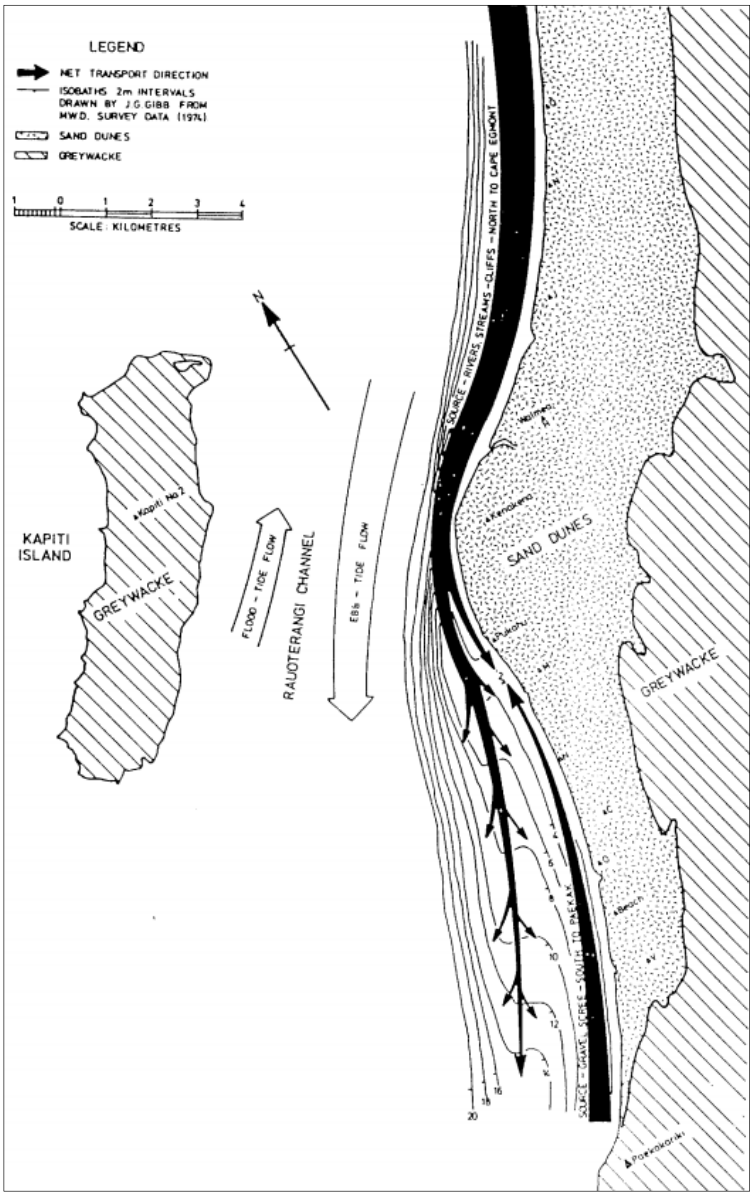

Figure 2.1. Net sediment transport regime along the Kapiti Coast as shown by the black arrows (Source: Gibb, 1978).

More recently, the accreting beach at Paraparaumu has been indicated as another cause of continued erosion at Paekakariki – i.e. material moving south towards Paekakariki Beach is accumulating at Paraparaumu.

The wave climate offshore of Paekakariki Beach (41.0º S; 174.5ºE - Figure 1.1) is shown in Figure 2.2 and incorporates 28 years of data (1979 - 2007) extracted from the 0.5 by 0.5 degree NOAA WW3 global wave model. The prevailing swells are seen to arrive from the northwest and from the south through Cook Straight. It is important to note that due to the location of Paekakariki Beach in comparison to the extraction site (Figure 1.1), only the small fraction of south-south-west components are able to propagate into Paekakariki. Gibb (1978) suggests that in the situation of prolonged south-south-west swells, northward transported sediments narrow the beach at Paekakariki leaving the dunes, and seawall exposed to northwest storm swells, particularly during spring high tides.

