EnviTech
GREEN AND GROUND ENGINEERING

TECHNICAL MEMORANDUM

To: Vipan Garg vipan@nationalsteel.co.nz

From: Lindsay Strachan lindsay.strachan@earthtech.co.nz and
Aidan Nelson aidan.nelson@envitech.co.nz

Date: 2 February 2026 Ref: M2501-6

Re: **NATIONAL GREEN STEEL PROJECT: MONOFILL LEACHATE PRODUCTION**

Dear Vipan,

Following expert conferencing for the Green Steel project, this Technical Memorandum responds to the JWS Matters of Agreement and Action Items relating to leachate, monofill capping and liner selection that are relevant to our area of expertise.

The matters of agreement are repeated below under each topic for ease of reference.

A. Leachate

a. *Actions Decided*

LS and AN are to undertake additional assessment on behalf of the Applicant, with AD to contribute to modelling parameters.

b. *Matters of agreement*

In addition to the outcome of the actions decided in response to 'b.' above, all parties are in agreement that the intent of detailed monofill design is for it to sit above an unsaturated zone. The further work required to determine depth of this zone is acknowledged by the parties.

The **attached** Excel spreadsheet provides the additional assessment referred to in the JWS and outlines two calculation methods used to estimate leachate production rates from the Green Steel Monofills:

- Method A - Data Approach: based on actual landfill / monofill leachate data; and
- Method B - Calculation Approach - Based on the Water Balance ($L = P - R - ET - \Delta S$) often referred to as "B (Balance) = R (Rainfall) - E (Evaporation) + ( )"

The Excel Spreadsheet provides volumetric monthly predictions for each Method, taking into consideration seasonal variations or fluctuations.

Predictions from both methods align.

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For clarification, leachate volume predictions based on Method A, are also informed by:

- Sourced site operational data and records from operating landfills; and
- Our experience with landfills in the Auckland and Waikato Regions over many years, including a nearby operational landfill where we assessed leachate production rates in 2025.

The matter of agreement in (b) above is included in the draft conditions prepared by Craig Shearer at condition 8(a) (in the consent conditions relating to Authorisation for Monofill Activities). We are satisfied that the draft condition appropriately addresses the matter.

B. Liner Selection

a. *Matters of agreement (pg 4/5 JWS)*

NEMP 3.0 is to be followed. [This refers to NEMP3.0 Guidance Document "PFAS National Environmental Management Plan (NEMP) 3.0]

Include condition on adhering to NEMP 3.0 (or subsequent equivalent), requiring detailed design to determine whether single or double composite will be needed, and ongoing testing of floc being received as per NEMP 3.0 on an ongoing basis (e.g., 6-monthly)

All parties agree to be guided by the outcome of sensitivity analysis of the groundwater (as outlined under 'b.' above) in the first instance and then at detailed design stage using information obtained from testing of the floc for PFHxS, PFOA and PFOS and any other relevant substances of potential concern.

Proposed conditions are included in the draft conditions prepared by Craig Shearer at conditions 8(b) and (c) (in the consent conditions relating to Authorisation for Monofill Activities). We are satisfied that the draft conditions are appropriate to address the above matters.

C. Monofill Capping

a. *Matters of agreement*

*The parties agree this matter is to be assessed further as part of the additional assessment on leachate water balance to be undertaken by the Applicant (with modelling parameters contributed to by **AD**). (pg 6 JWS)*

All parties agree that maximum leachate level is to be conditioned at 0.3m above the liner and exceedances of this are best managed by way of a reporting condition linked to the Monofill Management Plan. (pg 7 JWS)

The additional leachate assessment is addressed above in section A.

The matter of agreement above is reflected in the draft conditions prepared by Craig Shearer at conditions 7(a) to (d) (in the consent conditions relating to Authorisation for Monofill Activities). We are satisfied that the draft conditions appropriately address the matters of agreement.

Other conditions

For the avoidance of doubt, we have reviewed the revised draft conditions arising from the JWS and confirm that from our perspective these conditions satisfactorily address the matters raised.
We remain available to address any questions or queries on the above.

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Specialist Landfill Engineer

AIDAN NELSON CPEng.
Principal Geotechnical Engineer

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Attached: Monofill Leachate Production Predictions – Excel Spreadsheet (27/01/2026)