

MEMO

Date: 21 November 2025 33250

From: Sean Finnigan

Subject: 362 Jones Rd, Hunua – Managed Fill Water Supply Memo

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1 INTRODUCTION

This memo updates our previous assessment of water demand vs supply for the proposed managed fill at 362 Jones Rd, Hunua, in response to Item 1 (e) of the RFI from Council.

2 WATER SUPPLY

2.1 Water Demand Overview

The Fill water demand covers three different activities, as explained in Table 1.

Table 1: Estimated Daily and Annual Water Usage

Use	Description	Source	Max Daily Usage (m ³ /d)	Annual Usage (m ³)
Staff	3-4 permanent staff x 50L/person/d	Roofwater harvesting	0.15-0.20	40-53
Wheel washing	Proprietary wheel wash with recycling tank	Roofwater harvesting + new bore	2.4	198
Dust suppression	Water for dust control purposes using water truck or similar	New bore + SRPs + tanker	25-60	208-521 (avg rainfall) 1,516-3,793 (20yr drought)
Total			27.55-62.6	446-759 (avg rainfall) 1,754-4,044 (20yr drought)

Notes:

- Staff use based on 269 working days per yr (5.5 days per wk less 20d holidays).
- Wheel washing water usage based on average water loss per vehicle of 25L, maximum of 96 vehicles per day and average of 7900 vehicles/yr.
- Dust suppression water usage is explained further in section 2.2.

2.2 Dust Suppression Water Demand

Consultation with some other cleanfill or managed fill operations has indicated that water is generally only applied to the gravel access roading and tip head areas for dust suppression purposes during summer months (taken as being equivalent to the earthworks season, October to April inclusive; or 7 months of the year).

Hence, water demand requirements for dust suppression have been assessed based on estimated roading and tip head areas for each sub-stage of the northern and southern fill areas as shown on FTL drawing 33250/195. Combined access roading and tip head areas have been calculated for each sub-stage, as shown in Table 3, based on there being only one tip head at any one time.

GD05 (Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region) advises on pg 171 that the MfE's Good Practice Guide for Assessing and Managing Dust recommendation of 1 litre/m²/hour (or 1 mm/m²/hour) of water is generally considered conservative as the minimum amount of water that should be available on site is 5 mm/m²/day. This should be applied incrementally so the ground surface remains moist.

Corresponding maximum daily water usage for dust suppression was calculated for each area, using the GD05 recommendation of 5L/m²/day and taking into account monthly rainfall that occurs over the earthworks season, based on continuous rainfall records from the Auckland Council Hunua Nursery/Bowling Club rain gauge covering the period 1980-2025.

Analysis of the monthly rainfall data (see Table 2) shows that this area receives above average rainfall for the Auckland region, with average rainfall of 1436mm over the period 1980-2025 and even reasonable rainfall in drought years, with the lowest annual rainfall recorded over the 45 year record period being 1061mm. Rainfall over the earthworks season (October-April inclusive) is also reasonable, comprising 705mm over the 7 month period on average, reducing to 568mm for a 5 year drought, 508mm for a 10 year drought and 425mm for a 20 year drought. In comparison, the total estimated water demand for dust suppression over this period is 750mm, based on 5mm/d x 150 working days over this period. Hence, rainfall provides on average 94% of the dust suppression water demand, reducing to 57% in a 20 year drought.

Table 2: Rainfall Analysis

Item	Rainfall (Oct-Apr) (mm)	% of dust suppression water demand
Average	705	94
Minimum	361	48
Maximum	1234	165
20 th percentile (5yr drought)	568	76
10 th percentile (10yr drought)	508	68
5 th percentile (20yr drought)	425	57
Dust control demand (based on 5mm/d x working days)	750	

Note: Percentile rainfall values calculated using a simplified approach, rather than a strict statistical analysis.

Table 3 displays these results and shows that the maximum daily water demand (on peak days with no rainfall) for dust suppression varies from 25.2-60.3m³/d, with the largest quantities being required during Stage N1, due to the significantly longer haul road involved to get to this Fill substage.

Estimated annual water demand for dust suppression ranges from 208-521m³ in an average rainfall year, to 1,516-3,793m³ in a 20 year drought.

Table 3: Water Demand for Dust Suppression

Stage	Haul Road (m ²)	Access Road + Tip Head (m ²)	Total (m ²)	Maximum Daily Water Usage – Summer (m ³ /day)	Estimated Demand – Annual Average Rainfall (m ³ /year)	Estimated Annual Demand – 20yr drought (m ³ /year)
N1	3,405	8,270	11,675	58.4	521	3793
N2	3,405	4,839	8,244	41.2	368	2678
N3	3,405	6,818	10,223	51.1	456	3321
N4	3,405	3,603	7,008	35.0	313	2277
N5	3,405	1,520	4,925	24.6	220	1600
S	3,405	1,263	4,668	23.3	208	1516

2.3 Water Supply

Water supply will be provided to the site office by roof rainwater harvesting, as per the existing situation. No bore water should be required for site office use.

Water supply for the vehicle washing facility will be provided by roof water harvesting off nearby buildings, with storage in 4 x 30m³ tanks, with topup provision from the new bore. These tanks will provide storage for up to 51 days maximum water demand, or 178 days average demand (based on 27 vehicles on average per day and 96 max per day). Hence, it is expected that most of the wheel wash supply will be provided from roof water harvesting, with bore topup being required infrequently and likely limited to drought years. Imported tanker water would be utilised in an extreme drought, if the permitted activity daily bore take limit is exceeded.

Water supply for dust control would be provided by a combination of:

- Roof water harvesting;
- Bore water use;
- Pumping water from the SRPs into additional 30m³ storage tanks located by the SRPs;
- Imported tanker water, in an extreme drought, if the permitted activity limit is to be exceeded.

Section E7 of the AUP:OP Activity A15 provides for up to 20m³/day to be taken from a groundwater bore, when averaged over any consecutive five day period and no more than 5,000m³/year as a **permitted activity**. The proposed groundwater take volumes will be controlled to be within the permitted activity limits.

Based on the rainfall analysis undertaken, this area receives reasonable rainfall and it is expected that the above provisions will reliably provide for the required water demand, without exceeding the permitted activity groundwater take requirements.

2.4 New Bore

Constructing a new bore would require a minimum 104mm diameter bore drilled down to 60-150m depth, with PVC casing to 50-70m depth, based on advice from Kiwi Welldrillers NZ Ltd. A new bore pump would also be required, with water pumped into 4 x 30m³ above ground tanks. The proposed bore should be capable of extracting the maximum permitted quantity of water applied for – i.e. 20m³/d when averaged over any consecutive 5 day period.

2.5 Bore System Management

The bore pump will be serviced regularly in accordance with supplier recommendations.

The bore pump and water storage system will be operated so that the tanks will be maintained full at the start of each working day, through the use of level floats to start and stop the bore pump, and subject to setting a total daily or weekly pump run time to avoid exceeding the maximum permitted daily limit, when averaged over any 5 day consecutive period.

As groundwater usage is anticipated to be relatively low, groundwater abstraction volumes will be measured using a simple method, involving a “run hours” meter, with pump flows being calibrated prior to commencing water abstraction and at 5 yearly intervals, so as to enable run hours to be converted to flows. Calibration verification records shall be provided to Council within 20 working days of measurement.

Water meter readings shall be recorded weekly at the same time each week, even if no water is being taken during any period. The meter shall be read either before pumping starts or at the end of pumping for a day. Water use, water meter reading and date shall be entered into Council’s Water Use Data Management System (or any replacement database advised to SEL by Council in writing) every 15th day of March, June, September and December.