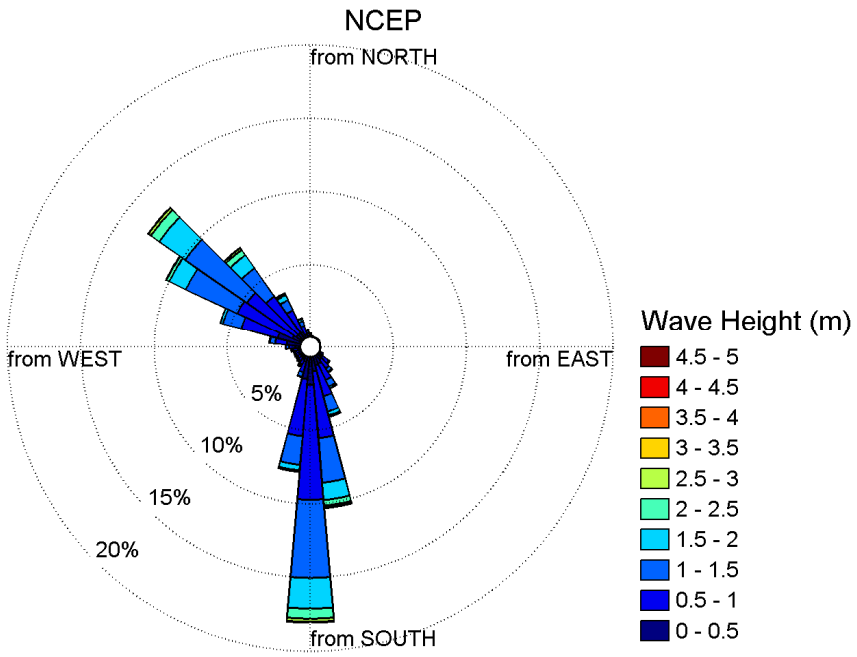

Figure 2.2. Wave rose from the modelled wave heights and directions offshore of Paekakariki extracted from the global wave model.

Black (titomagnetite) sand dominates the inter-tidal beach, although gravels are evident at times (Shand, 2008). Changes in the beach width at Paekakariki reflect the vulnerability of the coastline to erosion. A wide beach allows for waves to break and dissipate thereby protecting the foredune (or seawall), whereas a narrow beach leaves the foredune exposed to wave energy. Historically, episodes of shoreline cut-back at Paekakariki have been associated with phases of narrow beach width, namely the July 1954 and September 1976 events (Figure 2.3). It is important to note that there is no low tide step measurement for 1976 but it is likely to have been landward of the 1979 value. As can be seen in Figure 2.3, the cross-shore distance has remained relatively constant since the aggressive erosion of the late 1970's.

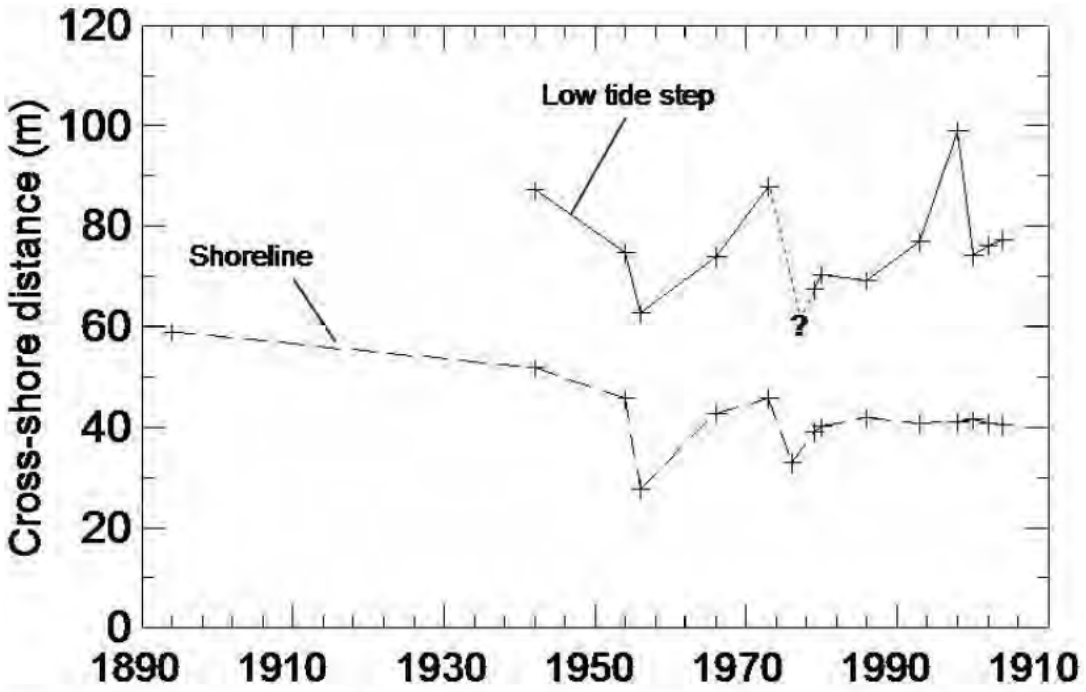

Figure 2.3. Beach width (recorded as distance to the low tide step) relative to the shoreline position (vegetated foredune-toe) recorded ~1 km south of the current seawall (see Figure 2.1). Note that there is no recorded low tide step entry between 1974 and 1979 (source: Kapiti Coast Erosion Hazard Assessment (Shand, 2008)).

The seawall at Paekakariki (Figure 1.2) has also contributed to erosion whereby wave energy reflected from the structure transports fine sand offshore giving rise to scour

and subsequent lowering of the beach level. However, it has protected the land behind it since it was put in place, in particular The Parade.

