

HISTORIC LANDFILL AT CLAREMORRIS, CO. MAYO

NON- TECHNICAL SUMMARY

Prepared for: Mayo County Council



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Abstract: This report presents a non-technical summary of the Tier 3 risk assessment for the Claremorris Historic Landfill, Co. Mayo. 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
1.1 Overview.....	1
1.2 Site Location and History.....	1
1.3 Hydrogeology and Ecology	1
1.4 Risk Assessment and Environmental Impacts	2
1.5 Proposed Remediation	2

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1. NON-TECHNICAL SUMMARY

1.1 Overview

Fehily Timoney and Company (FT) was appointed by Mayo County Council (MCC) to complete a Tier 3 environmental risk assessment (ERA) and Certificate of Authorisation Application Form (COA) for the Claremorris 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

Claremorris Historic Landfill occupies approximately 3.8 ha and is located to the east of the Claremorris town centre. The site is bounded by a railway to the North and by the Knock-Claremorris Bypass (N17) to the West, the other sides are bounded by agricultural land (boggy ground). Neighbouring adjacent land uses include grassland and, residential land located approximately 280 m west of the site. An electric substation is located approximately 150 m north of the site.

The site operated as a landfill accepting municipal waste from 1982 to March 1996. The site is capped with a shallow soil/peat, but no other formal remediation works have been completed.

A site investigation (S.I.) program was completed in 2011. The findings of the site investigation work suggest the waste material is deposited in a single infill area over an estimated plan area of 26,000 m². MCC initially estimated that approximately 168,000 tonnes were deposited at the site. A review of S.I. data suggests that this quantity may be 279,623 tonnes.

1.3 Hydrogeology and Ecology

The GSI's Quaternary Sediments mapping identifies most quaternary sediments at the site as 'Gravels derived from Limestones' and a south-west portion as 'Cut over raised peat'; 'Till derived from limestones' and 'Cut over raised peat' is found in the surroundings. The 1:100,000 scale bedrock geology map, indicates that the entirety of the site and surrounding area are underlain by the Ballymore Limestone Formation (CDBLYM) which is generally made up of dark fine-grained limestone and shale.

GSI Mapping indicates that the groundwater body (GWB) underlying the site is the Cong-Robe GWB and it is a Karstic aquifer. The closest groundwater dependant ecosystem in the area, according to Catchments Maps, is the Clare-Corrib Groundwater in SAC Habitats (Code: IE_WE_G_0020), located c.4.9km South-East of the site at its closest point. Groundwater vulnerability to contamination is classified as H (High) in the majority of the site and M (Moderate) in the most south-western and north-western points of the site.

Hydraulically, the site is located within the Corrib catchment (Hydrometric Area 30), at Sub catchment Robe_SC_010 (Code: 30_9) and Robe_020 Sub-basin. The nearest surface water feature to the site is the Robe_020 (also known as Kilbeg-Malone) river (Status: Good) which flows in a south-westerly direction approximately 300 m east from the site eventually meeting the Robe_030 river (Status: Moderate) c. 3.6km 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 Carrowkeel Turlough SAC and pNHA (Site Code: 000475) and it is located c.6.8km south-west of the site at its closest point. Other protected sites are River Moy SAC (Site Code: 002298), located 7.57km north at its closest point from the site, and the Lough Corrib SAC (Site Code: 000297), located around c.9.6km on the south-east of the site.



1.4 Risk Assessment and Environmental Impacts

An initial risk assessment of the site was completed by MCC in 2010 which determined that the site had a moderate risk (Class B) to the environment, with the highest score of 61% being assigned to leachate migration to the groundwater body via groundwater pathways.

Based on the results of the updated Tier 3 risk assessment, the site is still 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 through groundwater.

Tier 3 assessment further examined and quantified those risks/impacts through generation of computer models allowing a prediction of both the current and future impacts on groundwater quality, 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 site may contribute a very small amount of groundwater recharge volume to the wider Clare/Corrib groundwater body, therefore it is not likely to have an impact regionally.

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 moderate quantities, thereby requiring remedial actions 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. This cap will also be designed to take into consideration the proposed future use of the site as a solar farm and will be required to support any proposed on-site solar farm infrastructure. Surface runoff from the cap will discharge into existing drainage systems.

To monitor the efficacy of the proposed remediation measures, additional groundwater monitoring locations are proposed downstream of the site. Additional surface water monitoring locations are also proposed upstream and downstream of the waste body.

The landfill cap design shall make provision to accommodate active, (if required) and/or passive landfill gas controls. A final decision on landfill gas control measures will be made upon completion of a landfill gas pumping trial. The pumping trial shall be used to determine the quantity and quality of landfill gas actively produced at the site. The most appropriate landfill gas control measures shall be determined with reference to EPA Guidance: Management of Low Levels of Landfill Gas and EPA Landfill Manuals, Landfill Site Design.



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