

# Rangitaiki Floodway Spillway Modifications, 266 Hydro Road, Edgecumbe

Application for Resource Consent and Variation to  
Conditions of Resource Consent 65616



DOCUMENT	
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# 1. APPLICANT AND PROPERTY DETAILS


APPLICANT	Bay of Plenty Regional Council (BOPRC)
SITE ADDRESS	266 Hydro Road, Edgecumbe
LEGAL DESCRIPTION	River Bed (Crown Land) (spillway) Lot 1 DPS 9156 (RT: SA69A/148) - Transferred to Bay of Plenty Regional Council for Soil Conservation and River Control Purposes (Transfer: 11467536.3)
ADDRESS FOR SERVICE	C/- Fergusson Planning tim@fergussonplanning.co.nz
REGIONAL PLAN	Bay of Plenty Regional Natural Resources Plan (RNRP)
ACTIVITY STATUS	Discretionary
SITE LOCATION	

FIGURE 1: SITE LOCATION

## 2. INTRODUCTION

The Bay of Plenty Regional Council (BOPRC) seeks resource consent to authorise an alternative design for the spillway structure on the eastern bank of the Rangitaiki River upstream of Edgecumbe. The spillway regulates the flow of floodwaters into the Rangitaiki Floodway and is situated on a property located at 266 Hydro Road, Edgecumbe.

This report has been prepared in support of a resource consent application to the Bay of Plenty Regional Council (BOPRC). The application has two components:

### 1. Variation to Resource Consent 65616

This involves changing the design of the spillway structure authorised by BOPRC resource consent 65616 from the rubber dam spillway structure to an alternative design. The proposed design comprises of a lower fixed crest weir structure with an additional gated spillway to provide contingency to ensure the 0.01 Annual Exceedance Probability (AEP) design flow is achieved within the floodway. The volume of flow discharged down the floodway will not increase as a result of the change in spillway design.

### 1. Construction Earthworks

As part of the development of the proposed spillway design it has been identified that some recontouring of the land immediately below the spillway structure would assist in directing the flow of floodwaters into the floodway. This application seeks resource consent for these earthworks, which will exceed the permitted activity limits in the Bay of Plenty Regional Natural Resources Plan.

A separate resource consent application was lodged in March 2018 to retrospectively authorise the construction and use for up to five years of a temporary lowered floodway which was constructed as emergency works during the April 2017 flood event. These works allowed the floodway to operate at a lower flow level, relieving pressure on the downstream flood protection infrastructure.

The key points of the proposal are:

- Prior to the emergency works carried out in 2017 to lower part of the spillway crest, the spillway comprised of a 230m long fixed crest weir with a crest height of between 6.95 and 7.12m RL.
- In 2009 resource consent 65616 was granted authorising the installation and use of a 75m long inflatable rubber dam spillway structure and 153m fixed crest spillway to regulate the flow of water into the floodway. The crest height of the rubber dam section can be adjusted between 6.3m RL and 7.3m RL. This structure has not been installed.
- The application seeks to change the approved spillway design to a lower fixed crest weir structure to allow water into the Rangitaiki Floodway. The weir will be 115m wide with a crest elevation varying from RL 6.00m to RL 6.15m. The structure also includes gates to allow additional contingency flow to be conveyed to ensure the floodway operates at the design flow. The proposed lower fixed crest weir will be constructed in the general location of the existing spillway weir.
- The proposed spillway design has been selected following a process of option identification and assessment. Extensive consultation has also been undertaken with affected landowners within the Rangitaiki Floodway, tangata whenua and the wider community. Detailed hydraulic modelling has determined that the consented design (rubber dam) is unlikely to convey the design flow into the floodway. In addition, the design has high capital and operational costs and a high degree of complexity. For these reasons an alternative design is preferred.
- The following design criteria for the spillway is based on the following:
  - Nil (or near zero) discharge in a 0.05 AEP (1 in 20 year) flood (river flow at 437 m<sup>3</sup>/s)
  - Capacity to pass 190 m<sup>3</sup>/s in a 0.01 AEP (1 in 100 year) flood (river flow at 804 m<sup>3</sup>/s)

- In terms of environmental effects, the key difference between the consented and proposed spillway design is the reduced height of the lower fixed crest weir. This allows water to spill from the Rangitaiki River into the floodway at a lower flow level than with the rubber dam design. Changes in the upstream management of floodwaters in Lake Matahina have been implemented to ensure that the lower flow threshold does not equate to an increased frequency of full floodway operation relative to what is authorised under the current consent. The flood management requirements for Lake Matahina are set out in the conditions of the resource consent (65750) granted to Trustpower Limited for the operation of the Matahina Dam Hydroelectric Generation Scheme. The requirements of these conditions are detailed in the Flood Management Plan, which is included as **Appendix 8**.
- Having a lower river flow threshold for water to begin spilling into the floodway has a significant positive effect in relieving pressure on downstream flood protection structures in the lower Rangitaiki River and therefore reducing the risk of stop bank failure.

This report provides the information required by Schedule 4 of the Resource Management Act 1991 (the 'Act') in appropriate detail relative to the scale and complexity of the proposal.

An assessment of environmental effects has been undertaken and has determined that the effects of the proposed activities will be no more than minor and that no persons will be adversely affected to a degree that is minor (or more than minor). This is based on a comparative assessment between the activities authorised under the current resource consents and the changes proposed by this application.

It is recognised that there is significant public interest in the Rangitaiki Floodway and spillway proposal. For this reason, BOPRC requests that the application be publicly notified to provide an opportunity for interested parties to make a submission on the application and ensure their views are taken into consideration.

This report has been prepared to address the applicable information as required by Schedule 4 of the Resource Management Act 1991 (the 'Act') in appropriate detail relative to the scale and complexity of the proposal and in the context of the matters over which control has been reserved. Based on the information provided in this application and the supporting documents, it is appropriate for resource consent to be granted subject to fair and reasonable conditions.

### 3. THE APPLICATION SITE

The site is located on the western side of Hydro Road approximately 2.5km south of Edgecumbe. The site occupies part of a property acquired by BOPRC for flood management purposes and is legally described as Lot 1 DPS 9156 and is held in Record of Title SA69A/148.

The floodway is designed to divert floodwaters from the Rangitaiki River down the Rangitaiki Floodway during periods of high river flow. The floodway runs parallel to the river and conveys a portion of the floodwaters across rural land on the eastern side of the Rangitaiki River to relieve pressure on flood control stopbanks in the lower river during high flows.

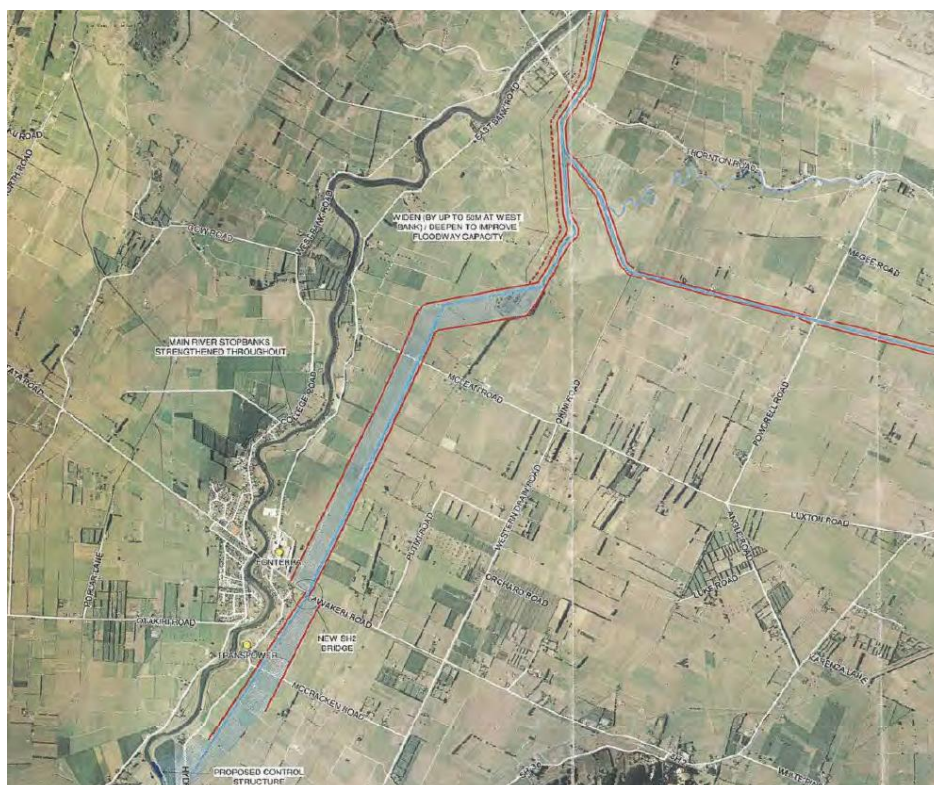


**FIGURE 2: SITE LOCATION**

The Rangitaiki Floodway is part of the Rangitaiki flood protection scheme which includes stop banking to limit flooding when high river flows exceed the riverbed flow capacity. The scheme is designed to manage flows within the stop banks for flood events up to a 0.01 AEP (often referred to as a 1:100 year) event. The Rangitāiki Floodway runs parallel to the river and conveys a portion of the floodwaters across rural land on the eastern side of the Rangitaiki River and joins Reid's Central Canal before flowing back into the Rangitaiki River approximately 1km upstream of the river mouth at Thornton.

Excluding the spillway site, the land within the floodway is privately owned and predominantly used for pastoral grazing. There are restrictions on the land use activities that can occur within the floodway which are imposed through rules in the Whakatane District Plan. Transpower's high voltage transmission lines cross the floodway as do various local roads. A railway line and State Highway 2 (Awakeri Road) also cross the floodway via a bridge over Reids Canal east of Edgecumbe. *Figure 3* shows the location of the lower Rangitāiki River and the Rangitāiki Floodway.





**FIGURE 3: PLAN OF RANGITAIKI FLOODWAY (SOURCE: RESOURCE CONSENT PLAN 65616/2)**

The consented spillway is designed to relieve flood flows on the lower Rangitāiki by allowing water into the floodway in a 0.025 AEP (1 in 40 year) flood event with a design flow of  $190\text{m}^3/\text{s}$  during a 0.01 AEP (1 in 100 year) flood event. This application seeks to change the design of the spillway structure based on the same 0.01 AEP design flow criteria. The hydraulic design criteria used in modelling undertaken by Norconsult (**Appendix 6**) states that the proposed spillway will begin spilling water into the floodway during events that are between 1 in 20 years and 1 in 40 years in magnitude.