2.2 Coastal Erosion Trends

When a non-protected section of the beach just south of the site for the proposed seawall is considered, the shoreline at Paekakariki has followed an episodic regime of both erosion and accretion over the past 120 years with an overall trend of erosion (Figure 2.4). The two largest erosive events during the 1950's and 1970's are evident in Figure 2.4 where the shoreline retreated landward some 30 m and 25 m respectively relative to the 1894 shoreline. De Lange (2000) notes that these episodes occurred in conjunction with energetic phases of the Inter-decadal Pacific Oscillation (IPO). However, there is an observed decreased rate of erosion from -0.201 m/year pre-1954 to -0.054 m/year post-1954 (Figure 2.4), and decreased magnitude of erosion-recovery events since the 1950's, which suggests a stabilising shoreline or at least a period of reduce erosion rate. In addition, the Kapiti Coast Erosion Hazard Assessment (Shand, 2008) states that the longshore similarity in shoreline behaviour at Paekakariki is indicative of a response to the same processes although the magnitude of the response varies somewhat between locations along the length of the coast.

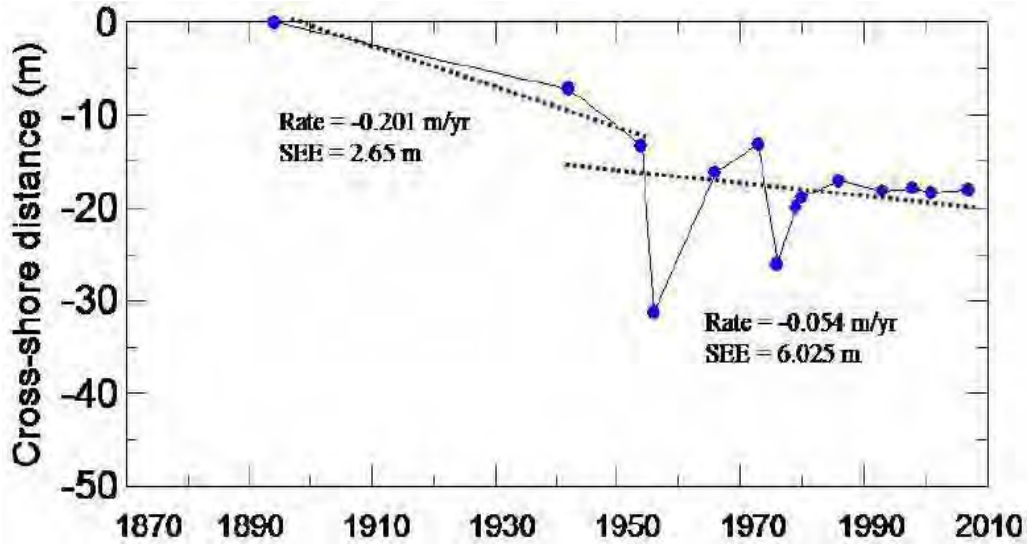

Figure 2.4. Shoreline time series recorded ~1 km south of the current seawall (see Figure 2.1) at Paekakariki Beach. Cross-shore distances are measured relative to the initial 1894 shoreline (Kapiti Coast Erosion Hazard Assessment (Shand, 2008).

2.3 Beach Morphology Observations

Over a dozen satellite images are available for Paekakariki Beach from February 2006 to November 2015. Along the seawall and adjacent rock revetments, there are a number of storm water outlets, the largest of which is a concrete structure to the south (~25 m long from the base of the revetment), while the others are wooden structures that are mostly ~5 m long (Figure 1.2), with the longest (~13 m) being located towards the SLSC north of the existing wooden seawall. These structures can be considered groynes and provide an indication of alongshore sediment transport. Assessment of the beach response adjacent to these structures from 2006 to present indicates very little alongshore sediment transport, with mostly no difference between the beach width on either side of them (e.g. Figure 2.5), or a relatively small fillet of sand on either the northern or southern side of the structures (1 of each out of all the images). This supports the conclusion from long-term observations that most sand moves across-shore during storm events and consequent beach re-building periods.

Figure 2.5. The ~13 m stormwater outlet (top) and ~25 m stormwater outlet (bottom) at Paekakariki Beach provide little evidence of a dominant alongshore transport direction.

2.4 Summary

With a proposed upgrade to the seawall at Paekakariki Beach, coastal processes and trends pertaining to erosion and accretion have been reviewed from existing literature. Several characteristics of the sediment dynamics regime have been identified:

- The natural growth of the cuspate foreland in the lee of Kapiti Island has increasingly trapped sand moving south and also deflected north to south travelling littoral sediments offshore at Paekakariki, rather than nourishing the beach.

- Gravel supplied to the coast from the steep greywacke hills to the south of Paekakariki has been almost completely removed from the system with the construction of State Highway 1 in the 1930's.

- In the absence of this gravel sediment supply, south to north longshore driven sediments mobilised during southerly swell events results in beach narrowing at Paekakariki, which in term leaves it vulnerable to erosion during northwesterly wind/wave events.

- Historically, the shoreline position and beach width at Paekakariki has fluctuated episodically in response to both natural and anthropogenic forcings. The trend in shoreline position is seen to be one of overall erosion at a decreasing rate of -0.201 m/year pre-1954 to -0.054 m/year post-1954, and the magnitude of erosion-recovery events has declined since the 1950's suggesting an increase in shoreline stability or at least a decrease in the rate of erosion.

- Cross-shore sediment transport is likely the dominant sediment transport regime.

