



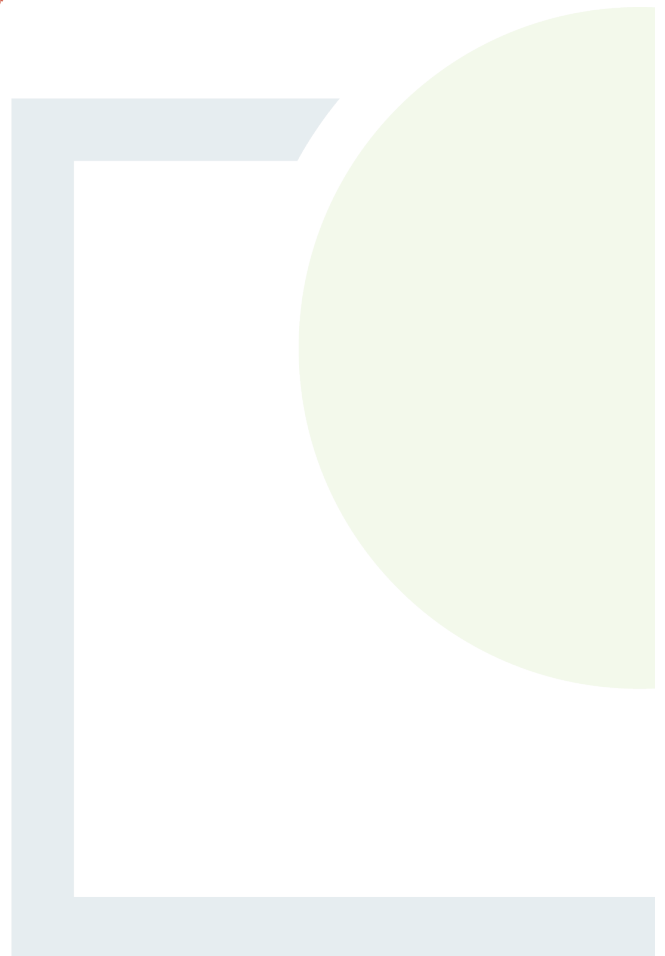
**FEHILY  
TIMONEY**

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

# Attachment A.1

Non-Technical Summary

*For inspection purposes only.  
Consent of copyright owner required for any other use.*



# HISTORICAL LANDFILL AT LISTOWEL, CO. KERRY

---

## NON- TECHNICAL SUMMARY

---

Prepared for: Kerry County Council



**Comhairle Contae Chiarraí**  
**Kerry County Council**

**Date:** August 2021

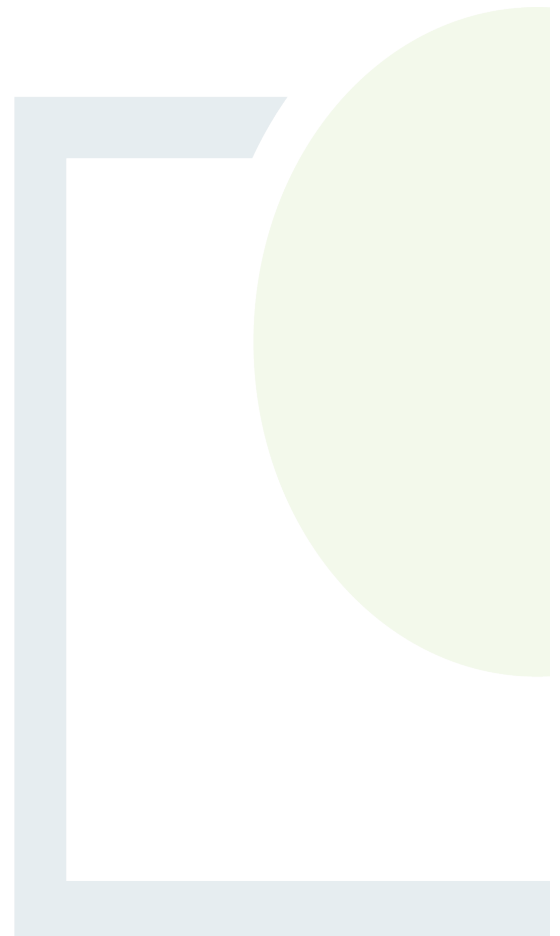
J5 Plaza, North Park Business Park,  
North Road, Dublin 11, D11 PXT0, Ireland

**T: +353 1 658 3500 | E: [info@ftco.ie](mailto:info@ftco.ie)**

**CORK | DUBLIN | CARLOW**

**[www.fehilytimoney.ie](http://www.fehilytimoney.ie)**

*For inspection purposes only.  
Consent of copyright owner required for any other use.*



## NON- TECHNICAL SUMMARY HISTORICAL LANDFILL AT LISTOWEL, CO. KERRY

### 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:
1	Final	DM	BG	BG	18/08/2021

**Client:** Kerry 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 Listowel 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
1.1 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 .....	3

*For inspection purposes only.  
Consent of copyright owner required for any other use.*



## 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 Listowel 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 Listowel Historic Landfill covers an area of approximately 1.01 hectares and is currently utilised as a town park, the Garden of Europe – which is an award-winning area of cultural heritage. The site is located at the edge of the town of Listowel with the River Feale flowing along the southern boundary of the site.

The topography of the site is generally relatively flat, with a gentle slope southward towards River Feale. The surroundings are composed by agricultural land to the East, pitches to the West, forestry and residential areas to the North and River Feale to the South.

