

## Memo

To: Tania Diack From: Peter Harte  
Cc: Laddie Kuta Date: 4 July 2019

Subject: Wairoa Wastewater Treatment Plant – Outfall Structure Consent Review

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I have completed a review of the proposed consent application by Wairoa District Council (WDC) and the proposed consent conditions #9-#13 by HBRC in regards to the WDC Wastewater Treatment Plant (WWTP) outfall structure (discharge pipeline). Overall the application and consent conditions limits environmental impacts on the Wairoa River as best possible.

The following changes to the consent conditions are suggested:

Expand condition 10, *“In the event of any modification, extension or relocation of the discharge structure, the consent holder shall provide a Structure Design Report to the Council for certification. The design report shall (but is not limited to):”*, to include the following:

- g) Specification of appropriate marine grade construction materials, design standards met and expected service life of materials.**
- h) Include operation and maintenance considerations, including operation during both open and closed river mouth conditions.**
- i) Include risk register for design, construction, operation and maintenance.**

## Condition 13bi

*“Any surplus soil, cleared vegetation, **excavated trench material** or debris, shall be deposited at least 20 m from any waterbody or deposited or contained in a manner to reasonably prevent the transportation or deposition of disturbed matter into any waterbody”.*

## Condition 13h

*“No concrete **or excess construction materials** shall be dumped into bed of any waterbody”.*

The wording and proposed inclusion of condition 9a is acceptable with the noted modifications to condition 10 and 13.

It is assumed condition 12 only references condition 13.

The following queries either need to be addressed in the structural design report (yet to be submitted) or as part of this consent application process. (*i.e. Request: Can you please provide comment on the following related to the Wairoa Treatment Plant consent application:*).

- Section 1.8 notes the existing discharge to the river has not been shown to have caused detectable effects on the river’s water quality or sediment characteristics. The drawing provided DR-190504-001[1] details a duckbill diffuser located close to the riverbed. How will the riverbed be protected against scour from the jet flume and will any potential scour become an issue during periods of high flood flow?
- Will a reduction in cover due to riverbed migration cause buoyancy/stability issues for the pipeline? What is the anchor spacing? Testing methodology to ensure vacuum seal?

- The report states that the main outfall pipe is proposed to be relocated within the Outfall Relocation Area as indicated in Figure 5.1 of the consent application. Drawing DR-190504-001[1] details the outfall pipe being buried, anchored by concrete and looks rigid. If a location change is required, will the existing pipeline be abandoned or will all infrastructure be excavated and relocated?
- Please provide a trenching detail for the pipeline.
- When the outfall pipeline is operating at maximum pressure does the outfall bend structure require a thrust block or similar reinforcing to stabilise? or is the diffuser armour the thrust stabiliser if so, how are they connected?
- What is the maximum flowrate capacity of the two-duckbill discharge system in L/sec?
- More design details required for 90 degree turn at outfall, missing flange details etc.
- Will the steel piles attached to the diffuser armour be driven 6m into the ground as per the pipe anchors?