3 Assessment of Environmental Effects on Physical and Biological Processes

When considering the environmental effects of a proposed development, the assessment considers the existing environment. Therefore, in the present case the effects of the proposed seawall are considered in relation to the existing seawall (rather than a pre-seawall or undisturbed shoreline situation).

It is well understood that while they are useful for protecting land behind them, vertical seawalls on exposed coasts, especially below the high tide mark, exacerbate erosion due to reflecting wave energy seaward, which takes sand with it and scours material from the toe of the structure (USACE, 2002). The further seaward the structure, the higher the reflection coefficient and subsequent loss of beach sand – which is why the position of the proposed seawall in relation to the existing seawall is one of the factors to consider with respect to environmental effects of the proposal.

The gradient of a beach/land protection structure also has an impact on both the reflection coefficient and over-topping – the steeper the structure, the higher the coefficient and subsequent erosion (USACE, 2002), and the higher the over-topping discharge volume (e.g. EurOtop, 2007). Therefore, the gradient(s) of the proposed seawall should also be considered in relation to the gradient(s) of the existing seawall.

3.1 Review of Proposed Seawall Plans

BECA have developed the plans for the proposed seawall, with input from the local community (BECA, 2015a). The main factors to consider with respect to environmental effects of the proposed seawall are its location in relation to the existing seawall (is it seaward, landward or in the same location?), and the across-shore profile (how does this vary from the existing seawall and what will the impacts of any variations be on coastal processes?).

In terms of the location of the proposed seawall in relation to the existing seawall, the southern half of the proposed seawall is in the same location as the existing, while the

northern half is more landward than the existing seawall (Figure 3.1). As a result, the environmental impacts on coastal processes due to the location of the proposed seawall can be considered insignificant to a very minor positive effect (in the northern half).

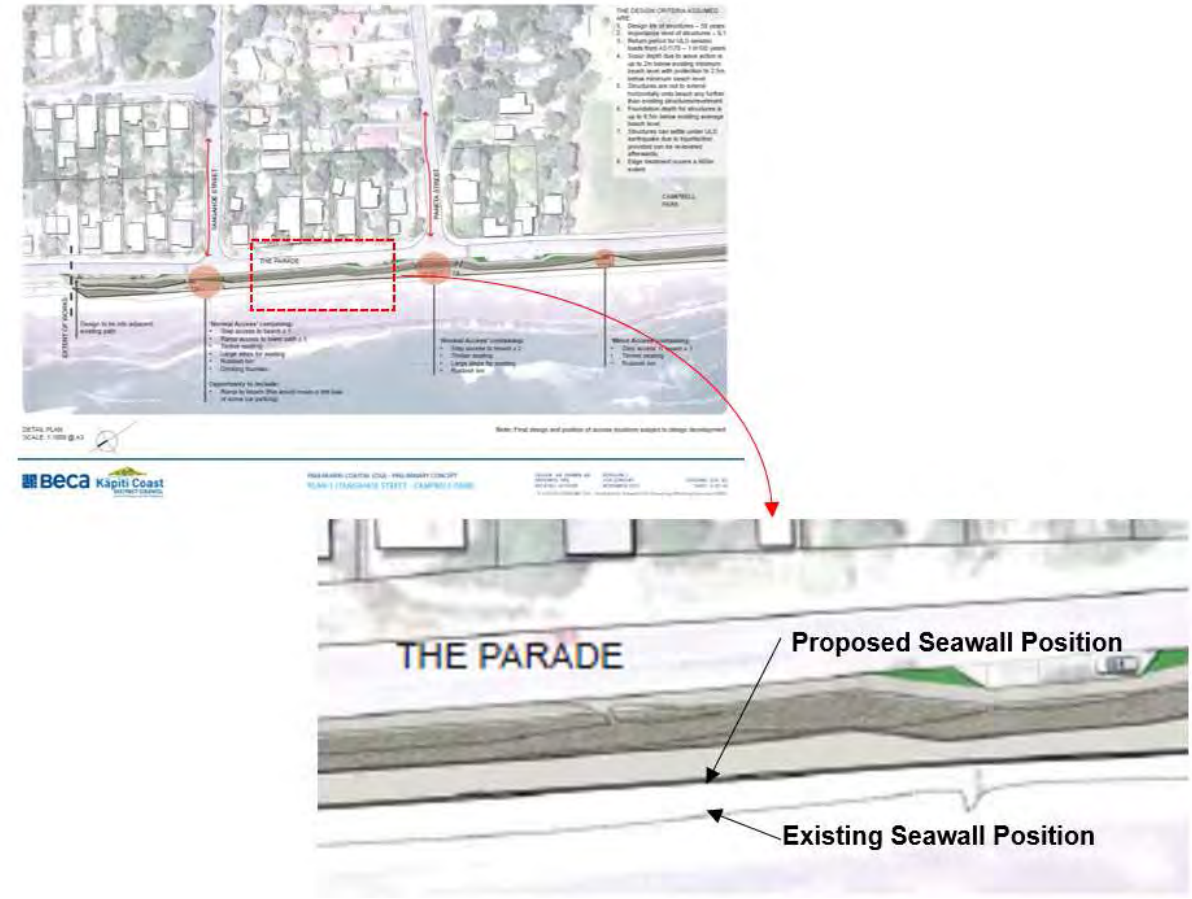

Figure 3.1. The proposed seawall is located further landward than the existing seawall along the northern section of the project site.