It is important to note that since the resource consent was granted, there have been changes in the upstream management of floodwaters at the Matahina Dam which has reduced river flows during specified AEP events. This means that the proposal only slightly increases the probability of flood flows travelling down the floodway compared to what has been authorised under the current resource consent. The effects of the difference in weir crest height on the land within and adjacent to the floodway is discussed in the technical memo prepared by AWA which is included as **Appendix 10**.

The land on which the spillway is located is legally part of the Rangitaiki River bed, however the associated reshaping of land below the floodway will affect the adjoining property on the landward side of the stopbank, which is legally described as Lot 1 DPS 9156 (CT SA69A/148). This land is owned by BOPRC for flood management purposes. The land will be used for the spillway construction and land shaping downstream to direct flows into the floodway.





**FIGURE 4: LOT 1 DPS 9156 (OUTLINED IN YELLOW)**

Prior to the emergency works carried out in April 2017, the spillway comprised of a lower section of stopbank which allowed water to spill into the floodway. It had a length of 230m and a crest height of between 6.95m RL and 7.12m RL. The emergency works lowered the height of a 36m long section of the pre-existing spillway. Further detail and discussion regarding these works are provided in Section 5 of this report.

The closest access to the spillway site is from Hydro Road, which is about 300m east of the spillway.

There are also non-rural land uses adjacent to the floodway on the outskirts of Edgecumbe. They include residential properties and the Transpower substation on Hydro Road as well as the Fonterra dairy factory and EastPack post-harvest facility on East Bank Road.

The legal description of the land on which the proposed works are located is detailed in *Table 1* below.

TABLE 1: LAND AFFECTED BY PROPOSED WORKS				
ADDRESS	LEGAL DESCRIPTION	STATUS	OWNER	AREA
266 Hydro Road	Lot 1 DPS 9156	Soil Conservation and River Control Purposes	BOPRC	20.23 ha

## 4. BACKGROUND

### 4.1 RATIONALE FOR PROJECT

The BOPRC Officer's report on earlier resource consent applications for works on the spillway and floodway (BOPRC ref. 65614, 65615, 65616 and 65618) describes in detail the background and context to the overall project. The following provides a summary of this information.

The Rivers and Drainage Group (RDG) of the BOPRC has responsibilities under the Soil Conservation and Rivers Control Act 1941 and the Resource Management Act 1991. These are summarised as the implementation of river and stream works for the conservation of soil resources, prevention of erosion and provision of flood protection under the Soil Conservation and Rivers Control Act 1941.

Under the Resource Management Act 1991 regional councils are responsible for the sustainable management of natural and physical resources (including existing flood control schemes), promotion of soil conservation,

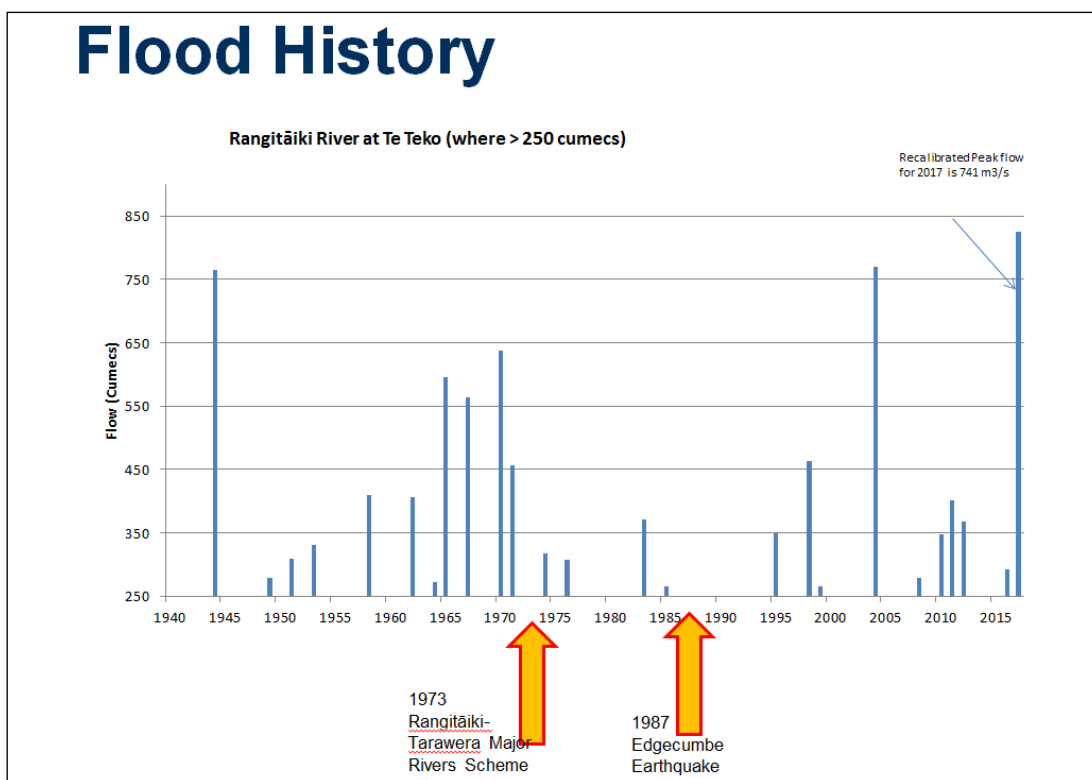
maintenance and enhancement of water quality and avoiding, remedying or mitigating the effects of natural hazards (including flooding).

As part of these responsibilities the RDG administer the Rangitaiki-Tarawera Rivers and Drainage Scheme, which provides land drainage and flood management benefits to most of the land on the Rangitaiki Plains. The scheme was built between 1960s-1980s focusing on stopbanking the Rangitaiki River between Te Teko and Thornton, but also included the construction of Reid's Floodway which was designed to divert floodwater from the main Rangitaiki River channel. The scheme was originally designed to manage floods up to a 0.01 Annual Exceedance Probability (AEP) event (1 in 100-year flood). The Rangitāiki Floodway works in sync with the scheme to commence operation when the flow exceeds a 0.025 AEP (1:40 year event). The flow into the floodway is managed by the spillway weir.

There are several factors that affect the performance and integrity of the scheme. They include progressive land settlement (exacerbated by the 1987 earthquake), permeable soils, structural capacity limitations of the stopbanks, and sediment build up in the lower reaches of the Rangitaiki River. The combined influence of these factors is to reduce the hydraulic conveyance of the river channel below Edgecumbe to a 0.05 AEP event (1 in 50-year flood).

## 4.2 FLOODING HISTORY

There have only been two major floods on the Rangitāiki River since the commissioning of the scheme in the mid-1970s (July 2004 and April 2017). On both occasions stop bank failures occurred and caused significant flooding of land that should have been protected by the scheme. Figure 4 shows a summary of flood history on the Rangitāiki River since flow recording commenced and highlights the two major floods since the scheme was commissioned.



**FIGURE 5: RANGITĀIKI FLOOD FLOWS SINCE FLOW RECORDING COMMENCED**

The July 2004 flood event on the Rangitaiki River resulted in the breach of the true right stopbank upstream of Edgecumbe (Sullivan's bend) and covered 17,000 hectares of farmland in floodwaters, as well as some parts of urban Edgecumbe and the Fonterra manufacturing plant. The breach occurred at approximately a 1 in 40-year flood level (the approximate level at which Reid's Floodway begins operation). The flow overwhelmed the capacity of the floodway, ultimately causing the floodway bank to wash out downstream of Mclean Road. There was significant erosion to the left stopbank on the Rangitaiki River (Kokohinau bend) as well. This

raised concerns that if Sullivan's Bend had not breached, a breach would have occurred at Kokohinau bend thereby flooding the western side of Edgecumbe, where most of the urban centre is based. The flood event required the evacuation of 300 people, and damaged 129 homes.

### 4.3 EXISTING RESOURCE CONSENTS

A business case study commissioned by BOPRC and Whakatane District Council following the 2004 floods considered a range of options to reduce the community risk from flooding. The ultimate result was a suite of resource consent applications for flood protection works (applications 65614, 65615, and 65616). This included a new spillway design (referred to as the rubber dam).

The current resource consent provides for the installation of a spillway structure with an adjustable component, which can regulate flow into the Rangitaiki Floodway. By inflating the rubber dam the crest level of the weir can be adjusted between a level of 6.3m (deflated) and 7.3m (fully inflated) to control the operation of the floodway. The rubber dam spillway design also incorporates a 153m long fixed level weir section with a crest height of 7.15m.

The key feature of the consented design is the ability of the rubber dam to adjust the level at which the spillway operates and thereby reduce increase the frequency that the floodway is used and/or the amount of time that the floodway is in operation during a flood event. The intended operating regime proposed in the application was for the dam to be operated at the maximum level (fully inflated) meaning it would begin spilling water in a 1 in 40-year flood event (0.025 AEP). In an emergency situation (e.g. high risk of flood protection failure downstream), the crest height could be reduced allowing the floodway to be activated at a lower level.

The flood protection works authorised under the 2009 resource consents have been progressively implemented by BOPRC, however the consented spillway design (rubber dam) has not been constructed. See section 4.3.1 for further discussion on the background to the project.

The resource consent applications were subject to a limited notification process. A total of nine submissions were received on application 65616.

TABLE 2: RESOURCE CONSENT 65616 SUBMITTERS	
SUBMITTER	POSITION
Ngati Awa	Support in part
Transpower	Support in part
G Shaw	Oppose
S and D Addenbrooke	Oppose
R Van den Top	Oppose
G Van den Top	Oppose
M Hammond	Oppose
C and M Hammond	Oppose
M Langdon (Orini Farms)	Support in part

The matters raised by the submitters are discussed in detail in the Council Officer's report on the application and a summary is provided below.

In the submission received on application 65616, Ngati Awa raised concerns regarding potential effects on identified sites of significance and the potential discovery of previously unknown sites, artefacts or koiwi (human remains) as part of the works, and the appropriate management of these if discovered. These concerns were addressed through specific consent conditions<sup>1</sup>, which were reviewed and approved by Ngati

<sup>1</sup> Condition 11 of BOPRC resource consent 65616

Awa. The relevant condition on consent 65616 sets out an accidental discovery protocol which requires contact with both Ngati Awa and Ngati Tuwharetoa (BOP).

Transpower raised concerns regarding the potential adverse effects of construction activities on the Edgecumbe sub-station and associated transmission lines. The substation is situated west of the floodway between Hydro Road and the Rangitaiki River, and the transmission lines cross the floodway. Transpower requested that their concerns be addressed through consent conditions. These conditions were included on the relevant consents but were not applicable to consent 65616.

The other submitters are all categorised as potentially affected landowners. These submitters raised a wide range of concerns. Matters relevant to the proposed change include increased flood risk, alteration of flood levels, increased incidence of flooding, concerns about operational design allowing increased volumes, frequencies and durations of floodwater within the floodway.

