

Appendix M Erosion and Sediment Control Memo

Memorandum

Subject: ARL Project –Construction Erosion and Sediment Control Memorandum

Reference No: 1101798

Author: Rob Van de Munckhof

Date: 30 July 2026

1 Introduction

WM New Zealand (WMNZ) has engaged Tonkin & Taylor Ltd (T+T) to prepare technical memoranda for the proposed new solid waste management and disposal facility in the Wayby Valley, north of Auckland ('**ARL**' or '**Project**').

The Project will involve constructing, operating, closing and providing aftercare for a new 24 Mm³ landfill facility and associated infrastructure at Wayby Valley, Wellsford. Ngāti Manuhiri are Project partners and will work with WMNZ on the proposed management and mitigation measures. Once landfilling ceases, the land will be returned to Ngāti Manuhiri as tāngata whenua.

The new landfill will be a Class 1 landfill, as defined in the Technical Guidelines for Disposal to Land (WasteMINZ Technical Guidelines)¹, accepting municipal solid waste. This includes residential and commercial waste, construction and demolition waste, some industrial wastes that meet acceptance criteria, and contaminated soils. Following waste settlement, the landfill cap surface will have a maximum height of 205 m RL.

WMNZ landholdings in the Wayby Valley area comprise a total area of 1020 ha, with the landfill footprint being approximately 60 ha. The WMNZ landholdings have been divided into five general areas; the Eastern Block, the Western Block, the Southern Block, the Waiwhiu Tributary Block and the Waiteraire Tributary Block. The proposed works will involve the following:

- **Site access and operation:** Construction of site access roads, weighbridges, and a vehicle wheel wash.
- **Landfill development:** Major earthworks and the installation of environmental management systems, including a landfill lining system and collection networks for leachate, stormwater, and landfill gas (LFG).
- **Leachate and landfill gas management:** A dedicated leachate management system and a LFG treatment facility, including a LFG flare and a LFG waste-to-energy plant.
- **Support infrastructure:** Facilities for site staff, plant maintenance, and water supply.
- **Terrestrial, freshwater and wetland biodiversity measures:** This includes native revegetation, and a weed and animal pest management programme to offset or compensate for residual adverse effects on terrestrial, freshwater and wetland ecology.

This memorandum provides an outline of the initial findings of the Erosion and Sediment Control Assessment and has been prepared for inclusion in an application for Ministerial referral of the Project under the Fast-track Approvals Act 2024 ('**FTAA**'). Specifically, this memorandum responds to the requirements under section 3.4 of the Fast-track Approvals Referral Application Form and

¹ Technical Guidelines for Disposal to Land, WasteMINZ, September 2023, Revision 3.1.

section 13(4)(h) of the FTAA. A full description of the draft proposal is included in the accompanying information attached to the application form for the referral.

2 Summary of findings

The construction of the ARL will require earthworks associated with the initial site establishment which enable construction of the landfill to commence. This includes earthworks associated with the access off SH1, construction of an access way and infrastructure adjacent to SH1, the stormwater ponds within the landfill valley and associated stockpiling of spoil within a number of stockpiles.

The activities will be managed through the implementation of an adaptive approach to the management of sediment including the adoption of industry best practice erosion and sediment controls in accordance with Auckland Regional Council GD05² guidance and on-going monitoring with a feedback loop to identify optimisation of controls.

The assessment finds that sediment and erosion effects from construction of the ARL can be effectively mitigated through best-practice design, staged construction, and continual monitoring. When these methods are applied correctly, the potential for adverse environmental impacts will be minimised, limiting effects on sensitive receiving environments such as Te Awa o Hōteu and Kaipara Harbour to **less than minor**.

3 Assessment methodology

The methodology to inform the assessment has used a risk-based approach supported by modelling of sediment generation during the initial construction phase to evaluate the effectiveness of proposed mitigation measures. On-going discharges of sediment during operation of the landfill are considered as part of the stormwater technical memo.

Existing catchment conditions were analysed to establish baseline sediment yields using land use categories such as plantation forestry, farmland, and native bush. These baseline figures provided a reference for comparison with construction phase sediment generation. The potential construction sediment loads were then calculated using the Universal Soil Loss Equation (USLE), a recognised predictive model developed by the U.S. Department of Agriculture and widely used in Auckland to estimate erosion from earthworks. Calculations were undertaken both with and without sediment control measures to determine the level of improvement achievable through mitigation and with both 75% and 95% sediment removal efficiencies to represent sediment loads associated with application of standard practice methods (representing 75% sediment removal efficiency) and industry best practice (representing 95% sediment removal efficiency).

A risk evaluation process was applied across different site areas—such as the Western, Southern, and Upper Waiterāire blocks—to identify where sediment discharges posed the highest potential environmental risk. Without mitigation, several areas were rated as having a very high risk due to factors such as steep terrain, sensitive wetlands, and high ecological value streams. Incorporating the proposed best practice erosion and sediment controls reduced these risk levels to low or moderate.

4 Site and project context

A general description of the site and surrounding locality is included in the accompanying information as part of the referral application.

The following elements of the site and project are key to the Erosion and Sediment assessment:

² Auckland Council, Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region, Guideline Document 2016/005, June 2016, Reprinted August 2023.