In terms of the gradient(s) of the proposed seawall versus the existing seawall, BECA (2015a) have provided a series of profiles that compare the two seawalls (Figure 3.2). As can be seen, the existing seawall itself and the proposed seawall are of a similar height and gradient (i.e. vertical), while the proposed pathway and upper revetment of the new seawall are set back (second frame down from the top in Figure 3.2).

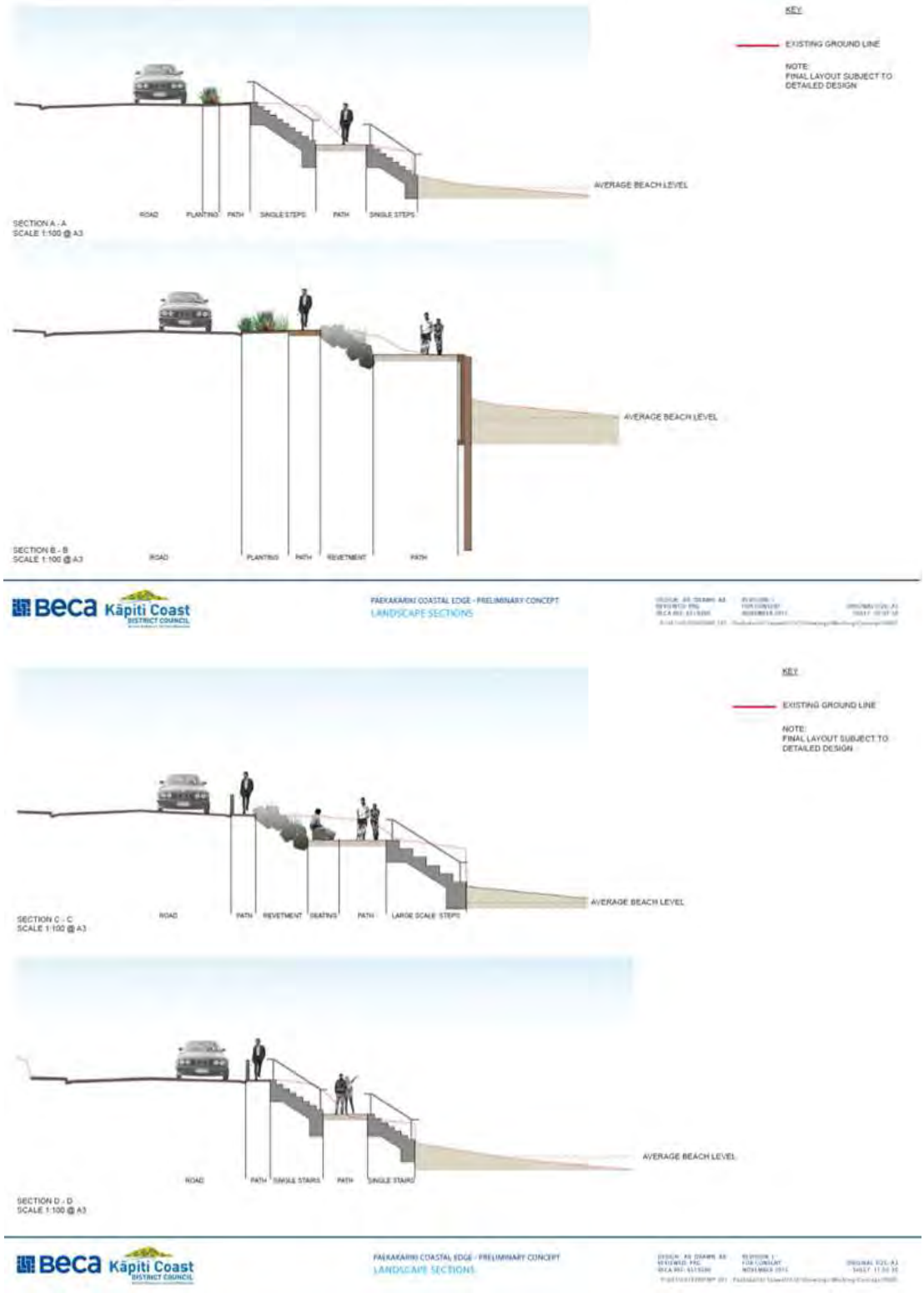

Figure 3.2. Seawall profiles for different sections of the proposed seawall with the existing seawall profile shown by the red line.

When the access-ways are considered (of which there are 8 proposed, 1 major, 4 normal and 3 minor), they are lower (less reflection/scour), incorporate steps (increased friction which reduces over-topping), as well as further set-back from the existing profile (top and 2 bottom frames in Figure 3.2). Therefore, in relation to the existing seawall, the environmental effects on coastal processes due to the gradient(s) of the proposed seawall can be considered insignificant to a very minor positive effect.