#### 4.4 POST-CONSENT

Following the granting of the resource consents in 2009, more sophisticated hydraulic modelling determined that the consented rubber dam structure was unlikely to be able to convey the designed flood flow. This led to a review of various design options for the spillway structure. This report was prepared by Pattle Delamore Partners Ltd (PDP) and is discussed in more detail in later sections of this report. In summary, the PDP report found that the rubber dam had the highest cost-benefit ratio of the options considered. In addition, the operational complexity of the design was considered to be problematic. A subsequent report prepared by Norconsult NZ Ltd considered the consented rubber dam and a lowered fixed crest weir options in more detail and recommended the lowered fixed crest weir with the addition of gates to provide contingency flow as the preferred option. This report identified shortcomings with the rubber dam, specifically questionable benefits, significant capital and operating costs and added risk of vandalism.

An independent report reviewing the Rangitaiki River flood protection scheme was prepared for BOPRC following the April 2017 flood event. This considered the current operation and proposed upgrades to the floodway and spillway structure. The review took account of the PDP options analysis and states that *“The panel considers that the lower fixed crest spillway is the most practical and cost-effective option to pursue”*. The panel recommends that BOPRC consider using the full range of planning tools available (designations, Public Works Act 1981, and publicly notified resource consent application) to accelerate the completion of works on the spillway and floodway upgrades.

The design that this application seeks to authorise is the preferred option for a reliable and cost-efficient spillway and is a refined version of the lower fixed crest spillway option proposed in the PDP report and referred to in the independent review panel report.

As discussed previously, the proposed design will have a slightly higher probability of commencing operation. Since resource consent 65616 was granted there have been flood management improvements which have been implemented upstream, specifically relating to the use of storage within Lake Matahina.

These changes have been imposed as conditions of resource consent 65750, which was granted to Trustpower Limited in 2012 for the operation of the Matahina Dam Hydroelectricity Generation Scheme. The conditions include the requirement to prepare a Flood Management Plan which details the protocols and flood management strategies including the use of storage to manage downstream flows during flood events. This resource consent expires in August 2048. A copy of the Flood Management Plan is included in **Appendix 8**.

The operation of the dam in accordance with the flood management plan has effectively resulted in a reduction in flows in the Rangitaiki River during a 0.025 AEP event compared with the flows referenced in the 2009 resource consent application. The design flow within the floodway will not change as a result of the alternative spillway design and will remain at 190m<sup>3</sup>/s.

BOPRC has been progressively implementing a programme of upgrading works within the Rangitaiki Floodway to ensure the floodway has capacity to convey a flow of 190m<sup>3</sup>/s. These works have involved widening lower sections of the floodway, improving the efficiency of the outlet into the Rangitaiki River at Thornton, and increasing the heights of existing stopbanks along the floodway. These works are ongoing and are required to be completed before the spillway can become operational.

## 5. THE PROPOSAL

### 5.1 RESOURCE CONSENT VARIATION

Section 127 of the Resource Management Act 1991 (the Act) allows the holder of a resource consent to apply for a change to the conditions of the consent. The application is required to be considered as though it were a resource consent application for a discretionary activity. Consideration of the activity is limited to the effects of the proposed change to the consent conditions.

The proposal involves a variation to the existing resource consents granted by the Whakatane District Council (WDC) (Ref. 24.2.08.131) and BOPRC (Ref. 65616). The existing consents authorise various flood protection activities, primarily in relation to Rangitaiki Floodway and the spillway at the head of the floodway. The specific components of the consents that are relevant to this application are:

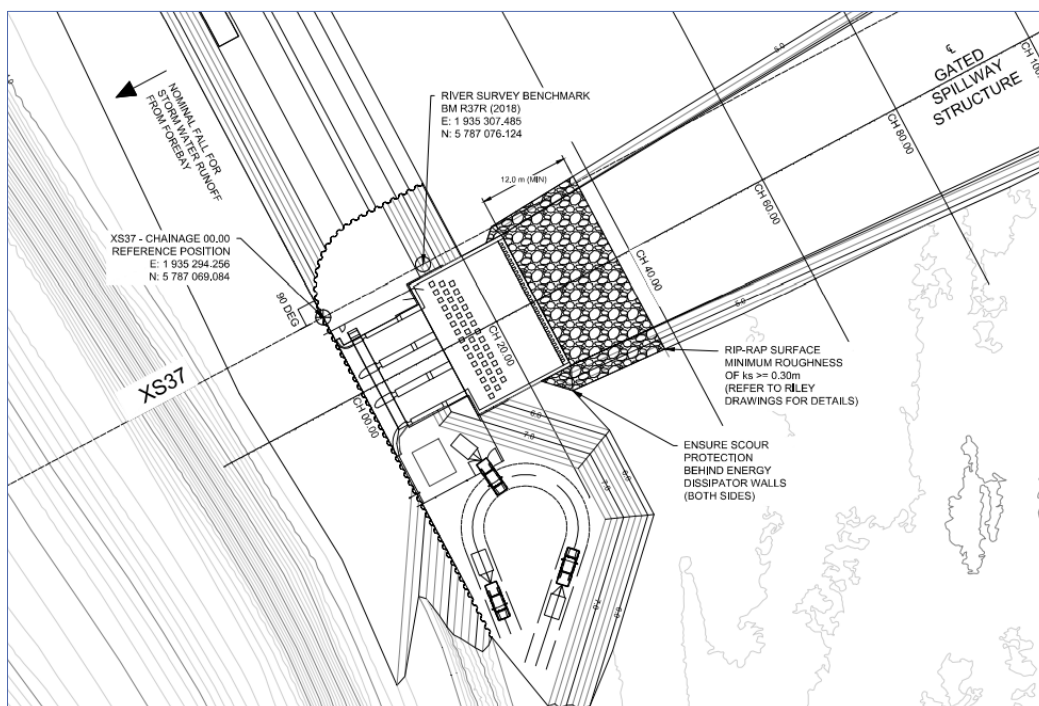
- Under Section 13(1)(a) of the Resource Management Act 1991 and Rule BW R36 of the Regional Natural Resources Plan to carry out a discretionary activity being to remove a fixed weir, and place and use a rubber dam spillway in the bed of the Rangitaiki River and Reid's Floodway;
- Under Section 13(1)(b) of the Resource Management Act 1991 and Rule BW R36 of the Regional Natural Resources Plan to carry out a discretionary activity being to disturb the bed of the Rangitaiki River and the Rangitaiki Floodway.
- Under Section 14(1)(a) of the Resource Management Act and Rule WQ R21 of the Regional Natural Resources Plan to carry out a discretionary activity being to dam and divert floodwaters.

A variation to the current resource consents is required to replace references to a rubber dam spillway structure with an alternative spillway design, which is described as a lower fixed weir spillway structure with contingency gates.

The lower fixed crest weir is essentially a section of the river edge stopbank with a lower crest height constructed with a concrete surface. The weir has a length of approximately 115m and a crest height which varies between 6.0m RL and 6.15m RL. The overflow crest is stepped to compensate for river velocity. Each step is 28.5m long with each step varying by +50mm. The finished level at the upstream end of the overflow weir is 6.0m with steps increasing the crest level to maximum elevation at 6.15m at the most downstream (northern) end of the overflow weir. A stepped configuration has been adopted based on its comparative ease of construction compared to that of a tapered arrangement.

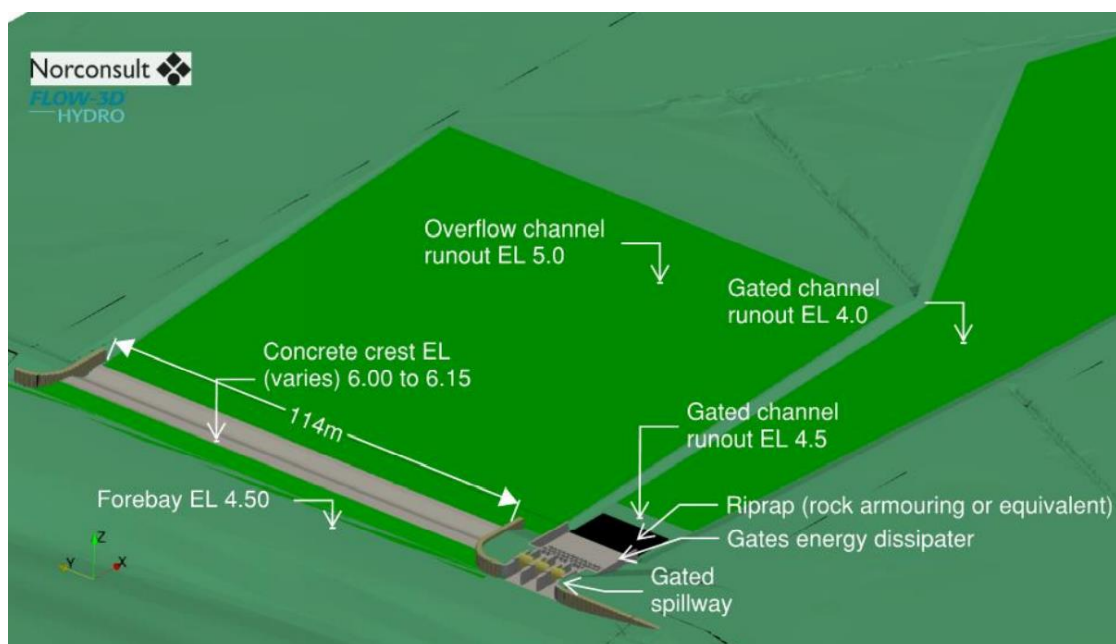
Additional gate structures are proposed at the edge of the spillway to allow an additional contingency flow of up to 40m<sup>3</sup>/s to ensure the spillway can pass the design flow of up to 190m<sup>3</sup>/s in a 0.01 AEP flood event. The gates are intended to operate when there is a blockage or insufficient flow via the overflow spillway causing the river to remain at a high level. In this situation the gates can be opened to pass flow to the floodway with the objective being to lower the river level to meet the required downstream flood level parameters by ensuring the targeted 190 m<sup>3</sup>/s is diverted from the river to the floodway. The gates comprise of three radial gates which are each 3.4m in width and 3.3m height. Immediately below the gates are energy dissipation devices designed to reduce the velocity of the water flow and thereby potential for erosion or scour directly downstream of the gates.

A control building will be constructed on the southern side of the gates with a vehicle parking and manoeuvring area alongside. Security fencing will be provided around the perimeter of the area. A river flow monitor will be installed on the river edge slightly upstream of the spillway structure with a pipeline connecting to the control room.



**FIGURE 6: RANGITĀIKI SPILLWAY CONTINGENCY GATES**

This design of the spillway is described in the detailed design reports included in **Appendix 4** and **Appendix 5**.



