

Appendix R Bond Memo

Memorandum

Subject:	ARL Project - Landfill Bond Memorandum	Reference No:	1101798
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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 has been prepared drawing on extensive landfill experience including the original Redvale landfill consent and Bond process, as well as the development of bonds for the Kate Valley, New Zealand Steel, Dow Waireka, Whitford and other landfills in both New Zealand and Australia.

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

This memorandum provides a summary of the basis for the landfill financial Bond (Bond), based on a United Kingdom model for bond (known as financial insurance) and utilised for calculations of other landfill bonds across New Zealand. It provides a high-level indication of the anticipated Bond structure for the ARL project.

This technical memorandum 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 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 Overview of landfill Bonds

2.1 Bond purpose and structure

A common concern held by communities in relation to landfills is that given their long life, which typically includes cell by cell construction, decades of operation and decades of aftercare, that there will be a risk that there would be some sort of failure of the landfill, with associated consequences for the surrounding environment. This concern has been taken into account in developing the proposed Bond approach for ARL. Namely, very conservative closure scenarios have been adopted and perceived risks appropriately accounted for over time. This approach means that in the highly unlikely event the site was ever subject to early closure or commercial failure, and effectively became "orphaned", it would not be a financial burden to the regulator or the community.

The purpose of the Bond is to provide, in the unlikely event of default by the owner and consent holder, sufficient funds to deal with the cost of early closure of the landfill in whatever circumstances might lead to that occurring. The Bond also provides for future post-closure costs associated with long term site management and aftercare that would then follow early closure. This Bond requirement extends through the operating life of the landfill and into the aftercare period until such time as the Bond is no longer needed.

Another component of the Bond is configured to address short term contingent risks associated with a breach of any condition of consent and a failure on the part of the consent holder to remedy such a breach. One example of this type of contingent risk is a landfill fire.

Having the Bond in place provides assurance to stakeholders that the regulator and/or the community will not be in the position of having to meet the cost of remediating, closing, and managing the aftercare of the site under any circumstances.

Hence, the Bond is there to provide a "comprehensive backstop" in a very broad sense, for a very unlikely eventuality and in the unlikely circumstance the consent holder was unable or unwilling to deal with it. Based on the known environmental performance of modern, engineered landfills around the world, a catastrophic engineering failure at a site such as ARL is very unlikely. However, in line with New Zealand and overseas practice it is considered prudent to provide a Bond to manage this risk. An appropriately structured Bond provides Council and other stakeholders with reassurance that should anything ever go wrong that was not managed by the consent holder, then the funding that is needed will be available to address the issue. It is noted that to date, there are no known cases in New Zealand or Australia where the terms for accessing a landfill Bond have been triggered and the Bond has needed to be accessed by the regulator to support costs associated with permanent site closure.

The level of engineering and environmental risk at ARL will change over time. Hence consent conditions related to the Bond are usually structured to include plausible scenarios on which to develop the initial Bond amounts, with regular (5-yearly) review to ensure the Bond amount remains appropriate and over time. Regular review accounts for the state of site development, changes in construction costs and changes in the landfill's risk profile over time, including during the aftercare period.

2.2 New Zealand practice

In New Zealand, landfill financial Bonds are sometimes used by regulators to support the management of the environmental risks associated with some types of large infrastructure projects, particularly landfills and particularly in relation to the private sector. The purpose of the Bond is to provide financial backup in the event the consent holder defaults on its obligations and effectively walks away from the project leaving it for a third party to close and remediate the site.

The requirement for consent holders to provide a Bond for landfill development projects in New Zealand began when the Redvale Landfill was first proposed in the late 1980s. WMNZ, as the owner and developer of that project and the consent holder, was required to provide a financial assurance such that if the site ever closed due to serious technical difficulties, or in circumstances where the company failed commercially, the ongoing financial liability for dealing with the site was not borne by the regulator: at that time the Auckland Regional Council (subsequently Auckland Council).

Financial Bonds have since been required for several other New Zealand infrastructure projects, including landfills. Landfill examples include the Kate Valley Landfill in Canterbury, the Hampton Downs Landfill in the Waikato, and the Dow Waireka secure containment facility in New Plymouth.

2.3 Overseas practice

Overseas practice in relation to landfill Bonds (also referred to as a landfill financial assurances or financial guarantees), has developed significantly over the past 20 years. In the United States of America, most large landfills are now required to post a Bond or appropriate financial guarantee, the scope of which varies from state to state. A similar legislative framework applies in some states of Australia.