Finally, the potential effects of how the seawall ties into the existing revetments and potential 'end-effects' should be considered. Given that there is little to no change in the location of the proposed seawall in comparison to the existing seawall where it ties into the existing revetment, and since these areas at either end of the existing and proposed seawall are already protected, there will be no foreseeable environmental effects where the proposed seawall ties into the existing revetments in relation to the existing seawall.

3.2 Impacts of Sea Level Rise

The most recent estimates of sea level rise (SLR) in the next 50 years suggest approximately 0.3 m (Church *et al*., 2013). In the Kapiti Coast District, this is exacerbated by 1-3 mm/year of subsidence (I. Dawes, pers. comm.), which adds another ~0.1 m to SLR in the next 50 years. SLR will have 2 possible impacts along the stretch of coast where the proposed seawall is located. Firstly, the reflection coefficient will be increased, which will exacerbate the existing erosion trend. Secondly, since the increase in water level reduces the freeboard (i.e. the distance between the still water level and the top of the seawall), over-topping events that are currently estimated to be significant every 1 in 5 years will increase in number and intensity.

BECA (2015b) have indicated that the proposed seawall has taken 50 years of projected SLR into account in the preliminary concept design, which is in relation to both significantly deeper footings for the seawall (second frame down from the top in Figure 3.2) and timber treatment that can withstand the harsh coastal environment. Therefore, it is likely that the main impact of SLR over the next 50 years will be a beach

that is increasing lower than the present average beach level, and potentially the requirement to modify/extend beach access steps down to the beach. In terms of environmental impacts of SLR on the existing versus the proposed seawall, there is no significant difference.

Since SLR will not stop in 50 years' time, it will be necessary to consider options for coastal protection or adaptation into the future. Such options could include 'do nothing' and deal with it as it occurs, plan for 'retreat', increase the level of 'protection', or coastal 'advance' to buy-time with the status quo. While the first 3 options speak for themselves, managed advance requires intervention to widen the beach in front of the seawall (and also the revetments). The options for managed advance include renourishment, structural intervention, and a combination of both. The efficacy, the cost and the benefit for each would need to be assessed if managed advance is considered a viable option.

Since across-shore transport is likely the dominant sediment transport regime, placing suitable beach material along the Paekakariki beach may be feasible; the material will move on and offshore in response to metocean conditions, but large volumes may not be lost to the north or south through alongshore transport. Due to the dominance of across-shore sediment transport, structures such as groynes are likely to be mostly redundant with respect to retaining beach sand (as has been described above with consideration to existing groyne-like structures). However, detached breakwaters are an applicable engineering intervention where across-shore sediment transport dominates (USACE, 2002). Indeed, the Kapiti Island salient is a good example of the effect of a detached breakwater's (albeit on a massive scale) influence on the coast (Figure 3.3). Another factor that suggests detached structures could result in a wider beach in their lee at Paekakariki is the relatively small tidal range (the spring tidal range is 1.3 m). Since there is a relatively small tidal range, the surfzone does not vary greatly, and so detached structures can be effective even if low-crested (e.g. Ranasinghe *et al*., 2006). Trials of beach renourishment and a detached structure(s) with associated monitoring are recommended should managed advance be considered a future option for the management of Paekakariki's beach.

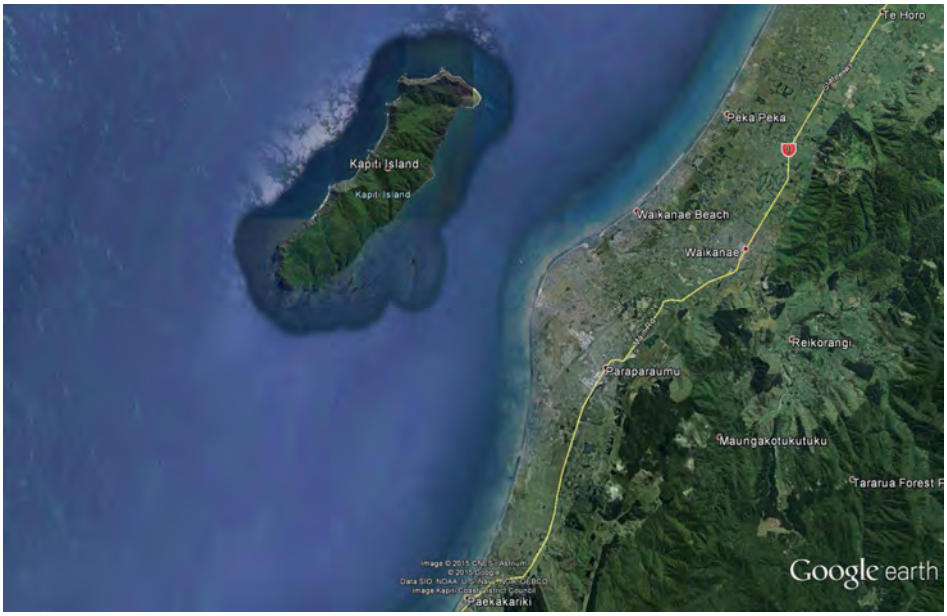

Figure 3.3. Due to the presence of Kapiti Island, which reduces the impact of direct wave impact, the Kapiti Coast has responded to form a large salient, or seaward protrusion of the beach.

