

Appendix Q Waste Acceptance Criteria Memo

Memorandum

Subject: ARL Project - Waste Acceptance Criteria
Memorandum

**Reference
No:** 1101798

Author: Penny Kneebone

Date: 29 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 Waste Acceptance Criteria (WAC) 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 proposed WAC for ARL are designed to control the types and characteristics of waste accepted to ensure the protection of human health and the environment. The WAC form a key component of the landfill's environmental management framework, specifically influencing the quality of leachate generated.

The WAC were developed in accordance with New Zealand's WasteMINZ Technical Guidelines for Disposal to Land (2023)² and are aligned with international good practice. They include a structured approach to the acceptance of municipal solid waste (MSW), limits on hazardous substances in special/industrial wastes through Toxicity Characteristic Leaching Procedure (TCLP) tests, and optional Total Concentration Values (TCV) for screening purposes.

Importantly, ARL is to be designed and operated as a Class 1 landfill, accepting only non-hazardous MSW. Hazardous wastes with explosive, corrosive, or flammable properties will be prohibited. Some trace concentrations of hazardous substances are permitted within general MSW, consistent with normal landfill operations across New Zealand.

The proposed WAC framework, supported by monitoring and contingency provisions, has been assessed as appropriate and effective in mitigating risk to leachate quality. Modelling and evidence from comparable operations such as WMNZ's Redvale Landfill indicate that leachate generation and composition will remain within expected parameters for non-hazardous landfills with engineered liners and leachate collection systems.

3 Assessment methodology

The methodology to inform the assessment to date has been desktop.

The following desktop-based tasks and assessment have been undertaken to inform the assessment:

- Review of applicable New Zealand guidelines for WAC.
- Review of WAC and leachate monitoring data for Redvale Landfill, which is currently receiving the waste streams that would in future be disposed at ARL.

Modelling that has been undertaken to inform this assessment has included:

- Fate and transport modelling of potential contaminants in leachate via groundwater to assess potential effects on surface water³.

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 waste acceptance criteria assessment:

- The landfill will accept only non-hazardous solid waste; hazardous waste will not be accepted.
- The landfill will be designed and constructed as a Class 1 Landfill under the WasteMINZ Technical Guidelines (2023), incorporating a composite geosynthetic liner that provides superior leachate containment compared with the older USEPA Subtitle D clay liner system, ensuring conservatively low TCLP limits.

² Technical Guidelines for Disposal to Land, WasteMINZ, September 2023, Revision 3.1.

³ T+T, July 2026. Contaminant fate and transport Memorandum. Ref: 1101798.

- A full leachate collection system will be installed in accordance with Class 1 requirements.
- Management controls will be applied to ensure compliance with the WAC.
- Site conditions meet the conservative assumptions in the WasteMINZ Guidelines, with surface water and groundwater receptors located beyond 100 m, further reducing the potential for off-site effects.

5 Assessment of potential effects

Based on the proposal and the information available, an assessment of proposed WAC to manage potential effects on groundwater and surface water quality (via groundwater) has been undertaken and summarised below.

5.1 Overview of WAC function and design basis

The WAC govern the chemical and physical characteristics of all wastes entering the landfill. They serve to maintain compatibility between the waste stream and landfill design elements, particularly the liner and leachate collection systems, ensuring containment integrity. The criteria are underpinned by:

- Acceptance of non-hazardous MSW only;
- Prohibition of reactive or hazardous wastes;
- Defined limits for potentially hazardous substances using TCLP and TCV methods; and
- Case-by-case assessment of any atypical or industrial waste streams.

These criteria are to be embedded in consent conditions and reflected in the Landfill Management Plan (LMP).

5.2 Leachate quality and controls

Leachate generation and composition

Leachate forms as water percolates through deposited waste, dissolving soluble constituents. Its composition is influenced by waste type, moisture levels, and microbial activity. The degradation process occurs in distinct aerobic and anaerobic stages, with peak contaminant mobility during the acidic methanogenic phase.

For ARL, the waste composition and degradation trajectory are expected to mirror conditions observed at Redvale Landfill, given the similar waste stream and management regime. Monitoring of Redvale leachate over time shows stable trends for metals, ammonia, and other indicator parameters, supporting the expectation that ARL's leachate will remain within acceptable limits.

Testing and criteria application

The TCLP limits are maximum allowable concentrations for specific contaminants (e.g., metals, volatile organic compounds). The TCV provides a conservative screening threshold where laboratory TCLP testing is not available. Waste exceeding TCV but meeting TCLP limits will be accepted, ensuring practicality without compromising protection standards.

Leachate monitoring

Leachate quality will be verified through a comprehensive monitoring programme requiring quarterly testing for indicator parameters and annual testing for a broader suite of potential contaminants. Parameters include metals (arsenic, cadmium, chromium, lead, nickel), pH, ammonia, chloride, total petroleum hydrocarbons, and conductivity. Leachate findings are cross-checked against groundwater results, with additional testing for organic compounds if contamination pathways are suspected.

5.3 Surface water and groundwater quality protection

The primary defence against surface and groundwater contamination is the engineered landfill containment system, comprising a composite liner and active leachate collection network. The WAC complement these design measures by preventing unacceptable waste from being placed in the landfill.

In the unlikely event that monitoring detects leachate indicators in downgradient groundwater, response measures include confirmatory sampling for additional contaminants and implementation of a contingency response plan. Given the physical separation to the nearest water receptors (greater than 100 metres), and the presence of engineered containment, the risk of off-site migration of contaminants is considered low.

5.4 Management of odorous, dusty, and oversized waste

Physical characteristics of waste are also controlled to minimise localised environmental or nuisance effects. Waste must be solid with no free liquid, and odorous or dusty wastes are subject to timing and handling restrictions. Odorous loads must be buried immediately and vehicles washed out after delivery. These operational controls reduce the potential for leachate generation from free liquids and for indirect effects on surface water through surface contamination or stormwater interaction.

5.5 Emerging contaminants and adaptive management

The WAC framework allows for adaptation over time to address new or emerging contaminants (e.g., PFAS). Ongoing review and update mechanisms are included in the LMP to ensure the WAC remain current and protective.

6 Conclusions

The proposed WAC for ARL constitute an integrated and effective system for managing potential effects on leachate and surface water quality. The WAC appropriately reflect New Zealand and international best practice and are suited to the design and operating conditions of a modern Class 1 landfill.

The multi-tiered controls, comprising waste acceptance limits, physical waste handling procedures, engineered containment systems, and a comprehensive monitoring programme, collectively ensure that leachate generation and composition will be well managed.

Accordingly, the WAC are assessed as appropriate, conservative, and sufficient to meet environmental protection objectives for ARL. No residual adverse effects on leachate or surface water quality are anticipated provided that the WAC, LMP, and consent conditions are properly implemented and enforced.

7 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:

Authorised for Tonkin & Taylor Ltd by:



Penny Kneebone
Technical Director - Environmental Science



Simonne Eldridge
Project Director