FEHILY TIMONEY

CONSULTANTS IN ENGINEERING,
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Attachment A.1

Non-Technical Summary

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HISTORICAL LANDFILL AT CASTLEISLAND, CO. KERRY

NON- TECHNICAL SUMMARY

Prepared for: Kerry County Council

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Kerry County Council

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NON- TECHNICAL SUMMARY
HISTORICAL LANDFILL AT CASTLEISLAND, CO. KERRY

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Abstract: This report presents a non-technical summary of the Tier 2 and Tier 3 risk assessment for the Castleisland Historic Landfill, Co. Kerry. The non-technical summary has been prepared to accompany the certificate of authorisation application for the site.

TABLE OF CONTENTS

1. NON-TECHNICAL SUMMARY

1.1 Overview

Fehily Timoney and Company (FT) was appointed by Kerry County Council (KCC) to complete a Tier 2 environmental risk assessment (ERA), a Tier 3 ERA and Certificate of Authorisation Application Form (COA) for the Castleisland Historic Landfill. The ERA was conducted in accordance with the Environmental Protection Agency (EPA) Code of Practice (CoP) (2007): Environmental Risk Assessment for Unregulated Waste Disposal Sites.

1.2 Site Location and History

Castleisland historical landfill covers an area approximately 0.5Ha of open land located approximately 1.1km north-east from the centre of Castleisland town, which is located c.15km south-east of Tralee. The landfill site is located in the townland of Bawnluskaha. The site is located in agricultural land and a local access road transects the site. The lands immediately surrounding the site are agricultural with hedgerows present along the site's northern boundary.

The exact timeframe in which waste was deposited at the site is unknown however review of available information suggests that the site may been active through the 1980s. The site is currently under private ownership. Evidence suggests that remediation works have been limited to capping the site with soil and no other management measures are in place.

A site investigation (S.I.) programme was completed in 2019. The findings of the site investigation work suggest the municipal solid waste material is deposited in a single infill area tending north-east of the site. The exact lateral extent of waste is not very clear. The interpreted landfill extent covers an area of approx. 2,192 m^2. A review of S.I. data indicates an interred waste volume of approximately 18,375 tonnes.

1.3 Hydrogeology and Ecology

The Quaternary Map provided by GSI Online identifies the quaternary sediments at the site as 'Quaternary Sediments: Bedrock outcrop or subcrop' and its surroundings as 'Till derived from Namurian sandstones and shales'.

The GSI online 1:100,000 scale bedrock geology map, shows the bedrock beneath the site is found on two different formations and geology types. The immediate infilled area is underlain by Cloonagh Limestone Formation comprising unbedded calcilutite limestone. The south portion of the wider site is underlain by the Rockfield Limestone Formation, which comprises fine-grained, dark grey, argillaceous, well-bedded limestones with some cross-stratification. Shale and chert horizons are rare. The boundary between these two formations transects the wider site in an almost west to east direction.

The GSI shows that the groundwater body (GWB) underlying the site is the Castlemaine GWB and it is a Karstic aquifer. The most recent (2015) Water Framework Directive quality status for the GWB is 'Good'. The WFD risk to groundwater quality was most recently classified as in 'Review'. There are three ground water dependant ecosystems in the area according to Catchments Maps, Groundwater in SAC Species, Groundwater in SPA Habitats and Groundwater in SAC Habitats.

The GSI Online mapping data set identifies the vulnerability of groundwater to contamination is classified as X (Rock near surface) and is surrounded by E (Extreme) Vulnerability.

According to the Catchments Maps, the site is located within the Laune-Main-Dingle Bay catchment (Hydrometric Area 22), at Sub catchment Maine_SC_010 and Maine_020 river sub-basin. The nearest surface water feature to the site is the Maine_020 (also known as Glanshearon River) river (Status: Moderate) which is located 0.64km form the site to the north-west and flows in a southerly direction eventually meeting the Maine_030 river (Status: Good) c. 1.67km downstream of the site.

The site is not within or directly adjacent to any Natural Heritage Area (NHA), proposed NHA (pNHA), Special Area of Conservation (SAC) or Special Protection Area (SPA). The nearest protected site is the Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA (Site Code: 004161) and it is located c.2.8km north-east of the site at its closest point. There is a Proposed Natural Heritage Area, Dooneen Wood (Site Code: 001349), located 2.1km north from the site. Another protected site in relative proximity to the site is Anna More Bog NHA (Site Code: 000333), located around c.4.5km on the south of the site.

1.4 Risk Assessment and Environmental Impacts

A Tier 1 Risk Assessment was conducted in 2007 and was assigned a High Risk (Class A) classification. KCC subsequently prepared a review assessment and report in 2011. Based on the available information, this Tier 1 Assessment determined that the overall risk score for Castleisland Landfill was 50%, resulting in a risk classification of Moderate (Class B).

Based on the results of the Tier 2 and Tier 3 risk assessments, the site was classified as a **Moderate Risk Classification (Class B)**. The principal risk identified on the site is the risk posed to the aquifer from migration of leachate from the waste material encountered at the site.

The Tier 3 assessment further examined and quantified those risks/impacts through generation of models allowing a prediction of both the current and future impacts on groundwater quality, surface water and the current and future extent landfill gas being generated by the waste present on site.

This information was used to inform appropriate remedial and mitigation measures to be implemented on site to either eliminate or reduce these risks.

Estimation of leachate generation at the site indicates that the presence of waste which is potentially in direct contact with underlying groundwater may be impacting groundwater quality locally.

LandGEM was utilised to estimate the quantity of landfill gas produced by the waste underlying the site. Model results suggest that the site will continue to produce landfill gas and methane in low quantities, thereby requiring landfill gas management measures to be implemented.

1.5 Proposed Remediation

The Tier 3 assessment concluded an engineered landfill cap will be required across the site to reduce rainfall inputs and so mitigate the impacts of leachate generated on site on the underlying aquifer and receptors downgradient.

The proposed landfill cap will be constructed in accordance with the EPA recommendations/requirements for landfill site design. The engineered cap will have an impermeable barrier layer to isolate rainfall inputs and so reduce future leachate generation.

A landfill gas collection system was also recommended and shall comprise an under-liner gas collection geocomposite or similar approved stone drainage later.

To monitor the efficacy of the proposed remediation measures, ground and surface water, and gas monitoring are proposed. Groundwater monitoring is proposed in the existing perimeter wells if groundwater is encountered, surface water monitoring is proposed at the proposed surface water discharge outfall and gas monitoring is proposed in the existing site boreholes.

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