**FIGURE 7: RANGITĀIKI SPILLWAY DESIGN COMPONENTS**

The activities that will change as a result of this proposal are:

- The design of the spillway structure will change from a rubber dam with fixed crest weir to a lower fixed crest weir with contingency gates.
- The area and volume of ground disturbance required to construct the lower fixed crest weir is similar to what is needed for the consented design; therefore this aspect is considered to fall within the scope of the current consent.



- Diversion of water from the Rangitaiki River into the Rangitaiki Floodway. The works that are the subject of this application reduce the crest height of the spillway therefore enabling the spillway (and floodway) to operate when the Rangitaiki River flow rate is lower than proposed under the current consent.

The specific changes that are required are set out below:

- (b) under section 13(1)(a) of the Resource Management Act 1991 and Rule 71 of the Operative Bay of Plenty Regional Water and Land Plan to carry out a discretionary activity being to **Remove a Fixed Weir and Place and Use a Rubber Dam Spillway Lower Fixed Crest Weir with contingency gates in the Bed of the Rangitaiki River and Reid's Floodway;** and
- 5.3 Within ~~390~~ working days of completion of construction works, the consent holder shall submit a producer statement signed by a suitably qualified professional verifying that the ~~rubber dam lower fixed crest weir and contingency gates~~ have been installed as required by this consent and in accordance with good engineering practice (see Advice Note 4).
- ~~6.2 — The rubber dam shall be maintained in good and functional condition at all times.~~
- ~~6.3 — Upon the completion of installation the rubber dam shall be appropriately tested as per manufacturer's recommendations, including as a minimum, a pressure test and a visual inspection.~~
- 8.1 The consent holder shall ensure that the ~~rubber dam lower fixed crest weir and contingency gates~~ constructed under this consent is adequately maintained in a structurally sound condition at all times, and shall undertake any maintenance work immediately, if so, directed by the Chief Executive of the Regional Council or delegate.
- ~~9.3 — Within 90 working days of completion of the rubber dam spillway structure, the consent holder shall submit to the Regional Council a Monitoring Maintenance Plan for the spillway structure which covers as a minimum, weekly visual checks, three monthly trials and five yearly comprehensive inspections.~~

Figure 8 below illustrates the general layout of the proposed spillway structure.



FIGURE 8: GENERAL SITE LAYOUT

A full set of conceptual design drawings is included in **Appendix 3**.

## 5.2 CONSTRUCTION EARTHWORKS

To allow for efficient sizing and reliable operation of the proposed spillway design, excavation of an outlet channel in the land downstream of the structure is required. The preliminary design includes an outlet channel the width of the spillway with an invert level of RL 5 m extending from the spillway toward the low point on Hydro Road. Alongside this will be a lower runout channel below the radial gates which will have a level of RL 4.5m reducing to RL 4m towards Hydro Road. The current ground levels in this area range from approximately 5.3m RL at the landward toe of the existing spillway down to 4m RL along the edge of Hydro Road.

The recontoured outlet channels will direct water into the existing drain that runs along Hydro Road to the east. The channel for the contingency gates cuts through an existing drainage ditch, which is lower than the finished surface of the channel. On the southern side of the channel a 300mm deep drain will be formed. It will start where the channel has cut through the existing drainage ditch and will continue to the drain that runs along Hydro Road. This channel will capture and drain any stormwater flows that are discharged by the existing drainage ditch.

The cut earthworks for the channel below the fixed weir runs for approximately 140m downstream of the spillway structure, with a maximum cut depth of approximately 1.6m. Some localised filling is required where existing ground levels are lower than RL 5.00m. To allow for sufficient topsoil cover for re-grassing, both spillway channels will be over excavated to a depth 300mm below the design surface. In areas where the ground can be recontoured to the design level and has 300mm of topsoil or greater, there will be no need to over excavate and back fill. This will likely be the case for both spillway channels at their downstream ends.

There are two additional areas of fill that will be constructed around the spillway channels. These are the turning bay area, on the southern side of the gate structure which provides for vehicle access to the site, and the stopbank on the northern side of the spillway channels.

The recontouring of the land below the spillway and the construction of the lowered fixed crest weir and contingency gates will involve earthworks which collectively exceed the permitted activity limits in the Bay of Plenty Regional Natural Resources Plan. It is anticipated that the total volume of earthworks will be up to 50,000m<sup>3</sup> with an exposed area of around 3.3 hectares. The earthworks will likely progress in stages and the entire area will not be exposed at once.

**TABLE 2: ESTIMATED EARTHWORKS QUANTITIES**

ACTIVITY	VOLUME (m <sup>3</sup> )
Construct runout channels below spillway	48,000
Stopbank and turning bay construction	1,375
TOTAL	49,500

Rock rip rap will be placed on the downstream side of the fixed crest spillway to provide energy dissipation.

All earthworks will occur on the landward side of the existing stopbank except for the installation of the spillway structure which is within the footprint of the existing stopbank and minor works on the riverside to tie into existing structures and construct access ramps. The riverside face of the stopbank below the fixed crest weir will be battered with a 1:10 angle and stop bank tie-in areas will be rebuilt and re-sloped on both sides of the stopbank. There is a relatively wide berm between the current river-side toe of the stopbank and the river edge which will be maintained in grass and provide a buffer between the works area and the river.

The volume of earthworks discussed above exceeds the permitted activity limits specified in the RNRP. The resource consent sought by this application will ensure that the utilisation of the site can extend beyond the permitted activity limits. Based on the annual volume estimated above, the proposal is a controlled activity under Rule LM R2. This is discussed in more detail in Section 6 below.

The proposed earthworks will exceed the permitted and controlled activity limits specified in the Regional Natural Resources Plan. The activity is therefore a discretionary activity under Rule LM R4.

*Rule LM R4 – The disturbance of land and soil as a result of earthworks or a quarry, where the activity is not a permitted, controlled or restricted discretionary activity under a rule in the Regional Plan, is a discretionary activity.*

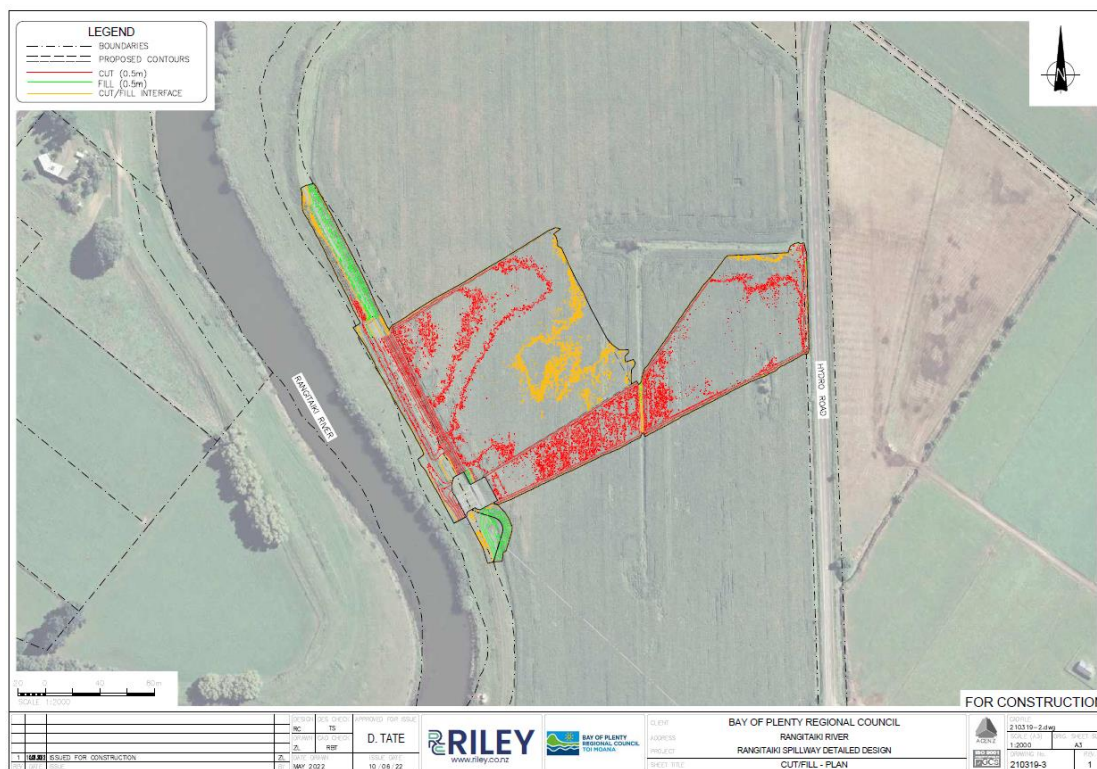


FIGURE 9: PROPOSED RECONTOURING BELOW SPILLWAY

### 5.3 SUMMARY OF PROPOSED CHANGES TO SPILLWAY DESIGN

The following table outlines the spillway specifications authorised by the current consent along with specifications of the new proposal:

TABLE 3: SPILLWAY DESIGN COMPARISON		
	CURRENT CONSENT	PROPOSED OPTION
<b>Design</b>	Rubber dam and fixed weir	Low crest weir and contingency gates
<b>Spillway width</b>	228m (including 75m rubber dam and 158m fixed level weir)	115m fixed crest weir plus radial gates
<b>Spillway level</b>	6.3m – 7.15m RL Note: normally not expected to operate until river reaches 7.15m RL	6.0m RL – 6.15m RL
<b>Design flow for commencement of spillway operation</b>	0.025AEP (1:40 year event)	Between 0.05 AEP (1:20 year event) and 0.025 AEP (1:40 year event)
<b>Maximum flow in Rangitaiki Floodway during 0.01 AEP event</b>	190m <sup>3</sup> /s	190m <sup>3</sup> /s

## 6. CONSULTATION

The applicant has consulted extensively with affected landowners, tangata whenua and the local community regarding the proposed floodway improvement works, including the spillway modifications. This consultation process has included the following:

- Correspondence with Ngati Tuwharetoa ki Kawerau and Ngati Awa (both of which have statutory acknowledgements over the section of the Rangitaiki River adjacent to the spillway site).
- A project information day with specific sessions held with affected landowners and representatives of local community groups (May 2018).
- One on one meetings with affected landowners and representatives.
- Meeting with Federated Farmers representatives.
- Rangitaiki Information Day – public open day held in Edgecumbe (August 2018).
- Spillway Options Information Day (held on site) – three sessions with iwi, local government committees, landowners and community (August 2018).
- Community Consultation Meeting (November 2018).

The consultation process has provided opportunities to share information about the operation of the floodway and the wider river scheme as well as the proposed changes to the spillway structure. Landowners and interested members of the public raised a variety of technical and non-technical queries during these consultation sessions. The feedback received through this consultation process has been considered and incorporated into the application.