3.3 Impacts on Marine Ecology

The existing marine ecology at the site is comprised of a relatively low number of common intertidal species that are adapted to this very harsh environment. Sand levels at the site can change by over a metre between tides due to wave action, making it a very changeable and abrasive environment, which together with the intertidal nature (i.e. organisms must be adapted to survive for extended periods out of the sea, in freshwater during heavy rain fall and tolerate large temperature variations on a daily basis), means that only a few hardy species can inhabit the area.

As described in Morton and Miller (1968), semi-exposed sandy beaches such as Paraparaumu are subjected to constant wave action which sorts and redistributes sand over the intertidal area. The species that colonise these beaches are adapted to withstand constant sediment movement, which results in large fluctuations in the abundance of species and individuals through time. For example, a severe storm will move very large volumes of sand, yet the beach is recolonised quickly (Morton and Miller, 1968).

The most comprehensive ecological investigations in the area were undertaken by NIWA (1994; 1995). These investigations considered the impact of removing sand from one location on Paraparaumu Beach (the borrow site) to another (the renourishment site). From 20 samples, 15 species were identified (2-5 species per samples), which were mostly amphipods and polychaete worms, and a single bivalve species, the tua tua (*Paphies subtriangulatum*). The most common species found was a small mobile amphipod, *Haustorius* sp.

NIWA (1994; 1995) found no significant difference between the borrow site renourishment site 3 months after the sand had been transferred; except along the high tide vehicle track used to move the sand, which is not relevant to the Paekakariki Seawall project, since there is no high tide beach or dune. These findings were attributed to the quick recolonization by species adapted to the mobile and abrasive beach environment following the works.

The construction of the proposed seawall will be undertaken along small sections of the wall, with the removal of a part of the existing wall and construction of a portion of the new wall over a 5-year period. The methodology requires bored, jetted, or driven piles, and the construction plant would require beach access for this, and because only small sections will be worked on at a time, the extent of surface disturbance will be small. In addition, the construction management plan (CMP) has measures to control any release of contaminated materials and terrestrial soil into the marine environment through stockpiling and dewatering ponds on the landward side of the seawall.

There are no organisms inhabiting the existing wooden seawall (likely due to the tanalizing), and the same types of species to those identified by NIWA (1994; 1995) will inhabit the intertidal beach. The removal of the existing seawall and construction of the new one will result in temporary and localised senescence of any organisms directly in the area of construction, which will be recolonised quickly following completion of the works. The environmental effect on the existing marine ecology is therefore considered minor to insignificant and temporary (construction is a pulse event, rather than a permanent change, or press impact).

3.4 Summary of Environmental Impacts

The environmental effects of the proposed seawall on the coastal processes in relation to the existing seawall are considered:

- insignificant to a very minor positive effect (in the northern half) when the location of the proposed seawall is considered;
- insignificant to a very minor positive effect when the gradient(s) of the proposed seawall is considered;
- there will be no foreseeable environmental effects where the proposed seawall ties into the existing revetments, and;
- the environmental effect on the existing marine ecology is considered minor to insignificant and temporary.

With respect to sea level rise (SLR):

- there is no significant difference in potential environmental effects between the existing versus the proposed seawall;
- the reflection coefficient will be increased, which will exacerbate the existing erosion trend and likely lower the beach, and;
- over-topping events will increase in number and intensity.

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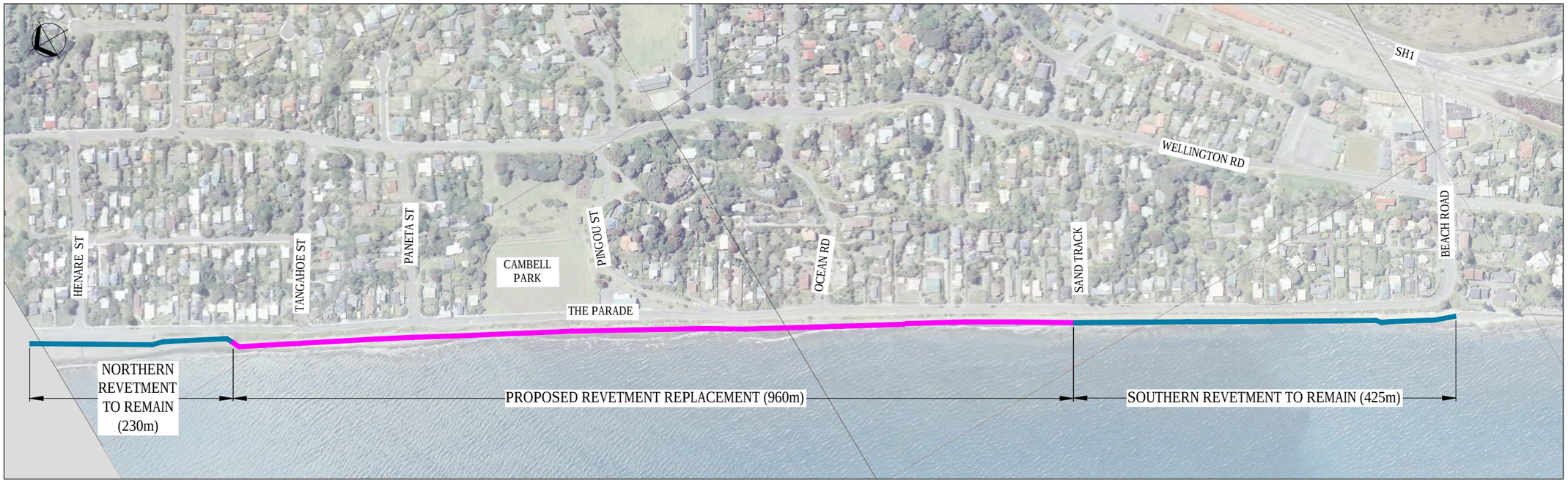
Appendix G