In the United Kingdom (UK), provision of a landfill financial assurance has been mandatory in the past² and guidance on the requirements of the financial provision were set out some years ago by the Environment Agency UK. That historical UK guidance directs what costs are to be included and the level of calculation detail required. The aim of the UK guidance was to develop a robust and conservative cost assessment with a sensible future projection timeframe and hence, risk horizon.

This UK guidance has shaped current practice for the development of landfill Bonds in New Zealand and was agreed between the experts at the council-level hearing as providing an appropriate methodology for developing the Bond for ARL.

² This changed when the UK became a member of the European Union but is now under further consideration following BREXIT.

3 Derivation of the ARL Bond

3.1 Bond structure

The proposed structure for the Bond is based on the UK methodology and is made up of three component parts, referred to as Parts 1, 2 and 3. This Bond structure is shown diagrammatically in Figure 3.1 and summarised below.

Part 1 – Compliance (green line)

The cash sum that is immediately available for the management of acute environmental incidents if the consent holder fails to act or does not act in an appropriate manner to meet the performance requirements set by the regulator.

Part 2 – Closure (red line)

The cost of early closure of the site due to an incident that results in commercial failure of the consent holder and the inability to continue with the project through to closure, including the performance of any monitoring obligations.

Part 3 – Aftercare (blue line)

The total cost of ongoing aftercare, management and monitoring of the site following closure until such time as the closed landfill is stable and no longer poses a risk to the environment.

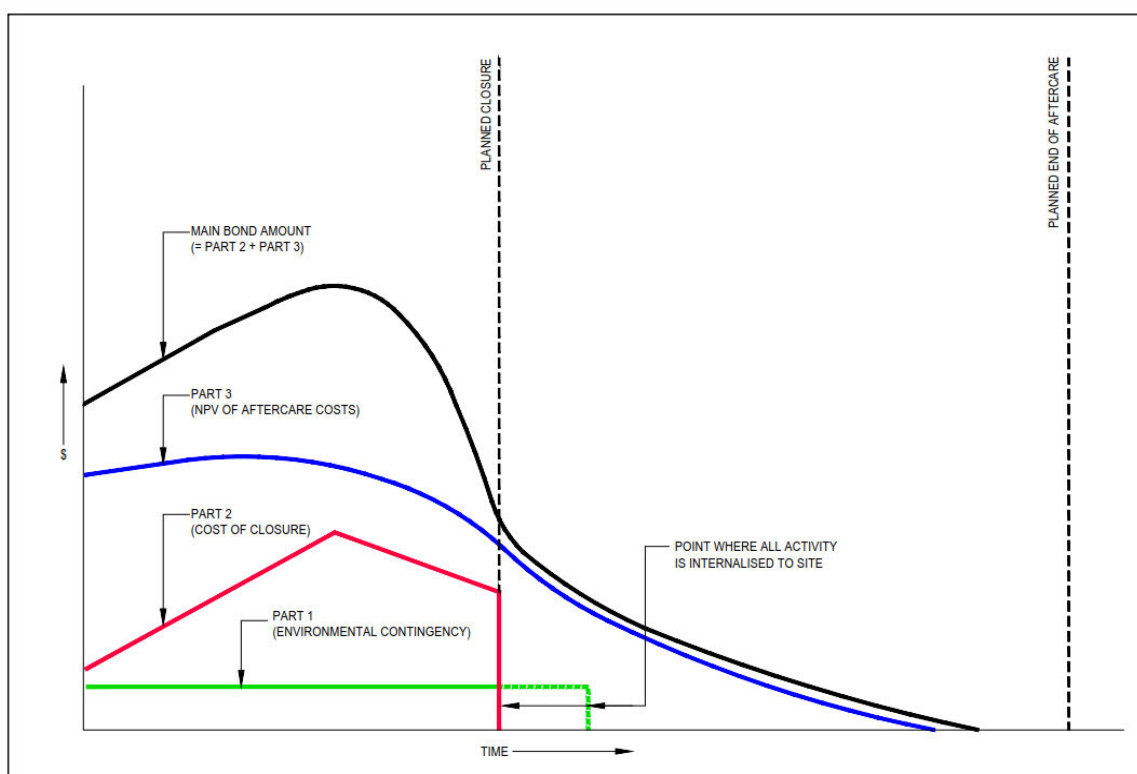


Figure 3.1: Bond structure diagram

In a typical Bond arrangement, Part 1 would be effectively cash by way of a letter of credit, and Parts 2 and 3 would be summed to a total amount to be secured in a way that is commercially acceptable to Council. These requirements typically are set out in the consent conditions.

