ESC Environmental Ltd

Flood Risk Study
for
Hivolt,
Ballyduff House,
Ballyduff,
Thurles,
Co. Tipperary,
E41 F5T9

Reference: Hivolt Flood Risk Study

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Client Name: Hivolt

Site Address: Ballyduff House, Ballyduff, Thurles, Co. Tipperary, E41 F5T9

Project Type: Hivolt Flood Risk Study

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1 Introduction

Environmental Services Consultancy has been contracted by Hivolt to carry out a Flood Risk Assesment of the waste facility site at Ballyduff House, Ballyduff, Thurles, Co. Tipperary, E41 F5T9. The facility is used for collection and storage prior to export of Waste Oil, metals and batteries.

1.1 Aims and Objectives

The assessment is being carried out to inform the flood risks on site for a firewater retention plan for the site. It aims to identify and quantify the risk of flooding to land property and people, and to provide recommendation of measure which can be carried out to manage the risk.

The objectives of the study are to:

- Identify potential sources of flood risk
- Confirm the level of flood risk and identify key hydraulic features
- Develop appropriate flood risk mitigation and management measures

This document was compiled under the guidelines provided in the OPW document "The Planning System and Flood Risk Management" published in November 2009. These Guidelines are being issued by the Minister of the Environment, Heritage and Local Government under Section 28 of the Planning and Development Act 2000.

Figure 1: Site Location

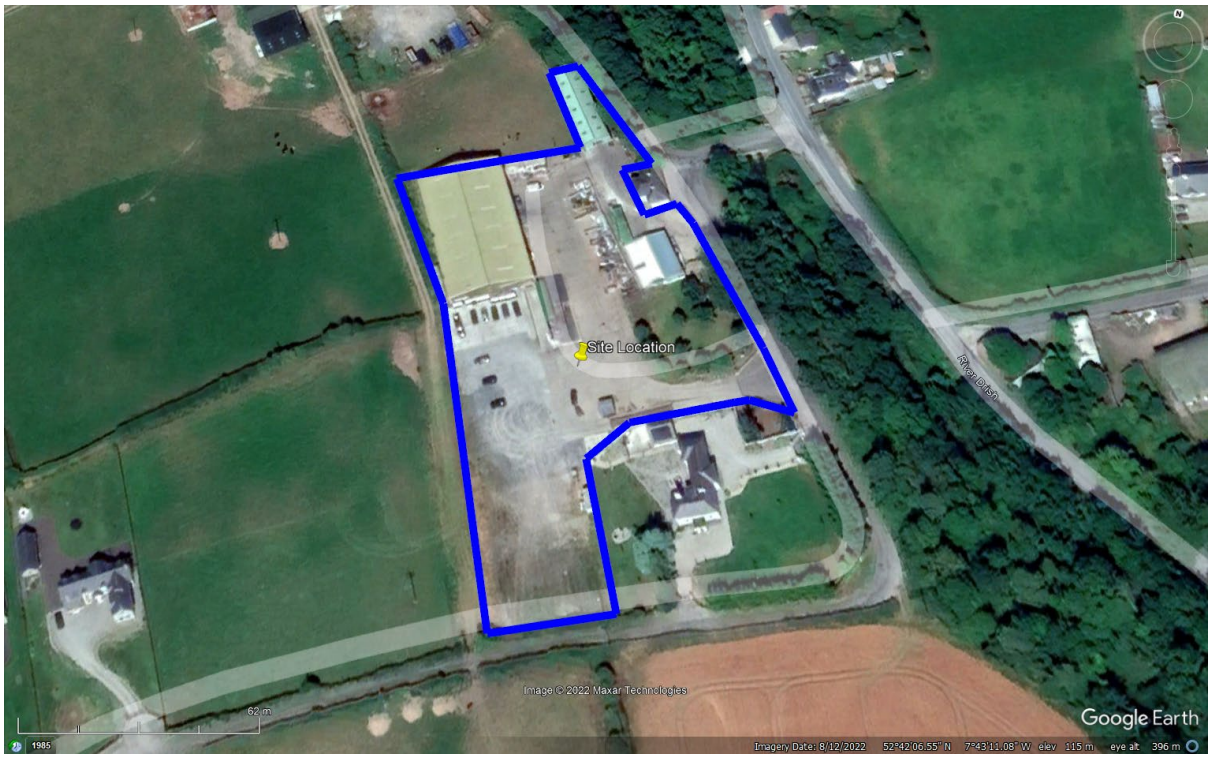

Figure 2: Site location outlined in blue

2 Site Background

2.1 Location

The site is located on in the townland of Ballyduff in Co. Tipperary. The site is approximately 0.88ha in area. The site is bordered by a dwelling house to the east and another to the south. The local access road is situated to the south and east of the site, with the River Drish located 35m east of the eastern boundary. The site is level, with very little slope gradient (<1:20).