Northern and Southern Seawall Plans

Drawing Plotted: 11 Feb 2016 4:00 p.m.



RESOURCE CONSENT
NOT FOR CONSTRUCTION

No.	Revision	By	Chk	Appd	Date
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Drawing Originator: Beca

Original Scale (A1) 1:2500
Reduced Scale (A3) 1:5000

Design			Approved For Construction*
Drawn	WZC	11.02.16	
Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI SEAWALL PROJECT

Title: OVERALL SEA WALL PLAN

Discipline: CIVIL

Drawing No.: 4261160-CE-201

Rev.: A

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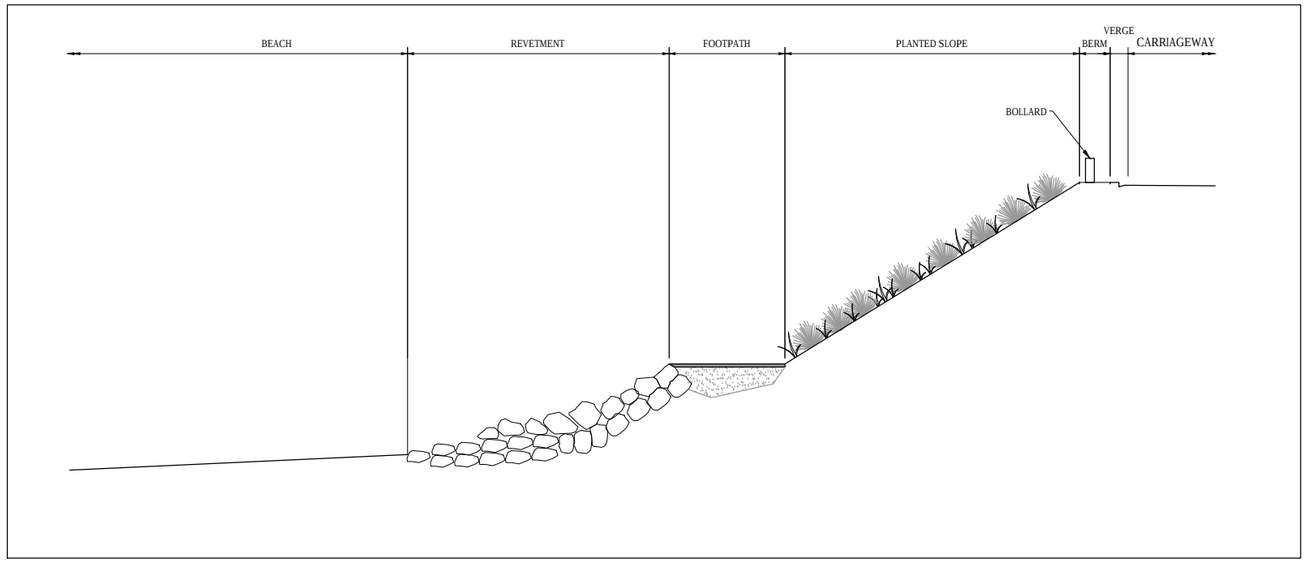

TYPICAL SECTION
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Drawing Originator: Beca

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Reduced Scale (A3): 1/2 SHOWN

Design			Approved For Construction*
Drawn	WZC	10.02.16	
Dsg Verifier			
Dwg Check			Date

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Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI SEAWALL PROJECT

Title: SOUTHERN SEA WALL

Discipline: CIVIL

Drawing No.: 4261160-CE-202

Rev.: A

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Drawing Originator: Beca

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Reduced Scale (A3) 1:1000

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Drawn	WZC	11.02.16	
Dsg Verifier			
Dwg Check			Date

* Refer to Revision 1 for Original Signature

Client: KAPITI COAST DISTRICT COUNCIL

Project: PAEKAKARIKI SEAWALL PROJECT

Title: NORTHERN SEE WALL

Discipline: CIVIL

Drawing No.: 4261160-CE-203

Rev.: A

Document No. CE-203.DWG

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