3.2 Calculating the Bond component amounts

The amount of each of the three Bond parts needs to be sufficient to meet both the short and long-term cost obligations for the Bond assessment period and each is subject to regular review to take account of the changing state and risk profile of the site over time, as well as adjusting for changes in economic conditions, particularly inflation.

The bulk of the Bond amount (the sum of Part 2 and Part 3) is provided for the extremely unlikely event that the consent holder either fails commercially or abandons the Project without adequate succession or financial provision in place.

3.2.1 Part 1 – Compliance

The Part 1 amount is calculated by assessing operational phase acute environmental risks and assigning a risk cost to these, being the compliance component. Typical scenarios considered are leachate or service tanker incidents, sediment management and landfill fire. Recent experience, including at Kate Valley, has shown that leachate and service tanker incidents tend to dominate this calculation early in landfill life, with landfill fire tending to become the larger risk issue to consider later in landfill life.

Part 1 is essentially “cash” and is provided to enable Council to respond to an acute incident or breach of the resource consents, should the consent holder fail to respond appropriately, and/or in a timely way. An initial analysis of this bond component is estimated to be 281,000 (\$0.281 million) when escalated to 2025 dollars. However, this amount will need to be reviewed to account for cost escalation up to the date landfilling commences.

3.2.2 Part 2 – Closure

Part 2 is generally the more variable Bond component amount throughout the duration of landfill development and is the cost of closing and stabilising the site in the event of an unexpected scenario forcing early closure and abandonment of the site up to and including year 5 of operation. It is an amount that is periodically re-calculated and adjusted to ensure it is sufficient to cover the cost of all works necessary to close and secure the site in the event of early closure, for whatever reason. The amount will therefore depend on the overall development state of the project at any point as well as (then) current day construction costs. This is extremely unlikely as even in a worst case, the extent of the remedial works required after a hypothetical major front face failure of the landfill at year 5 would not result in commercial abandonment of the site. Furthermore, the modelled failure scenario is hypothetical as the landfill could not fail in such a manner. Nevertheless, a very conservative failure of the front face has been modelled and assumed to occur, and it is further assumed that this results in complete abandonment of the site.

Part 2 enables a third party (in this case, Council) to secure the site in the extremely unlikely event that the consent holder ever defaults, effectively abandoning the site. Part 2 of the Bond is required from the point the site becomes operational, through to the point where the site is fully capped and rehabilitated and Council is satisfied that the site is stable and is in the post-closure phase.

There are two components of Part 2 of the bond. The first component (Part 2A) is the cost of remediating the failure and making the site safe. The second component is the cost of capping, stabilising, and remediating the site so that permanent closure of the site is achieved. It is conservatively assumed that all the waste on site remains in place, even though other cheaper remedial options may exist. An initial cost estimate undertaken has calculated that the amount would be approximately around \$8 million based on an early 2025 landfill operations commencement date. However, this amount will need to be reviewed to account for cost escalation up to the date landfilling commences. The revised amount will also need to take into consideration any final design changes that impact on the risk profile of the site in the first 5 years of operation.

3.2.3 Part 3 – Aftercare

The amount of Part 3 is calculated based on the accepted methodology for assessing landfill post-closure (aftercare) cost as set out in the Ministry for the Environment Landfill Full Cost Accounting Guide 2004, totalling 30 years of activity. This is relatively straightforward, and what is derived is the Nett Present Value (NPV) at any point in the Bond review process, of all future costs associated with the long-term aftercare of the site, considering its current state in relation to closure. Note that the requirement for Part 3 of the Bond may continue past landfill closure, as shown on Figure 1.

An estimated NPV of all the future aftercare costs has been calculated at around \$4.2 million in 2025 dollars. The calculation is based on the method set out in the NZ Ministry for the Environment Landfill Full Cost Accounting Model. However, this amount will need to be reviewed to account for cost escalation up to the date landfilling commences.

3.3 Release of the Bond

The Bond needs to be commercially secure, so the funds are available if ever required. This aspect is usually addressed in consent conditions which require the Bond to be in place prior to first placing refuse.

For the main component of the Bond to ever be called upon the operator would have to have abandoned the site in circumstances where no other third party could or would continue with the project. In practice this is extremely unlikely owing to the inherent value of the ARL landfill asset. However, for the purposes of developing the Bond amount it is conservatively assumed there may have been a major event or engineering failure at the site that resulted in the consent holder abandoning the site.