An assessment of cultural effects has been prepared by Ngati Tuwharetoa (Bay of Plenty) and is included in **Appendix 11**. The applicant has also commissioned Ngati Awa to prepare an assessment of cultural effects which will be provided in support of the application once received.

## 7. REASONS FOR THE APPLICATION

### 7.1 VARIATION TO CONDITIONS OF RESOURCE CONSENT 65616

The proposed changes to the design of the spillway structure involves changes to the conditions of resource consent 65616 which is a discretionary activity under Section 127 RMA 1991.

### 7.2 BAY OF PLENTY REGIONAL NATURAL RESOURCES PLAN (RNRP)

An assessment of the proposal against the relevant provisions of the RNRP is provided in Section 7.1 of this report. The assessment below addresses the rule framework in the RNRP which determines the activity status of the application:

The RNRP contains rules controlling earthworks. These rules set out permitted activity thresholds for earthworks based on the land slope and proximity to waterbodies or the coastal environment. For sites that are flat, clear of any natural waterbodies, and outside the coastal environment the permitted volume of earthworks is 5,000m<sup>3</sup> with an exposed area of 1 hectare<sup>2</sup>. This maximum is based on a 12-month period so all deposition and removal activities within that period count towards the 5,000m<sup>3</sup> maximum.

The table below lists the rules that determine the activity status of the resource consent application.

TABLE 2: RNRP CONSENT REQUIREMENTS			
RULE / STANDARD	DESCRIPTION	ACTIVITY STATUS	COMMENT
Rule LM R1	<p>The disturbance of land and soil as a result of earthworks or a quarry, where the activity does not exceed the limits in Table LM 1 within any 12-month period is a permitted activity subject to the following conditions:</p> <p>(h) Land not in areas covered by (a) to (e), and not in the Erosion Hazard Zone.</p> <p>Permitted Limits within any 12-month period:</p> <p>Land slope of 0 – 15 degrees: Exposed area no greater than 1 hectare and volume no greater than 5,000 m<sup>3</sup>.</p>	Permitted	<p>The proposed earthworks will involve the recontouring of land downstream of the spillway structure to form channels to direct floodwaters into the Rangitaiki Floodway.</p> <p>The total volume of earthworks associated with these activities will affect an area of approximately 3.3ha and a maximum volume of 50,000m<sup>3</sup>.</p> <p><b>Does not comply</b></p>
Rule LM R2	<p>(b) Land not in the Riparian Management Zone, an ephemeral flowpath, the Coastal Margin, or the Erosion Hazard Zone:</p> <p>Controlled Limits within any 12-month period:</p> <p>Land slope of 0 – 15 degrees - exposed area no greater than 2</p>	Controlled	<p>The area and volume of earthworks will exceed the controlled activity limits of Rule LM R2.</p> <p><b>Does not comply</b></p>

<sup>2</sup> Bay of Plenty Regional Natural Resources Plan Rule LM R1

	hectares and volume no greater than 20,000 m <sup>3</sup> .		
Rule LM R4	<p>The disturbance of land and soil as a result of earthworks or a quarry, where the activity:</p> <p>1 Is not permitted by a rule in this regional plan, and</p> <p>2 Is not a controlled activity under a rule in this regional plan, and</p> <p>3 Is not a restricted discretionary activity under a rule in this regional plan.</p>	Discretionary	The area and volume of earthworks proposed is not provided for as a permitted, controlled or restricted discretionary activity.

### 7.3 STATUS OF THE APPLICATION

In summary, the application seeks consent under Section 9(2)(a) of the Resource Management Act 1991 and Rule LM R4 of the Regional Natural Resources Plan to undertake earthworks and under Section 127 of the Resource Management Act to vary the conditions of an existing resource consent as a **discretionary activity**.

## 8. SCHEDULE 4 INFORMATION REQUIREMENTS

### 8.1 ASSESSMENT AGAINST PART 2 OF THE ACT

Sections 5 to 8 of the Act contain its purpose and principles. The proposal will be an appropriate and sustainable use of the site (and consistent with these sections) because:

- The proposed change to the design of the spillway structure and associated earthworks will sustain the potential of the surrounding natural and physical resources. The proposal will reduce the risk of stopbank failure and flooding of urban and rural land, while safeguarding the life supporting capacity of water, soil and ecosystems. These activities will not result in any long-term damage to the life-supporting capacity of these ecosystems. The application is therefore consistent with Section 5 of the Act.
- The proposal is consistent with section 6 of the Resource Management Act 1991. Clauses 6(a), 6(b) and 6(c) are particularly relevant as the spillway structure will affect natural landscape features and the natural character of the river and its margins. The existing environment is already highly modified. In this context the modifications to the spillway will not be out of keeping with the existing natural character and landscape values of the site and surrounding area. Any effects of these values will be no greater than has been previously authorised with the consented spillway structure.
- Considering 6(d), there will be no alteration to the ability of the public to access the Rangitaiki River. Most of the land is privately farmed with limited public access. This is also appropriate to ensure public safety due to the risk of sudden increases in water levels within the floodway. Temporary restrictions on public access will be necessary during the construction phase for safety reasons.
- With respect to 6(e) and 6(g), both Ngati Awa and Ngati Tuwharetoa (BOP) were actively engaged in the original consent process and the spillway site and the current application process. The site has not been identified as an area of significant cultural value. Consent conditions setting out the protocols that will apply if articles of cultural significance are encountered during the works will remain unchanged.
- The application has particular regard to the matters in section 7 of the Resource Management Act 1991. The flood protection work will allow for the development of the natural and physical resources which otherwise would be negatively impacted by a higher than necessary flood risk (Section 7(b)).



The impact on amenity values is expected to be reduced with the change in design (Clauses 7(c)) as the lower fixed crest spillway and contingency gates has a similar appearance to the consented spillway structure due to the relatively long viewing distances from neighbouring dwellings. The proposed structures and their associated use are unlikely to impact on the quality of the environment any more than would occur with the consented design (Clause 7(f)). The effects of climate change (Clause 7(i)) have been considered in the design of the works.

- As discussed in the previous sections, the applicant has initiated engagement with Ngati Awa and Ngati Tuwharetoa (BOP) and will continue to do so as the project progresses. The consent holder is working to ensure that iwi concerns are dealt with in the appropriate setting and are followed through to completion of the project. The engagement in discussions and the honest undertaking of actions and activities between iwi and the Crown (or representatives) is a key principle of the Treaty of Waitangi.

It is considered that the proposal is consistent with the requirements of Part 2 of the Act.

## 8.2 ASSESSMENT OF EFFECTS ON THE ENVIRONMENT

Section 104(1)(a) and Clause 2(3) of Schedule 4 requires an assessment of the activity's effects on the environment. The detail of this should correspond with the scale and significance of the effects that the activity may have on the environment. The following assessment includes, where relevant, the information required by Clause 6<sup>3</sup> and the matters outlined in Clause 7<sup>4</sup> of Schedule 4.

In relation to the consent variation component of the application under Section 127 of the Act, consideration of an application to change the conditions of an existing resource consent must be undertaken as though it were for a resource consent for a discretionary activity. The references to resource consent and to the activity relate only to the change or cancellation of the consent conditions and the effects of the change, not the effects of the consent already granted. This is an important consideration in assessing the effects of this application.

The key difference between the consented and proposed design is the ability of the rubber dam to adjust the level at which the spillway operates and/or the amount of time that the floodway is in operation during a flood event. The intended operating regime proposed in the application was for the rubber dam to be operated at the maximum level (fully inflated) meaning it would begin spilling water in a 1 in 40-year flood event (0.025 AEP). In an emergency (e.g. high risk of flood protection failure downstream), the crest height could be reduced allowing the floodway to be activated at a lower level.

The proposed change to the consent will replace the rubber dam structure with a lower fixed crest weir which will begin spilling water in events larger than a 0.05 AEP although the discharge volume in events below 0.025 AEP (1:40 year event) will be contained within the floodway channels constructed below the spillway and further downstream will be contained within the Reids Central Canal.

The weir will have a lower crest height than the deflated dam and will not provide any ability to regulate the level that the floodway operates, other than the contingency gates which will allow additional flow down the floodway if required (although with the same crest height as the fixed weir section). To account for potential changes in riverbed level or other factors affecting flow down the floodway, the proposed design incorporates additional gates which can be manually operated to allow more water down the floodway and ensure the design flow of 190m<sup>3</sup>/s is achieved.

The change to the design of the spillway structure will allow water to spill into the floodway when the flow in the Rangitaiki River is lower than what was proposed under the consented design.

The existing resource consents authorise the construction of the spillway and the associated effects as well as the operation of the spillway. This includes the frequency or likelihood of water flowing into the floodway (0.025 AEP). These effects can be disregarded and do not need to be considered as part of this application.

In addition to the variation application, this application seeks resource consent for earthworks to recontour the land below the spillway.

<sup>3</sup> Information required in assessment of environmental effects

<sup>4</sup> Matters that must be addressed by assessment of environmental effects

Having regard to the above, the actual and potential effects on the environment by allowing the activity are<sup>5</sup> construction effects associated with the earthworks to install the lower fixed crest weir and downstream land recontouring. This includes potential erosion, sedimentation of the Rangitaiki River, compaction and ground settlement.

The positive effects associated with the use of the lower fixed crest weir are also a relevant consideration. These effects include enabling improved flood management and easier operational management with associated reduction in the risk of operational failure. In addition, the lower flow threshold for floodway operation has benefits for the resilience of the flood protection scheme in the lower Rangitaiki River.

### 8.2.1 FLOODING EFFECTS

The effects of reducing the crest height of the spillway have been assessed in the technical memo prepared by AWA Environmental Limited (**Appendix 10**). The memo primarily considers the effects on land adjoining the floodway and focuses on eight culverts which drain local runoff into the floodway from adjacent farmland.

The assessment has compared flooding extents (level, area and duration) for a spillway design with a weir crest at RL 6.8m (representing the consented design) and a design incorporating a lower crest height of RL 5.9m. The scenario modelled is a 0.025 AEP event (1 in 40 year). The lower crest scenario is based on a 210m long weir with a slightly lower crest level than what is proposed under this application, therefore the effects are greater than what would occur with the proposed design. Nevertheless, the modelling results provide a useful indication of the impact of the proposal on land adjoining the floodway.

The key findings from the assessment are:

- Water on the adjoining farmland to the east of the floodway stopbanks (outside the floodway) is retained for longer in the RL 5.9 m scenario than in the RL 6.8 m scenario as flap gates are unable to open because of elevated floodway water levels; and
- The differences in peak water levels are limited to the floodway itself and the RL 5.9 m scenario has a higher peak. Peak water levels are similar on land outside of the floodway.

