



**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE &
PLANNING**

HISTORICAL LANDFILL AT CARTRON BIG, CO. LONGFORD

NON- TECHNICAL SUMMARY

Prepared for: Longford County Council



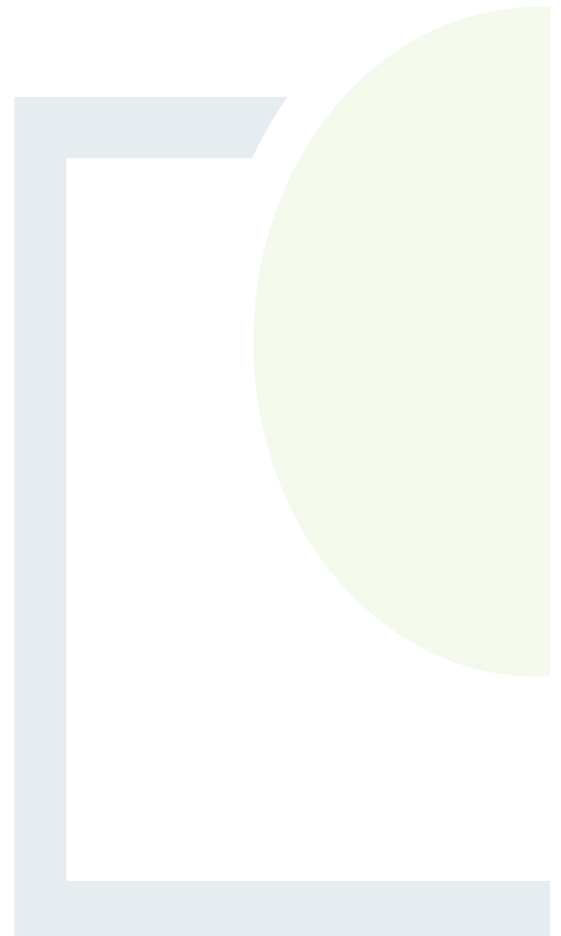
Date: July 2021

J5 Plaza, North Park Business Park,
North Road, Dublin 11, D11 PXT0, Ireland

T: +353 1 658 3500 | E: info@ftco.ie

CORK | DUBLIN | CARLOW

www.fehilytimoney.ie



NON- TECHNICAL SUMMARY

HISTORICAL LANDFILL AT CARTRON BIG, CO. LONGFORD

REVISION CONTROL TABLE, CLIENT, KEYWORDS AND ABSTRACT

User is responsible for Checking the Revision Status of This Document

Rev. No.	Description of Changes	Prepared by:	Checked by:	Approved by:	Date:
0	Draft	DM	JON		
1	RFI Changes	BF/AMW			15/08/2022

Client: Longford County Council

Keywords: Site Investigation, Environmental Risk Assessment, Waste

Abstract: This report presents a non-technical summary of the Tier 2 and Tier 3 risk assessment for the Cartron Big, Historic Landfill, Co. Longford. 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



1. NON-TECHNICAL SUMMARY

1.1 Overview

Fehily Timoney and Company (FT) was appointed by Longford County Council (LCC) to complete a Tier 2 environmental risk assessment (ERA), a Tier 3 ERA and Certificate of Authorisation Application Form (COA) for the Cartron Big 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

The site is located within the Cartron Big townland approximately 3km east of Longford Town, at the intersection of the L1071 and L3538 tertiary roads. The site was operated under the ownership LCC for the disposal of municipal and industrial waste.

It was previously reported by LCC that the landfill accepted waste throughout the 1970s and 1980s, ceasing in 1989.

Anecdotal evidence suggests that the quarry was excavated to 18m bgl when it was active. Waste was backfilled into the quarry to 1m above ground level. Following closure, gas vents were installed, and the landfill was subsequently capped. It was reported by LCC that the landfill was capped with a layer of pine bark from a local wood mill, overlaid by shale gravel with a final covering of topsoil.

Site investigation works suggest the waste material is deposited in a single infill area tending north-west to south-east and between 210m in length and 140m in width. Based on this interpretation, the maximum waste footprint is calculated to be 5.80 acres or 2.35 hectares. An interred waste volume of approximately 206,000m³ at the site was estimated.

