

**To:** Shay McDonald  
**From:** Samantha Iles  
**Company:** Otago Regional Council  
**SLR Consulting New Zealand**  
**cc:**  
**Date:** 4 April 2024  
**Project No.** 875.V15838.00002

**RE: RM24.143 – Green Island Resource Recovery Park Precinct  
Contaminated Land Technical Review**

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## 1.0 Introduction

SLR Consulting NZ (SLR) has been engaged by Otago Regional Council (ORC) to conduct a technical review of the resource consent application (including subsequent attachments) submitted by Dunedin City Council (the applicant, or DCC) for the development and operation of the Green Island Resource Recovery Park Precinct (RRPP) (referred to herein as the site).

As part of improvements to Dunedin’s waste management and kerbside collection services, the applicant is proposing to develop a new RRPP facility at the existing Green Island Landfill which is coming to the end of its operational life.

SLR has prepared a number of Technical Memorandums in relation to the application. The Technical Memorandum herein relates to Contaminated Land Management.

## 2.0 Scope of the Review

### 2.1 Key Documents Reviewed

The following key documents, which were submitted as part of the application, have been reviewed in the development of this technical memo:

- GHD Limited, 2024. DRAFT Construction Environmental Management Plan, Green Island Landfill Resource Recovery Part Precinct. 12 January 2024;
- GHD Limited, 2024. DRAFT Erosion and Sediment Control Plan, Green Island Resource Recovery Park Precinct. 14 February 2024;
- GHD Limited, 2024. DRAFT Contaminated Land Management Plan, Green Island Resource Recovery Park Precinct. 16 February 2024;
- GHD Limited, 2021. Environmental Site Investigation Factual Report, Green Island Resource Recovery and Processing Precinct. 9 November 2021;
- Boffa Miskell, 2024. Applications for Resource Consent and Assessment of Environmental Effects Prepared for Dunedin City Council, Green Island Resource Recovery Park Precinct. 15 March 2024 (relevant sections only); and
- Resource Recovery Park Precinct – Draft ORC Conditions of Consent.

## 2.2 Scope

The scope of this review included:

- Review of the questions posed by ORC as detailed in Section 3.0 of this memorandum;
- Review of sections of the documents listed in Section 2.1 considered relevant to the questions posed by ORC (refer Section 3.0) for Contaminated Land Management; and
- Preparation of this technical memorandum.

## 3.0 Response

ORC posed the following questions which we respond to in turn:

- 1 Is the technical information provided in support of the application robust, including being clear about uncertainties and any assumptions? Yes, or no. If not, what are the flaws?**

The supplied Environmental Site Investigation (ESI) report which includes a limited assessment of contaminated land risks across the site. It states that it does not constitute a full Detailed Site Investigation (DSI) of the site due to the lack of a full site history and limited sampling locations. The ESI includes assessment of soil contamination, landfill gas and groundwater levels as relevant to the proposed development. At the time of the investigation the final layout of the RRPP was not confirmed.

The ESI included the following:

- Test pits were excavated across the proposed development area to a depth of between 1.2 and 3.2 m below ground level (m bgl). Additionally, four boreholes were drilled for groundwater depth monitoring and four landfill gas monitoring wells were installed across the site;
- The landfill cap thickness varied across the site from 0.0 m (no cap) to 1.2 m thick;
- Waste material identified consisted of metal, glass, wood, plastic, brick, tyres, organics, string, paper, asphalt, wire and clothing;
- Hydrocarbon and organic odours were recorded in selected test pits;
- Landfill gas monitoring identified concentrations of methane ranging from 1.5 – 80.5% across the four monitoring rounds. Low oxygen levels were recorded in all wells in each monitoring event and hydrogen sulphide gas was detected in one well during one monitoring event;
- Water levels ranged from 1.83 – 3.84 m bgl which may have been influenced by pumping in the leachate trench at the time of measurements.

Contaminant concentrations in soil exceeded Green Island Landfill screening criteria however, Toxicity Characteristic Leaching Procedure (TCLP) testing of soil samples was not undertaken. Therefore, soil excavated for the proposed development can not be compared against the current landfill TCLP waste acceptance criteria. Excavated soil is proposed to be transported directly to the Green Island tip face for disposal. Section 3.5 of the Draft Contaminated Land Management Plan (CLMP) provides an assessment of the risk to the environment from disposing of the waste from the development area to the landfill tip face. The justification for disposal of this material includes:



- That the material is being retained on site, with no new contaminated materials being received at the landfill that had not already been accepted;
- The material had been in situ at the Green Island landfill for at least 50 years so leachate volumes and contaminants are likely to have peaked and begun reducing;
- The waste will be moved to a location with superior capping and leachate collection compared with the current in situ controls; and
- Any unanticipated gross contamination will be managed via the accidental discovery protocol.

SLR agree that the movement of the waste and soil from the current location to the tip face is unlikely to increase the risk to the environment. Whether the proposal is consistent with the Green Island Landfill waste acceptance criteria consent conditions is a compliance matter which is outside of the scope of this review.

**2 Are there any other matters that appear relevant to you that have not been included? Or is additional information needed? Please specify what additional info you require and why. Please explain.**

The information provided is appropriate for the proposed activities with regard to contaminated land matters. No additional information is requested.

**3 If granted, are there any specific conditions that you recommend should be included in the consent?**

We have reviewed relevant sections of the proposed Draft Conditions of Consent (provided in Appendix 20 of the application) including:

- A: Schedule 1 General Conditions Relevant to All Consents: CEMP conditions 11 – 16; and
- F: Land Use Consent RM24 conditions 1 – 13.

The proposed conditions are considered appropriate. No further conditions are recommended.

**4 Are the (draft) CLMP, CEMP, and ESCP appropriate to manage adverse effects relating to the disturbance of a contaminated site for the construction of the RRPP? Please explain.**

Controls provided in the CLMP, CEMP and ESCP are considered robust and appropriate for the proposed site works. The following key points are noted:

*Unexpected Discovery Protocol*

An unexpected discovery protocol has been provided in Section 8 of the Construction CEMP and Section 9 of the CLMP. This includes a flow chart which clearly outlines the process to be followed if unexpected contamination is identified. There is a minor discrepancy between the information provided in the CEMP and CLMP. The CLMP is clear that the Council (assumed to refer to Otago Regional Council) should be notified and provided with copy of the report prepared by a suitably qualified and experienced practitioner (SQEP) within 24 hours of the find. This information should be updated in the CEMP to ensure consistency and avoid confusion.



### *Landfill Gas Monitoring and Mitigation*

Landfill gas monitoring and mitigation procedures are provided in Section 9 of the CEMP. This includes monitoring procedures and locations, action levels and corrective actions for if action levels are exceeded.

The monitoring and subsequent actions are considered appropriate for the proposed work given the concentrations of landfill gas recorded during monitoring and the proposed work to be completed.

### *Erosion and Sediment Control*

A draft ESCP was provided in the application. The ESCP is subject to change based on contractor preferred methodology and sequencing but includes general principals to be followed by the contractor. The controls in the draft ESCP are appropriate for the proposed activity.

## **4.0 Closure**

The consent application and additional information provided to support the application are considered adequate to manage the risks to human health and the environment for the proposed development.

Should you have any questions, please do not hesitate to contact the undersigned.

Regards,

**SLR Consulting New Zealand**



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