Based on these results, and that the modelled scenario is based on a lower crest height than the design proposed in this application, it is considered that the flooding effects associated with the lower crest height will be no more than minor.

### 8.2.2 CONSTRUCTION EFFECTS

The construction related effects need to be assessed in comparison with works required to install the structures authorised by the existing consents. The installation of the rubber dam spillway structure and associated erosion protection works would require a similar amount of earthworks as the proposed lower fixed-crest weir.

The installation of the lower fixed crest weir involves excavating the base of the spillway to reduce the crest level by approximately 1.2m and to excavate the foundations for the contingency gates. The volume of earthworks (cut) required to construct the lower fixed crest weir and undertake the downstream shaping of land to direct flows into the floodway has been conservatively estimated at 50,000m<sup>3</sup> (including a 10% contingency). The construction works will involve the use of an excavator to reduce the ground level with excavated material spread on the adjacent stopbank or on Lot 1 DPS 9156 (outside of the 100m wide outlet channel).

There will also be ancillary earthworks involving the construction of let down ramps on either side of the spillway to allow vehicle access on the river side of the stopbank to undertake maintenance activities. The estimated earthworks volume associated with the construction of these ramps will be 1,000m<sup>3</sup>.

The earthworks will be undertaken in accordance with BOPRC's Erosion and Sediment Control Guidelines for Land Disturbing Activities. The exact details of the measures employed will be determined by the contractor, however it is anticipated that silt fences will be installed between the edge of the works site and the river to

<sup>5</sup> This disregards those aspects of the proposal that are permitted by the various statutory documents and takes into account the matters over which Council must consider in accordance with Section 127.

minimise the potential for sediment contaminated stormwater to enter the river. The design of the spillway incorporates a concrete surface and energy dissipation devices to protect against erosion and scour.

The land within Lot 1 DPS 9156 has a history of use for cropping and the cultivation. It is a relatively flat area of land which does not contain any watercourses other than small drainage channels along the road edge and through the centre of the site.

The ground disturbance associated with the current land use has a similar potential to generate dust nuisance and erosion effects compared with the proposed recontouring works. The extent of the excavation work proposed will be significantly different however, and during the construction period there will be visual effects associated with the earthworks activity as topsoil is stripped and stockpiled and the channel excavated. This will be a short-term effect and on completion the land will be restored to a profile which does not appear unnatural, and the land will be stabilised with grass cover then returned to rural production land uses or retired.

Overall, the construction earthworks are likely to have no more than minor adverse effects, which can be mitigated through consent conditions requiring the preparation of an erosion and sediment control plan that complies with BOPRC's erosion and sediment control guidelines.

### **8.3 DISCHARGES**

The site is not expected to discharge sediment contaminated stormwater off-site to water or land where it may enter water. The site has been designed to drain to the north where a combination of bunds and swale drains direct water to land soakage within large area of pasture to the north of the site. The stopbank to the west of the site prevents any discharges directly to the Rangitaiki River.

### **8.4 EROSION AND SEDIMENT CONTROL**

The site will be managed in accordance with BOPRC's Erosion and Sediment Control Guidelines for Land Disturbing Activities and the MfE Cleanfill Guidelines. As discussed previously, the erosion and sediment control measures have been incorporated into the design of the site. The southern edge of the site is defined by naturally higher land and the spillway access road. The stopbank along the western boundary also assists in containing stormwater within the site. The bund and swale along the northern side of the site controls stormwater flows and provides for diffuse discharge to ground soakage within a vegetated area.

The consent holder will routinely monitor the effectiveness of the erosion and sediment runoff control measures. They will employ contingency measures as appropriate, depending on weather conditions.

### **8.5 STORMWATER MANAGEMENT**

Stormwater management has been discussed in sections 8.2.1 and 8.2.2 above.

### **8.6 CULTURAL EFFECTS**

The site is within the rohe of Ngati Awa and Ngati Tuwharetoa (Bay of Plenty). The site does not contain any scheduled sites of cultural significance or recorded archaeological sites. The Rangitaiki River is subject to statutory acknowledgements held by Ngati Awa and Ngati Tuwharetoa (Bay of Plenty). As the proposal affects land adjacent to a statutory acknowledgement area, consultation has been initiated with Ngati Awa and Tuwharetoa ki Kawerau regarding the proposal.

An assessment of cultural effects has been prepared by Ngati Tuwharetoa (Bay of Plenty) (**Appendix 11**).

### **8.7 INDIGENOUS BIODIVERSITY EFFECTS**

The site does not contain any areas of significant indigenous vegetation or provide habitat for indigenous species. The proposed activity will not impact on indigenous biodiversity values.

## 8.8 POSITIVE EFFECTS

The key difference between the consented and proposed design is the ability of the rubber dam to adjust the level at which the spillway operates and thereby reduce the frequency that the floodway is used and/or the amount of time that the floodway is in operation during a flood event. The intended operating regime proposed in the application was for the dam to be operated at the maximum level (fully inflated) meaning it would begin spilling water in a 1 in 40-year flood event (0.025 AEP). In an emergency (e.g. high risk of flood protection failure downstream), the crest height could be reduced allowing the floodway to be activated at a lower level.

In 2014 BOPRC commissioned Pattle Delamore Partners Limited (PDP) to investigate alternative options for the design of the spillway<sup>6</sup>. PDP considered several design options for the spillway, including the original fixed crest weir, a modified inflatable rubber dam<sup>7</sup>, tipping concrete blocks, and a lower-level fixed crest weir<sup>8</sup>. The analysis of these options considered the costs and benefits of using the floodway with a specific focus on the impact of using the floodway more often. The PDP analysis considered the loss of production resulting from the floodway operation and the reparation of damage to land within the floodway as well as the benefit of using the floodway in reducing the likelihood of a downstream stopbank failure.

A flow level of 500m<sup>3</sup>/s in the Rangitaiki River (measured at Te Teko) is considered to be the threshold above which there is a danger of stopbank failure. This is approximately the level that the lower fixed crest weir is designed to begin spilling water into the floodway. By comparison, under the proposed operating regime the consented rubber dam design would begin spilling water when the Rangitaiki River flows reach 640m<sup>3</sup>/s. By operating the floodway at lower levels, the time period that flows exceed the 500m<sup>3</sup>/s danger threshold during a flood event is reduced. In this regard, the PDP report concludes that:

*“Assuming the risk of catastrophic failure of the stopbanks during flows greater than 500m<sup>3</sup>/s it can be identified from flow duration characteristics that in the case of the (lower) fixed crest weir, spilling at 500m<sup>3</sup>/s effectively removes the risk of failure for 40% of flows above this danger of failure threshold.”*

The PDP cost benefit analysis determines that the reduced time that flows exceed the danger threshold and the resulting reduction in the likely cost of flood damage resulting from a failure outweighs the damage cost of using the floodway at a lower flow level.

In the context of assessing the effects of the proposal, the PDP analysis is useful in demonstrating that the overall social and economic effects of commencing operation of the floodway at the proposed flow level are positive, taking account of the reduced risk of stopbank failure.

The floodwaters diverted into the floodway by the spillway structure will be contained within the floodway stopbanks. As discussed previously, a programme of improvement works has been undertaken to increase the capacity of the floodway to accommodate the design flow of 190m<sup>3</sup>/s.

The adverse effects resulting from the use of the floodway are a loss of production and damage to rural pasture and fences. The current consents authorise these effects, and this proposal will not increase the likelihood of floodway operation above levels anticipated by the current resource consent.

In the context of the existing resource consent and taking account of the factors discussed above, it is considered that the adverse effects of the proposal on the operation of the floodway are considered to be minor.

### 8.8.1 CONCLUSION

Considering the context of the site and surrounding environment, the effects of the proposal on the surrounding environment will be no more than minor. Measures are proposed to manage dust, erosion and sediment runoff.

<sup>6</sup> Rangitaiki Spillway Options Analysis, April 2014, Pattle Delamore Partners Limited for the Bay of Plenty Regional Council

<sup>7</sup> The modified design includes increased length to allow the design flow of 190m<sup>3</sup> to be conveyed and lower operating levels

<sup>8</sup> The lowered level fixed crest weir considered in the PDP report has the same crest height as the structure that is the subject of this application, although the PDP design option has a length of 140m.

## 9. SECTION 104 PROVISIONS: RELEVANT PLANNING PROVISIONS

The matters Council must have regard to when considering an application for resource consent are listed in section 104 of the Act.

This section provides an assessment of the matters that are required to be assessed within section 104 of the Act and, by doing so, also meets the requirements of Clauses 2(1)(g) and 2(2) in Schedule 4.

### 9.1 RELEVANT STANDARDS, STATEMENTS AND PLANS

The relevant policy and planning documents are considered below.

#### 9.1.1 NATIONAL ENVIRONMENTAL STANDARDS

##### NATIONAL ENVIRONMENTAL STANDARD FOR ASSESSING AND MANAGING CONTAMINANTS IN SOIL TO PROTECT HUMAN HEALTH

The National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health came into force on 1 January 2012. This standard applies to ground disturbance or change in use of land that has or has had an activity or industry described in the Hazardous Activities and Industries List ("HAIL") undertaken on it.

The subject site comprises an area of land which has previously been used for rural production land uses (maize cropping and pastoral grazing). The site is not identified on BOPRC's HAIL register and there is no known history of the affected land being used for a HAIL activity.

##### NATIONAL ENVIRONMENTAL STANDARDS FOR FRESHWATER MANAGEMENT

The NES-F regulations came into force on 3 September 2020 and set out requirements for carrying out certain activities that pose risks to freshwater and freshwater ecosystems. The activities included in this application are not subject to the regulations, accordingly this application does not seek resource consent under the NES-F.

#### 9.1.2 NATIONAL POLICY STATEMENTS

##### NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT

The National Policy Statement for Freshwater Management (NPSFM) came into effect in September 2020 and provides updated national direction to local authorities on the management of freshwater resources to provide for all values that are important to New Zealanders.

The NPSFM requires freshwater to be managed in a way which gives effect to Te Mana o te Wai through the active involvement of tangata whenua, the development of long-term visions in the regional policy statement and applying a hierarchy of considerations which prioritise the health and wellbeing of waterbodies, followed by the essential needs of people and then other uses.

The NPSFM introduces an expanded national objectives framework with additional values (threatened species and mahinga kai) and attributes for ecological health.

The NPSFM also contains a package of measures that local authorities are required to do to implement the objectives and policies. These primarily involve regional councils making changes to regional plans and builds on work already underway to implement the 2014 NPSFM (including 2017 amendments).

Specific requirements in Part 3 that are relevant to this application include a requirement for regional councils to include a policy in regional plans stating that the loss of river extent and values is avoided, unless the council is satisfied that there is a functional need for the activity in that location; and the effects of the activity are managed by applying the effects management hierarchy.

