

**FILE:** APP-1993001253.02

**DATE:** 18 April 2017

**TO:** Fiona Morton

**FROM:** Greg Bevin

**SUBJECT: PAHIATUA WWTP WETLAND - REVIEW OF DRAFT ESCP**

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## **Introduction**

Tararua District Council (TDC) has provided a draft Erosion and Sediment Control plan, as part of their application, which is seeking to authorise land disturbance activities associated with the construction of a wetland. The proposed wetland is to be part of the wastewater treatment plant system that treats wastewater from the Pahiatua township.

The proposed works are:

- To occur on land immediately adjacent to the existing WWTP;
- Anticipated to take approximately 2 months (1 February to 31 March 2018)
- Will include a total area of 5,200m<sup>2</sup>, with an approximate 1540m<sup>3</sup> and 1660 m<sup>3</sup>, being used as fill and cut to waste, respectively.

## **Risk profile**

When assessing the risks a proposed project poses to the environment from a sediment release perspective, Horizons has developed a risk matrix (see Appendix 1). This matrix looks at various factors, including duration of works, location to waterways, soil type and slope angle, to determine the risk the proposed activity represents to the receiving environment, which in this case is the Mangatainoka River.

After considering the key risk factors the proposed works are considered a low risk due to the following factors:

- The works are for approximately 8 weeks;
- The area exposed is 5,200 m<sup>2</sup> (I note however that the USLE notes an area of 0.7ha);
- The Universal Loss Equation (USLE) assessment undertaken by the applicant (Appendix A) indicates the sediment yield for the proposed works, with appropriate controls in place, will be approximately 0.03 tonnes during the course of the project.
- Slope is approximately 0.01% (based on information in the USLE); and
- The Mangatainoka River is more than 200 metres from the proposed works (assuming the existing channel as proposed by the applicant is used as the discharge point for the works)

## **Proposed Works**

TDC is proposing to construct a treatment wetland as part of the application process to renew the current consent that authorised the discharge of treated wastewater from the Pahiatua WWTP.

TDC has provided a draft Erosion and Sediment Control Plan (ESCP) as part of it's application. The main controls proposed by the applicant are:

- The use of silt fences and clean water diversions;
- Using the construction area of the wetland as a detention area. De-watering of this area is proposed as and when required;
- Installation of a stabilised construction access point;
- Stabilisation of pond batters; and
- Limiting the exposed area to an area of no more than 0.2ha at any stage;

## Comments on ESCP

In general the proposed ESCP methods are appropriate for the risk profile of the site. However, I do have the following specific comments to make:

1. The actual area of earthworks needs to be confirmed. The application states a total of 5200m<sup>2</sup>, whilst the USLE is based on 7000m<sup>2</sup> (0.7ha);
2. The primary control appears to be the use of the construction area as a detention device, which will be de-watered. However the actual detail around this is yet to be confirmed. To this end further information is required on the de-watering process, namely
  - Specific de-watering procedures and methodology to be used. For example, how is de-watering to occur (methodology) what are the triggers for activation de-watering and identification of key conditions that need to be met before de-watering occurs (e.g. clarity of water etc.);
  - Design rates and batch dosing procedures in the event flocculation is required;
  - Monitoring and contingency methods to be adopted (e.g. what will occur if the de-watering is causing erosion, dirty water is discharged from the site, dewatering cannot keep up with inputs etc).
3. The ESCP needs to demonstrate how the proposed silt fences will be installed in accordance with the guidelines;
4. The ESCP needs to confirm how the clean water diversions will be stabilised and how they will meet the guideline standard;
5. Information needs to be provided to confirm the diversion bunds meet the guideline standard;
6. What is meant by a trafficable diversion bund? Is this the same as the referred to roll over bund referred to in the plan for the ESCP; and
7. Section 7.0 refers to diverting excess run-off to another device, but provides no details as how this would occur, or what device that would be. Given excess run-off occurs during periods of sustained rainfall, which depending on soil type can make construction of controls problematic, these other controls should ideally be identified and constructed prior to works commencing.

# APPENDIX 1

Table 1- Site Risk Assessment Matrix

Value of Receiving Environment <sup>1</sup>	Risk of discharge into receiving environment (includes nature of E&S controls / soils / slope / vicinity of receiving environment and contractor performance (if known))			
	Very Low	Low	Medium	High
Low	Very Low Risk	Low Risk	Low Risk	Medium Risk
Low Medium	Low Risk	Medium Risk	Medium Risk	High Risk
Medium High	Low Risk	Medium Risk	Medium Risk	High Risk
High	Medium Risk	Medium Risk	High Risk	High Risk

<sup>1</sup> based on AEE from within consent application process, information contained in Regional Plans – could include ecological, intrinsic, recreational, water supply etc) Generally the value of a receiving environment will be considered high if it has Natural State, Site of Significance –Aquatic (native fish), Trout Spawning Trout fishery, Whitebait Migration, whilst the value will be considered low if it only has Life supporting Capacity Value and/or Contact Recreational Values.

**Table 2 General Guide to factors determining the risk of discharge into the receiving environment**

Risk	General Guide to factors determining the risk of a sediment discharge into the receiving environment (list is not exhaustive nor do all of the factors need to be satisfied)
High	<p>Slope (greater than 10 percent)</p> <p>Size of earthworks (greater than 3 ha)</p> <p>Universal Soil Loss Equation (USLE)<sup>2</sup> estimates a sediment <u>yield</u> of greater than 2 tonnes over the duration of the proposed works.</p> <p>Location of earthworks to receiving environment (immediately adjacent or within &lt;20 metres)</p> <p>Duration of earthworks or site exposure before stabilisation (&gt; 1 month)</p> <p>Contractor/consent holder performance history illustrates previous compliance issues</p>
Medium	<p>Slope (between 5-10 percent)</p> <p>Size of earthworks (1-3ha)</p> <p>Universal Soil Loss Equation (USLE) estimates a sediment <u>yield</u> of greater than 2 tonnes over the duration of the proposed works</p> <p>Location of earthworks to receiving environment (within &lt;20 metres)</p> <p>Small vegetative buffer (&lt;20m)</p> <p>Duration of earthworks or site exposure before stabilisation (1-4 weeks)</p> <p>Contractor/ consent holder performance/compliance history illustrates some previous issues with compliance.</p>
Low	<p>Slope (between 2-5 percent)</p> <p>Size of earthworks (2000m<sup>2</sup> -1ha)</p> <p>Duration of earthworks or site exposure before stabilisation (less than 2 weeks)</p> <p>Universal Soil Loss Equation (USLE) estimates a sediment <u>yield</u> of less than 2 tonnes over the duration of the proposed works</p> <p>Earthworks are between 20-100 metres away from watercourse with a good vegetative buffer</p> <p>Contractor/ consent holder performance/compliance history illustrates good compliance</p>
Very Low	<p>Small exposed area (no more than 2000m<sup>2</sup>),</p> <p>Duration of earthworks or site exposure before stabilisation (less than 2 weeks)</p> <p>On a relatively flat site (&lt; 2 percent slope),</p> <p>Universal Soil Loss Equation (USLE) estimates a sediment <u>yield</u> of less than 2 tonnes over the duration of the proposed works</p> <p>At least 100 metres away from watercourse with good vegetative buffer.</p> <p>Contractor/ consent holder performance/compliance history illustrates a very good compliance record</p>

<sup>2</sup> The USLE equation includes how much of a site consists of sand, silt and clay.