1.3 Hydrogeology and Ecology

The Quaternary Map provided by GSI Online identifies the quaternary sediments at the site as till derived from cherts, with the subsoils in the north-western corner mapped as till derived from Lower Palaeozoic sandstones and shales. Localised deposits of alluvium are noted along the channel of the Clooncoose stream to the north of the site, within Carrickglass Demesne, and also to the southeast, upstream of the site.

The GSI online 1:100,000 scale bedrock geology map, shows the bedrock beneath the site as argillaceous limestone and shale (Visean stage of the Carboniferous) consisting of dark, fine grained, bedded fossiliferous limestones and shales with chert. Within the bedrock are thin but distinct bands of volcanic ash. This bedrock is usually seen overlying Waulsortian limestones, but it may directly succeed the Ballysteen Formation in the absence of these. Bedrock outcrop has been mapped along the western site boundary with the L3538 roadway and also along the northern boundary, close to Clooncoose stream in the north eastern corner of the site.



The GSI shows that the groundwater body (GWB) is named Longford and has a poorly productive bedrock flow regime. There are no recorded groundwater dependent ecosystems in the area. The GSI Online mapping data set identifies the vulnerability of groundwater to contamination immediately underlying the site is classified as extreme to high, given the presence of bedrock outcrop at the site and thin overburden cover.

The nearest surface water body to the site is the Clooncoose Stream, which flows along the eastern site boundary from southeast to northwest. The EPA has classified the Clooncoose Stream as being of Good Status (Q4) at the nearest monitoring locations.

There are no Special Areas of Conservation or Special Protection Areas within a 5 km radius of the site. Carrickglass Demesne is a proposed NHA. There are a number of national monuments in the vicinity of the site, such as a number of ringforts and the entrance gates to Carrickglass Demesne, but none are within the site boundary.

1.4 Risk Assessment and Environmental Impacts

A Tier 1 study was conducted by AECOM and determined the site to be a high-risk classification (Class A). The primary risks identified related to the risk of leachate runoff entering a nearby stream and the risk of leachate runoff entering a public water supply.

The Tier 2 study consisted of a desktop study, geophysical survey, intrusive site investigation works, environmental monitoring (soil, waste, surface water and groundwater sampling) and laboratory analysis. The results of these works informed the development of the conceptual site model (CSM) and risk screening model. The results of this Tier 2 assessment and risk model indicates that the site is a **High-Risk Classification (Class A)**. The principal risks identified on the site are the migration of leachate from the site to the groundwater aquifer and the associated risk posed to the Clooncoose Stream from the migration of landfill leachate from the waste material encountered at the site.

A Tier 3 study was completed to further examine and quantify those risks/impacts through generation of computer models allowing a prediction of both the current and future impact 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 what appropriate remedial and mitigation measures should be implemented on site to either eliminate or reduce those risks.

1.5 Proposed Remediation

The Tier 3 assessment concluded, that to mitigate the impact of leachate generated on site would have on the underlying aquifer and receptors downgradient, that a landfill cap layer should be constructed across the site. The proposed landfill cap is to be constructed in accordance with the EPA recommendations/requirements for landfill site design. This will mitigate the contribution of rainfall infiltration towards leachate generation from the site. Modelling of downstream concentrations demonstrated that even at elevated concentrations, above those observed in downgradient monitoring wells it is expected that the impact on groundwater is limited to a relatively small area downstream of the site.



The landfill cap shall include a vertical cut off and leachate interception trench along the stream boundary of the site. The leachate interception trench shall be constructed to break the pathway linkage between the landfill waste and the boundary stream. The collected leachate will be removed from site to an authorised Wastewater Treatment Plant.

As means of monitoring the efficacy of the proposed remediation measures additional groundwater monitoring locations are recommended downstream of the site.

The landfill capping shall also include active 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 should be determined with reference to EPA Guidance: Management of Low Levels of Landfill Gas and EPA Landfill Manuals, Landfill Site Design.



**CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING**

www.fehilytimoney.ie

CORK OFFICE

Core House
Pouladuff Road,
Cork, T12 D773,
Ireland
+353 21 496 4133

Dublin Office

J5 Plaza,
North Park Business Park,
North Road, Dublin 11, D11 PXTO,
Ireland
+353 1 658 3500

Carlow Office

Unit 6, Bagenalstown Industrial
Park, Royal Oak Road,
Muine Bheag,
Co. Carlow, R21 XW81,
Ireland
+353 59 972 3800