The activities included in this application have been identified as necessary for natural hazard management purposes. It is important at this point to bear in mind that the consideration of the activity and its impact on river extent and values is limited to the change in the design of the spillway structure from what has been consented along with the additional earthworks proposed downstream of the spillway structure.

### 9.1.3 REGIONAL PLANS AND POLICY DOCUMENTS

#### BAY OF PLENTY REGIONAL POLICY STATEMENT

The proposed works are consistent with the provisions of the Regional Policy Statement, specifically:

TABLE 4: RELEVANT OBJECTIVES AND POLICIES		
OBJECTIVE	POLICY	COMMENT
IWI RESOURCE MANAGEMENT		
<p><i>Objective 13</i> Kaitiakitanga is recognised and the principles of the Treaty of Waitangi (Te Tiriti o Waitangi) are systematically taken into account in the practice of resource management.</p> <p><i>Objective 17</i> The mauri of water, land, air and geothermal resources safeguarded and where it is degraded, where appropriate, if is enhanced over time.</p>	<p><b>Policy IW 2B</b> <b>Recognising matters of significance to Māori</b> Proposals which may affect the relationship of Māori and their culture and traditions must:</p> <p>(a) Recognise and provide for:</p> <p>(i) Traditional Māori uses and practices relating to natural and physical resources such as mahinga mātaihai, waahi tapu, papakāinga and taonga raranga;</p> <p>(ii) The role of tangata whenua as kaitiaki of the mauri of their resources;</p> <p>(iii) The mana whenua relationship of tangata whenua with, and their role as kaitiaki of, the mauri of natural resources;</p> <p>(iv) Sites of cultural significance identified in iwi and hapū resource management plans; and</p> <p>(b) Recognise that only tangata whenua can identify and evidentially substantiate their relationship and that of their culture and traditions with their ancestral lands, water, sites, waahi tapu and other taonga.</p>	<p>The role of tangata whenua as kaitiaki is acknowledged and a process of consultation has been initiated.</p>
	<p><b>Policy IW 3B</b> Using criteria to assist in assessing inappropriate development Exercise the functions and powers of local authorities in a manner that:</p> <p>(a) Takes into account the principles of the Treaty of Waitangi;</p> <p>(b) Recognises that the principles of the Treaty will continue to evolve and be defined;</p> <p>(d) Recognises that tangata whenua, as indigenous peoples, have rights protected by the Treaty and that consequently the Act accords iwi a status distinct from that of interest groups and members of the public; and</p> <p>(e) Recognises the right of each iwi to define their own preferences for the sustainable management of natural and physical resources, where this is not inconsistent with the Act.</p>	
	<p><b>Policy IW 5B</b> <b>Adverse effects on matters of significance to Māori</b> When considering proposals that may adversely affect any matter of significance to Māori recognise</p>	



	<p>and provide for avoiding, remedying or mitigating adverse effects on:</p> <p>(a) The exercise of kaitiakitanga;</p> <p>(b) Mauri, particularly in relation to fresh, geothermal and coastal waters, land and air;</p> <p>(c) Mahinga kai and areas of natural resources used for customary purposes;</p> <p>(d) Places sites and areas with significant spiritual or cultural historic heritage value to tangata whenua; and</p>	
<b>WATER QUALITY AND LAND USE</b>		
<p><i>Objective 29</i>  <i>Land use activities are:</i>  <i>1 within the capability of the land to support the activity;</i>  <i>2 integrated with the wider environmental values of their surroundings; and</i>  <i>3 within the capacity of receiving waters to assimilate any discharge</i></p> <p><i>Natural Hazards</i>  <i>Objective 31</i>  <i>Avoidance or mitigation of natural hazards by managing risk for people's safety and the protection of property and lifeline utilities:</i></p>	<p><b>Policy WL 7B: Minimising the effects of land and soil disturbance</b></p> <p>Achieve regional consistency by controlling land and soil disturbance activities to:</p> <p>(a) Avoid accelerated erosion and soil loss; and</p> <p>(b) Minimise silt and sediment runoff into water, or onto or into land that may enter water, so that healthy aquatic ecosystems are sustained.</p>	<p>The proposed works are necessary to ensure a robust flood defence system is provided for the safety of the community and to protect property and utilities. A recognised design standard of 0.01 AEP is provided, and the changes included in this application are proposed to ensure that any flood up to the design event will be contained in the river channel and designated floodway. The lower fixed-crest weir and contingency gates has been identified as a reliable, practical and cost-effective option for the operation of the spillway. The extent of earthworks required to construct the lower fixed crest weir are not substantially different to what would be required to install the consented rubber dam (and authorised by existing resource consents). The recontouring of land immediately below the spillway will help ensure the efficient operation of the floodway and will be undertaken using erosion and sediment controls designed and operated in accordance with Regional Council guidelines.</p>

## BAY OF PLENTY REGIONAL NATURAL RESOURCES PLAN

### OBJECTIVES AND POLICIES

The objectives and policies relevant to this application are set out below.

TABLE 4: RELEVANT OBJECTIVES AND POLICIES		
OBJECTIVE	POLICY	COMMENT
<b>KAITIAKITANGA</b>		
<p><i>KT 04 Objective 4</i></p> <p><i>The water, land and geothermal concerns of tangata whenua are taken into account and addressed as part of resource management processes, while recognising that different iwi and hapu may have different concerns or practices.</i></p> <p><i>KT 05 Objective 5</i></p> <p><i>Water, land and geothermal resource management decisions have regard to iwi resource management planning documents.</i></p>	<p><b>KT P5 Policy 5</b></p> <p>To ensure that resource management issues of concern to tangata whenua are taken into account and addressed, where these concerns are relevant and within the functions of the Regional Council.</p> <p><b>KT P14 Policy 14</b></p> <p>To consult tangata whenua on water, land and geothermal resource management issues according to the requirements of the Act, tikanga Maori methods of consultation, and in a manner consistent with case law.</p>	<p>The proposed works will not directly affect known sites of cultural significance. The closest recorded archaeological site is over 900m from the spillway site.</p> <p>This site is a terrace adjacent to the urupa at Kokohinau Marae. The marae and urupa are the only known sites of cultural significance (other than the Rangitaiki River) within 1km of the site.</p> <p>Consultation with Ngati Awa and Ngati Tuwharetoa (BOP) has been initiated and feedback received will be incorporated into the resource consent process.</p>
<b>LAND MANAGEMENT</b>		
<p><i>LM 01 Objective 9</i></p> <p><i>Land use and land management practices are appropriate to the environmental characteristics and limitations of the site, and avoid, remedy or mitigate adverse effects on the life-supporting capacity of soil resources, the receiving environment and heritage values.</i></p> <p><i>LM 03 Objective 19</i></p> <p><i>Protect vulnerable areas from erosion.</i></p> <p><i>LM 02 Objective 17</i></p> <p><i>Riparian margins are appropriately managed to protect and enhance their soil conservation, water quality and heritage values.</i></p> <p><i>LM 04</i></p> <p><i>The intactness and health of the region's soils is maintained.</i></p>		<p>The site will be operated in accordance with BOPRC's Erosion and Sediment Control Guidelines for Land Disturbing Activities with appropriate erosion and sediment control measures adopted to avoid sediment entering watercourses or the generation of a dust nuisance.</p>
<b>INTEGRATED MANAGEMENT</b>		
	<p><b>Policy IM P1 Policy 21</b></p> <p>(k) Promote and encourage the adoption of sustainable land management practices</p>	<p>The proposed works will be undertaken in a manner which minimises the</p>

	<p>that are appropriate to the environmental characteristics and limitations of the site to:</p> <ul style="list-style-type: none"> <li>(i) protect the soil and avoid, remedy or mitigate the adverse effects of erosion.</li> <li>(ii) maintain the health of the region's soil resources for future generations.</li> <li>(v) take into account the assimilative capacity of the soil.</li> <li>(vii) maintain or improve the protective function of coastal sand dunes.</li> <li>(l) Manage land and water resources according to realistic management goals that are appropriate to the existing environmental quality and heritage values (including ecosystem values) of the location.</li> </ul>	<p>potential for erosion, maintains soil health and is appropriate to the quality of the existing environment. The proposal will assist in maintaining existing flood defences with beneficial effects on the social, cultural, and economic wellbeing of the wider community.</p> <p>The use of the floodway will have short term effects on the production capacity of land within the floodway, however, these effects are authorised by existing resource consents and will not increase significantly as a result of the proposed changes. The proposal will reduce flood risk overall with beneficial effects on the social, cultural and economic wellbeing of the wider community.</p>
	<p><b>Policy IM P8 Policy 32</b></p> <p>To allow resource use and development where there are beneficial effects on the social, cultural, and economic wellbeing of people and communities, and adverse effects on the environment are avoided, remedied, or mitigated.</p>	
<b>NATURAL HAZARDS</b>		
<p><i>NH 01 (Objective 49)</i> The effects of flood hazards on the region's people, communities and natural and physical resources are avoided or mitigated.</p> <p><i>NH 02 (Objective 50)</i> The adverse environmental effects of flood hazard mitigation works, including river and land drainage schemes are avoided, remedied or mitigated.</p> <p><i>NH 03 (Objective 51)</i> Flood hazard mitigation works that are agreed by the community are not threatened by inappropriate land use activities.</p>	<p><b>NH P1 (Policy 87)</b> To adopt and promote an integrated, catchment-based approach to flood hazard mitigation.</p> <p><b>NH P4 (Policy 90)</b> To require river schemes and land drainage schemes to be constructed, operated and maintained to:</p> <ul style="list-style-type: none"> <li>(a) Avoid adverse effects on significant heritage values. Where existing works are having adverse effects on such values, the effects are to be remedied or mitigated.</li> <li>(b) Avoid, remedy or mitigate adverse effects on the environment while maintaining the integrity of the scheme.</li> <li>(c) Remedy adverse effects on natural character, and terrestrial and aquatic habitats, where practicable.</li> </ul> <p><b>NH P5 (Policy 91)</b> To recognise that some maintenance activities of river schemes and land drainage schemes have short-term adverse effects on the environment but can have long-term benefits for flood and erosion mitigation, the protection of community assets, and environmental quality.</p>	<p>The purpose of the proposal is to authorise the construction and use of an alternative design for the spillway structure and associated floodway improvements.</p> <p>The proposed works provide a reliable mechanism for operating the Rangitaiki Floodway and as a result reduces flood risk and improves the integrity of the scheme. The construction works are considered to have less than minor adverse environmental effects given the relatively small scale of the works and that the works will be carried out in accordance with BOPRC's Erosion and Sediment Control Guidelines for Land Disturbing Activities.</p>

#### 9.1.4 OTHER MATTERS

Section 104(1)(c) allows Council to consider any other matters that are relevant and reasonably necessary to determine the application.