- The proposed ARL is located in the Wayby Valley, with sediment discharges to a number of tributaries of the Hōteio River including:
 - The Waitairare Stream.
 - An unnamed tributary of the Waitairare Stream.
- An unnamed tributary of Te Awa o Hōteio .
- A number of wetlands which feed into Te Awa o Hōteio.
- The immediate downstream environments which comprise the tributaries to the Hōteio River are relatively stable with high ecological values (although a number of the streams were impacted by significant sedimentation following the 2023 Auckland Anniversary floods). Stream ecological valuation scores show that for the most part, streams within the WMNZ landholdings have high ecological function, driven primarily by high riparian shading, limited channel modification and high quality in stream habitat.
- The main channel of Te Awa o Hōteio adjacent to and immediately downstream of the site is identified as a Natural Stream Management Area (NSMA) and Significant Ecological Area (SEA) within the Auckland Unitary Plan – Operative in Part (AUP). The incised meanders of the Hōteio are identified as being an Outstanding Natural Feature (ONF). The Hōteio River mouth at the Kaipara Harbour is a marine SEA.
- Te Awa o Hōteio flows into the Kaipara Harbour. Studies undertaken on behalf of regulators (for example, the Auckland Council, Hoteio River Catchment: Environment and Socio-economic Review, Technical Report 2014/021, August 2014) have identified the harbour as being sensitive to sedimentation effects due to the harbour providing a key snapper breeding ground with large sea grass beds present including close to the mouth of Te Awa o Hōteio.
- Baseline water quality monitoring has shown generally low sediment concentrations during non-rainfall conditions, with peaks including some significant peaks ($> 1,000 \text{ mg/m}^3$ suspended sediment) during rainfall events.

To manage effects and minimise sediment discharges during the initial construction phase of the project, the following approach to erosion and sediment control is proposed:

- Development of a Construction Erosion and Sediment Management Plan (CESMP) for the Project. The CESMP will document the earthworks and sediment control procedures that will be required during the initial construction phases.
- Requirement for the development of Project-specific Erosion and Sediment Control Plan (ESCP) for the earthworks associated with stages of work.
- An adaptive approach utilising both implementation of best practice controls as well as monitoring to provide a feedback loop to evaluate the performance of the erosion and sediment controls in place, which will include:
- Weather forecasting to schedule high risk activities (including any works within or close to streams) during fine weather windows.
- Visual inspections of the receiving environment while works are being undertaken with any noticeable changes in water clarity of colour between upstream and downstream of the works areas resulting in a review of sediment control measures and practices with additional or modified practices to be implemented.
- Fixed permanent continuous monitoring of turbidity downstream of the landfill and upstream of the works areas to provide a trigger of changes in turbidity due to works on-site.

5 Assessment of potential effects

Based on the Project and the information available, an assessment of potential effects has been undertaken and summarised below.

The construction of the landfill and associated infrastructure including an access road and stockpiles have the potential to result in effects associated with discharges of sediment during earthworks.

The objectives for land disturbances activities under the AUP require land disturbance activities to be undertaken in a manner that protects the safety of people, and avoids, remedies and mitigates adverse effects on the environment by minimising sediment generation and controlling land disturbance activities. The associated policies provide that these objectives are to be achieved through the use of best practicable erosion and sediment control measures and by managing the amount of land being disturbed at any one time.

The proposed works will be undertaken in accordance with industry best practice including methods to minimise sediment generation i.e. minimising open areas, progressive stabilisation and clean water diversion drains. Construction activities will also include sediment control measures including the use of silt fences, decanting earth bunds and sediment ponds.

The construction works will be undertaken in accordance with an CESMP, which will require the preparation of site-specific sediment control plans for different activities and site areas, together with on-going monitoring. The monitoring will provide feedback to enable an adaptive management approach, whereby additional controls or measures will be implemented where there is a greater risk of sediment discharges or where monitoring indicates they are required.

USLE calculations have also been undertaken for the proposed construction works. Based on the estimated sediment yields, the total calculated sediment yield from construction activities over the entire construction period is approximately 300 tonnes.

The assessment finds that sediment and erosion effects from construction of the ARL can be effectively mitigated through best-practice design, staged construction, and continual monitoring. When these methods are applied correctly, the potential for adverse environmental impacts will be minimised, limiting the effects on sensitive receiving environments such as Te Awa o Hōteao and Kaipara Harbour to **no more than minor**.

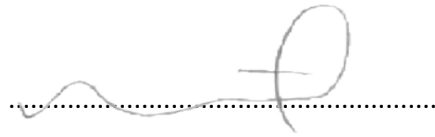
6 Applicability

This technical memorandum has been prepared for the exclusive use of our client WMNZ, with respect to the particular brief given to us, and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

We understand and agree that WMNZ will submit this technical memorandum to the Environmental Protection Authority in support of a referral application under the Fast-track Approvals Act 2024 for the works described herein, and that the Environmental Protection Authority will rely on this technical memorandum for the purpose of assessing that application.

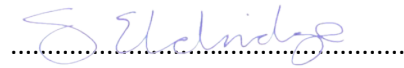
Tonkin & Taylor Ltd

Lead Author:

A handwritten signature in black ink, appearing to read 'Rob Van de Munckhof', written over a horizontal dotted line.

Rob Van de Munckhof
Technical Director – Environmental Engineering

Authorised for Tonkin & Taylor by:

A handwritten signature in blue ink, appearing to read 'S. Eldridge', written over a horizontal dotted line.

Simonne Eldridge
Project Director