The site operated as a landfill accepting municipal waste. Available evidence suggests that the site closed, and landfilling had ceased in 1989. Information provided in the KCC Tier 1 assessment assumes a 20-year lifespan for the landfill. An Foras Forbatha records reviewed by KCC state an annual intake of 1,850 tonnes per annum and 2 years of remaining capacity in 1986. This would equate to 37,000 tonnes of waste deposited at the site. Previous remediation measures include installation of soil capping. No other remediation measures are known have been carried out.

A site investigation (S.I.) programme was completed in 2019. The findings of the site investigation work suggest the waste material is deposited in a single infill area over an estimated plan area of 8,900m<sup>2</sup>. KCC initially estimated that approximately 37,000 tonnes of waste material were deposited at the site. A review of S.I. data indicates an interred waste volume of approximately 137,200 tonnes.

### 1.3 Hydrogeology and Ecology

The Quaternary Map provided by GSI Online identifies the quaternary sediments at the site as combination of tills derived from Namurian sandstones and shales, bedrock outcrop or subcrop and urban made ground. Alluvium deposits are also shown to be present along River Feale.

The GSI online 1:100,000 scale bedrock geology map shows the bedrock beneath the site to comprise of two different formations, the boundary of which transects the site. The site is underlain by a combination of undifferentiated visian limestones (CDVIS) and cherty mudstone/shale of the Clare Shale Formation (CNCLSH). Further to the east and south of the site are mudstone, siltstone and sandstone of the Shannon Group. GSI mapping also indicates the presence of bedrock outcrop within the site and may cover a significant portion of the site. Bedrock outcrop is also identified directly east of the site, along the eastern boundary. A significant number of bedrock outcrops are also shown along the banks of the River Feale.



The GSI shows that the groundwater body (GWB) is named Ballybunion GWB and is classified as karstic bedrock and is defined as being at *Good Status* under the Water Framework Directive (WFD). The WFD risk to groundwater quality is currently 'At Risk'. There are no recorded groundwater dependent ecosystems in the area. The GSI Online mapping data set identifies the vulnerability of groundwater to contamination is classified as being primarily extreme with an area classified having rock at or near the surface. Groundwater vulnerability does vary considerably in the area changing from extreme to low, west of the site.

The site is located within the Tralee Bay-Feale catchment (Hydrometric Area: 23), Feale\_SC\_040 sub-catchment and Feale\_090 sub-basin. The River Feale is the most significant water feature near the site, being <200m south of the site and estimated waste footprint area. Review of available mapping does indicate that there is no direct surface water connection e.g., land drains, ditches etc. between the landfill area and the River Feale. The River Feale flows in a westerly direction past Listowel converging the River Brick and Galey River downstream of Listowel before eventually discharging to the Atlantic, at Kilmore, south of Ballybunion.

The site is not located within any Natural Heritage Area (NHA), proposed NHA (pNHA), Special Area of Conservation (SAC) or Special Protection Area (SPA). The River Feale however is part of the Lower River Shannon SAC (Site Code: 002165) and is located <200m from the site. The River Feale is also a designated salmonid river. The River Feale eventually forms the Cashen River downstream and Cashen Estuary which is a pNHA (Site Code: 001340).

#### 1.4 Risk Assessment and Environmental Impacts

An initial Tier 1 risk assessment of the site was completed by KCC in 2007 which determined that the site had a moderate risk (Class B) to the environment, with the highest score of 47% being assigned to leachate migration to surface water and protected areas via surface water pathways. The Tier 1 was updated by KCC in 2013 and remained classified as moderate risk (Class B), with the highest score of 44% being assigned to leachate migration to groundwater and public water supplies via groundwater flow.

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 risks identified on the site are the risk of leachate contamination of downstream surface and ground waters, and the risk of landfill gas impacting nearby receptors.

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 groundwater concentrations were above groundwater quality thresholds at the edge of the River Feale SAC.

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 minimal quantities, thereby requiring landfill gas control measures to be implemented.



## 1.5 Proposed Remediation

The Tier 3 assessment recommended the passive venting of landfill gas and the development of landfill gas management working protocols to protect personnel and to ensure that landfill gas migration does not occur at the site. The assessment also recommended that KCC develop a gas management plan.

To mitigate against the risk of leachate breakouts and contaminated shallow groundwater impacting receiving ground or surface waters, the following remediation measures were recommended in the Tier 3 assessment:

- Construct a vertical cutoff (gravity) interceptor drain with storage as may be required on the southern boundary of the park within the council yard.
- Discharge leachate as may be collected in the interceptor drain to a licensed waste water treatment facility.
- Install vertical leachate wells within the site to monitor leachate elevations. If leachate elevations within the waste are ever lowered, design risk assessment will need to consider the implications on gas production.

To monitor the efficacy of the proposed remediation measures, additional groundwater monitoring locations within the site are recommended. It is proposed that surface water monitoring be conducted at or immediately downstream of the redundant pump station in the River Feale adjacent to the park entrance. Perimeter gas monitoring boreholes are to be installed around the park perimeter and gas monitoring is to be conducted at the perimeter and groundwater monitoring locations.

For inspection purposes only.  
Consent of copyright owner required for any other use.



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

**[www.fehilytimoney.ie](http://www.fehilytimoney.ie)**

*For inspection purposes only.  
Consent of copyright owner required for any other use.*

**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 PXT0,  
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**