## NGATI AWA ENVIRONMENTAL PLAN (TE MAHERE WHAKARITE MATARIKI TAI AO O NGATI AWA) 2019

Te Mahere Whakarite Matariki Taiao o Ngati Awa has been prepared by Te Runanga o Ngati Awa (TRONA) and is an iwi planning document relevant to the activity in terms of Section 104(1)(c) of the Act. Relevant objectives and policies contained in Te Mahere Whakarite Matariki Taiao o Ngati Awa are considered below.

### FRESHWATER

<b>Policy 6.1.2</b>	Ngati Awa objects to the: a allocation of water for bottling and export. b disposal of contaminants, particularly wastewater and stormwater, directly to natural waterways. c mixing of water from different sources.
<b>Policy 6.1.4</b>	TRONA consider themselves an affected party under Section 95E of the RMA for all resource consent applications: a within, adjacent to, or impacting directly our statutory acknowledgement areas. b to take or transfer surface water within our rohe. c to take or transfer groundwater within our rohe. d to discharge contaminants to water or to land, in circumstances where it may enter water.

#### Comment:

The proposal involves earthworks and the installation of a spillway structure on land which is adjacent to the Rangitaiki River. The Rangitaiki River is a statutory acknowledgement area. The proposed works have been designed to avoid the discharge of contaminants to water. This is primarily achieved by undertaking works on the outside face (landward side) of the stopbank where possible and separating exposed areas from the river using silt curtains or temporary bunds to prevent soil and sediment contaminated water from entering the river.

### LAND

<i>Objective 7</i>	<i>Land use planning, management and decisions must:</i> <i>a recognise Ngāti Awa values, interests and Mātauranga.</i> <i>b value our intergenerational knowledge and role as a Treaty partner.</i> <i>c be integrated to recognise the linkages between land use, freshwater quantity and freshwater quality.</i> <i>d provide for the sustainable and productive use and/or development of Maori Land and Treaty Settlement Land.</i>
<i>Objective 8</i>	<i>Greater collective responsibility and integrated management to ensure that land use and development within our rohe:</i> <i>a is sustainable and consistent with the natural limits of our lands and waters.</i> <i>b does not compromise the productive capacity of our soils or life supporting capacity of our environment.</i>
<b>Policy 6.2.2</b>	Recognise the principle of interconnectedness or “ki uta ki tai” (from the mountains to the sea). This includes the localised and cumulative effects of land use and development on: a the health of our rivers, streams, aquifers and associated habitats and ecosystems. b the health of our coastal and estuarine environments, particularly our kaimoana. c our cultural heritage and identity. d the cultural, social and economic wellbeing of our people.
<b>Policy 6.2.4</b>	TRONA consider themselves an affected party under Section 95E of the RMA for all resource consent applications: within, adjacent to, or impacting directly our statutory acknowledgement areas. a to discharge contaminants to land. b relating to contaminated soils. c relating to earthworks, particularly within 100m of a marae, or Cultural Heritage Site (scheduled in a District Plan or within the NZ Archaeological Association database).

**Comment:**

The proposed works are part of the Rangitaiki floodway improvements project, which is designed to protect land on the Rangitaiki Plains from the damaging effects of flooding. This includes both productive rural land and houses, property and businesses which provide for the cultural social and economic wellbeing of the community. The spillway enables the effective operation of the floodway which increases the resilience of the existing flood control infrastructure in the lower Rangitaiki River.

The proposal involves earthworks, therefore it has been noted that TRONA consider themselves to be an affected party. The works are not within 100m of a marae or recorded cultural heritage site.

**NATURAL HAZARDS AND CLIMATE CHANGE**

<i>Objective 20</i>	<p><i>We are aware, prepared for, and resilient to, natural hazards and the effects of climate change. This means that:</i></p> <p><i>a We understand the risks of natural hazards and potential impacts of climate change within our rohe.</i></p> <p><i>b We understand the role of Councils and other agencies in managing and/or reducing these risks and impacts.</i></p> <p><i>c We know how to prepare and/or adapt.</i></p> <p><i>d In the case of a natural disaster, what know what to do.</i></p>
<i>Objective 21</i>	<p><i>Climate change considerations are embedded within Central and Local Government strategies, plans and policies.</i></p>
<b>Policy 7.1.2</b>	<p>Strategies, plans, policies and decisions must consider the impacts of climate change and the risks associated with natural hazards on our cultural and social wellbeing, in particular:</p> <p>a Sites and areas of cultural significance, including our marae and urupā.</p> <p>b Indigenous species and ecosystems, particularly our mahinga kai resources.</p> <p>c Our aspirations for, and challenges with, the use and development of Māori Land.</p> <p>d Roving infrastructure and access to our marae, papakāinga and urupā.</p> <p>e Food security and sovereignty.</p>

**Comment:**

The floodway improvements project has been developed to manage the risk of natural hazards, specifically flooding, affecting land on the Rangitaiki Plains, including sites of cultural significance such as marae and urupa. The spillway structure has been designed to take account of the future impacts of climate change in terms of increased rainfall and sea level rise.

**CULTURAL HERITAGE, PRACTICES AND IDENTITY**

<i>Objective 26</i>	<p><i>Cultural heritage planning and management and decisions relating to land use and development:</i></p> <p><i>a recognises Ngāti Awa values, interests and Mātauranga.</i></p> <p><i>b values our intergenerational knowledge and role as a Treaty partner.</i></p> <p><i>c enable active involvement of Ngāti Awa.</i></p>
<b>Policy 9.1.3</b>	<p>Require early consultation with Ngāti Awa to ensure that resource consent, concession or archaeological authority applicants:</p> <p>a are aware of the cultural and historical significance of an area, to which their application relates.</p> <p>b are aware of the presence of waahi tapu and waahi taonga, whether recorded or not.</p> <p>c carry out due diligence to identify and manage risk prior to land disturbance activities.</p> <p>d are not relying on accidental discovery protocols as mitigation.</p>

<b>Policy 9.1.5</b>	<p>Require:</p> <p>a consultation and a cultural impact assessment for any activity within 100m of a scheduled or registered cultural heritage site.</p> <p>b Accidental Discovery Protocols as a condition to a resource consent and/or archaeological authority to damage, modify or destroy a cultural heritage site.</p> <p>c use of Ngāti Awa cultural monitors for land disturbance activities in areas with a high risk of kōiwi tangata (human remains) or archaeological artefacts of Māori origin.</p> <p>d contractor briefings or inductions by cultural monitors prior to the commencement of land disturbance activities. This is to ensure that contractors understand the historical context of the area within which they are working.</p> <p>e the return of discovered artefacts to the Ngāti Awa Research and Archives Centre.</p>
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In recognition of Ngati Awa's values and interests in the area affected by the works and the nature of the activities proposed (earthworks) the applicant has engaged with TRONA. This engagement has been ongoing in relation to the overall floodway improvements project and was initiated in 2008 as part of the previous resource consent process to authorise the stopbank raising, spillway construction and associated works. Throughout 2018 BOPRC staff have held various meetings and open days to discuss the proposed floodway improvement works.

The outcomes from this earlier process, specifically recommended resource consent conditions, have been incorporated into the current applications to replace the previous consents. These conditions include the adoption of an accidental discovery protocol.

There are no other matters that are relevant or necessary to assist Council in determining this application.

#### 9.1.5 SECTION 104 ASSESSMENT CONCLUSION

The potential adverse effects of this proposal will be minor and acceptable.

This assessment has also demonstrated that this proposal is not contrary to the relevant objectives and policies and meets the assessment criteria.

Overall, the relevant matters of section 104 of the Act have been comprehensively covered within this section and, subject to any matters that may be raised through submissions received on the application, the consent authority has sufficient information to make a determination under section 104B of the Act.



## 10. NOTIFICATION ASSESSMENT

### 10.1 PUBLIC NOTIFICATION

The following tables provide an assessment of the steps that a consent authority must follow to determine whether to publicly notify an application for resource consent.

TABLE 5: SECTION 95A - STEPS FOR DETERMINING WHETHER PUBLIC NOTIFICATION IS REQUIRED UNDER S95A			
STEP	RMA SECTION	RESPONSE	COMMENT
ONE: Mandatory public notification in certain circumstances	95A(3)(a) the applicant requests public notification of the application	Yes	The applicant requests public notification.
	95A(3)(b) public notification is required after a s.92 request for further information as stipulated in section 95C	No	This is not a relevant consideration at this stage.
	95A(3)(c) an application is being jointly made to exchange recreational reserve land under section 15AA	No	This application does not involve the exchange of reserve land under the Reserves Act.

As the applicant has requested public notification, Section 95A(3)(a) of the Act requires that the consent authority must publicly notify the application.

Accordingly, no further consideration of the notification requirements is necessary.

## 11. CONCLUSION

The applicant seeks resource consent to change the conditions of resource consent 65616 to authorise an alternative design for the spillway structure at the head of the Rangitaiki Floodway. Resource consent is also sought for construction related earthworks. The site is located at 266 Hydro Road, Edgecumbe.

An assessment of this proposal has been prepared using Schedule 4 of the Act and covers the matters that Council must consider when deciding on an application under section 104 of the Act. The assessment has:

- Demonstrated that the proposal is consistent with the purpose and principles of the Act;
- Found that the potential adverse effects on the environment of the proposal will be no more than minor;
- Identified the positive effects that approval of this application will generate; and
- Concluded that the proposal is not contrary to the relevant objectives, policies and assessment criteria of the applicable statutory documents.

# APPENDICES

## **APPENDIX 1**

### **RESOURCE CONSENT APPLICATION FORM**

## **APPENDIX 2**

### **RECORD OF TITLE**

## **APPENDIX 3**

### **APPLICATION DRAWINGS**

## **APPENDIX 4**

### **SPILLWAY DETAILED DESIGN REPORT (RILEY CONSULTANTS)**

## **APPENDIX 5**

### **SPILLWAY GATES DETAILED DESIGN REPORT (NORCONSULT)**



**APPENDIX 6**  
**HYDRAULIC MODELLING REPORT**  
**(NORCONSULT)**

**APPENDIX 7**  
**GEOTECHNICAL ASSESSMENT (RILEY  
CONSULTANTS)**

## **APPENDIX 8**

### **MATAHINA FLOOD MANAGEMENT PLAN**

**APPENDIX 9**  
**RESOURCE CONSENT 65616**

## **APPENDIX 10**

### **HYDRAULIC MODELLING MEMO (AWA)**

## **APPENDIX 11**

### **ASSESSMENT OF CULTURAL EFFECTS (NGATI TUWHARETOA (BAY OF PLENTY))**