3.4 Contingency scenarios

In practice, a contingent event of sufficient magnitude to force total site closure early in the life of the project is extremely unlikely given the inherent site and project value. However, for the purposes of calculating a Bond amount, potential contingency scenarios have been considered and the detail of these will be developed in more detail in the Bond report.

One possible contingency scenario for the initial Bond assessment is an earthquake-induced stability failure of the front face of the landfill, whereby a significant area of waste placed to that point is assumed to have slumped down-hill and impacted a site pond. Such an event will almost certainly not occur, or if it did would not result in abandonment of the site. However, for the purposes of the Bond analysis is assumed to have occurred contemporaneous with WMNZ and/or any other operator parties having abandoned the site.

3.5 Bond review

It is usual for consent conditions to require the Bond component amounts to be developed and agreed in advance of landfilling commencing and for each of the three primary Bond parts will be subject to regular (5 yearly) review. A key reason for adopting 5-yearly reviews of the Bond is to ensure the assessment of Parts 2 and 3 of the Bond in particular, and their associated costings, remain current and continue to reflect the risk state of the site into the future.

3.6 Bond total and conclusions

The total Bond amount is the sum the three component parts. As described above, Part 1 is assessed as being \$0.281 million and Parts 2 and 3 total \$13.217 million, all in 2025 dollars.

This results in a total forecast Bond amount of \$13.5 million, in 2025 dollars, based on a 2025 start date. As noted above, these calculated amounts will need to be reassessed ahead of the landfill commencing, based on the actual starting date.

4 Conclusions

As described in the Landfill Engineering memorandum³, the proposed design for ARL is technically robust and is consistent with or exceeds the recommendations set out in the WasteMINZ Technical Guidelines.

The engineering designs for the landfill basegrade, final landform and associated containment and collection systems (leachate and LFG) are considered to be appropriate and will provide for the safe, long-term containment of waste while minimising environmental effects. The preliminary design of stormwater systems around the landfill provides for ongoing safe operation of the landfill over its lifetime to minimise potential adverse effects from stormwater discharges.

Given this conservative approach and the asset value of the proposed ARL project, as well as the scale and commercial history of WMNZ's operation within New Zealand (which includes the Redvale and Kate Valley landfills), it is considered that there is a very high likelihood that WMNZ or a successor can be expected to complete filling of the site, along with closure and aftercare without the need to ever trigger the Bond. Nevertheless, in line with both New Zealand and overseas practice, providing a Bond is prudent and ensures that third party financial risk associated with the project is minimised. It also provides a significant level of comfort to the community that it will never be left with an unfunded legacy site.

To date, there are no known cases in New Zealand or Australia where the terms for accessing a landfill Bond have been triggered and the Bond has needed to be accessed by the regulator to support costs associated with permanent site closure.

Usually, conditions of consent would require the Bond report to be updated every 5 years. Such regular updates ensure that the assessment of contingent risk cost, early closure costs and aftercare costs keep pace with landfill development and the changing risk profile of the site over time. Reviewing and re-setting the Bond amount every 5 years ensures that the costing risk associated with inflation and the changing cost of engineering works is effectively managed over the life of the project. This is because the regular updates, along with the contingency allowed for each assessment mean that the bond cost is always realistic and conservative.

The current estimate of the total Bond amount is \$13.5 million, expressed in 2025 dollars, and based on a 2025 landfill start date. However, as noted above, these calculated amounts will need to be reassessed ahead of the landfill commencing, based on the actual confirmed starting date.

It is usual for landfill Bonds to be provided partly as a cash, and partly as a bank guarantee or another financial instrument agreeable to the regulator. A separate Bond Agreement would set out the basis on which payment of the Bond would be triggered, and the Bond amounts accessed by Council.

The details and further calculations of the bond for ARL will be provided at the time of a resource consent application being prepared.

³ T+T, July 2026. ARL Project - Landfill Engineering Memorandum. Ref: 1101798

5 Applicability

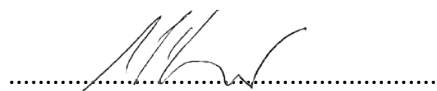
This technical memorandum has been prepared for the exclusive use of our client WMNZ, with respect to the particular brief given to us, and it may not be relied upon in other contexts or for any other purpose, or by any person other than our client, without our prior written agreement.

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.

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