2.2 Watercourses

The site is located approximately 35m west of the River Drish. The River Drish is in the South Eastern River Basin District. It has a poor ecological status as of 2021 and is at risk according to the Water Framework Directive

The watercourses near the site are highlighted in Figure 5.

2.3 Site Geology

The Geological Survey of Ireland (GSI) groundwater and geological data viewer of the site and local area were reviewed. The site is located on bedrock consisting of Dark shaly micrite and peloidal limestone from the Aghmacart Formation. The soils in the area consist of Grey Brown

Podzolics and Brown Earths with an underlying subsoil of till derived from limestone. The maps which this data is taken from are predictive maps and so may not be entirely accurate to the actual site conditions.

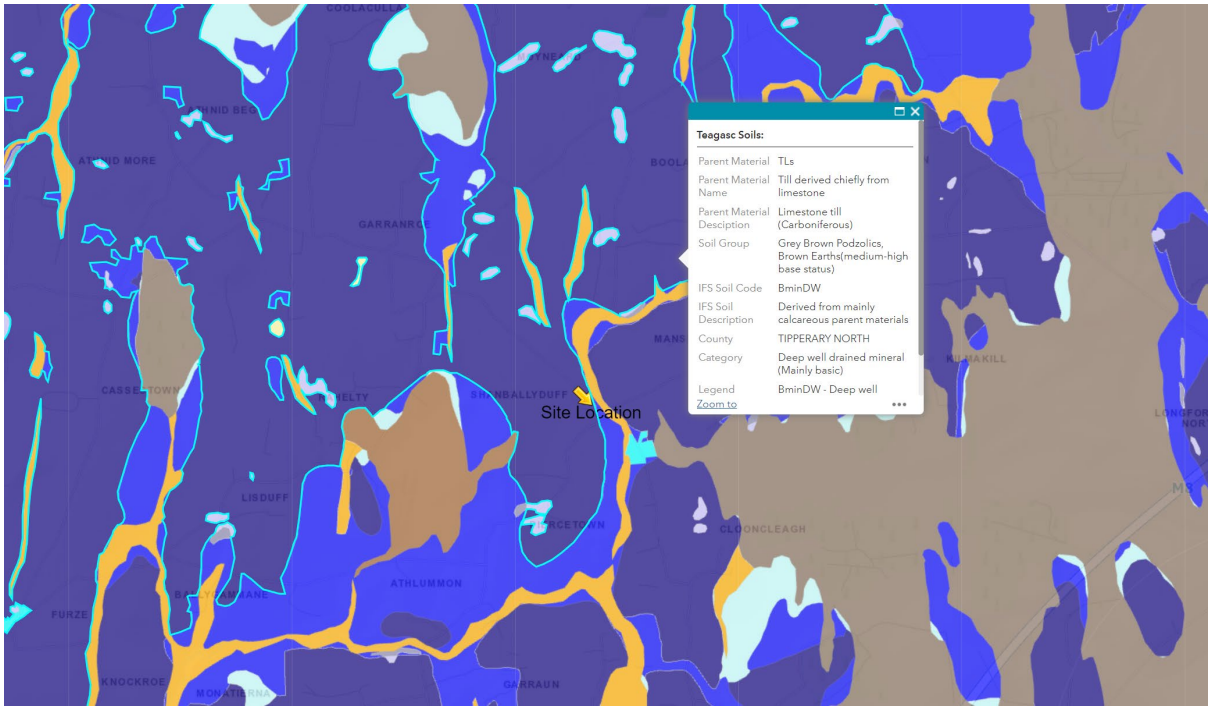

Figure 3: Soil map

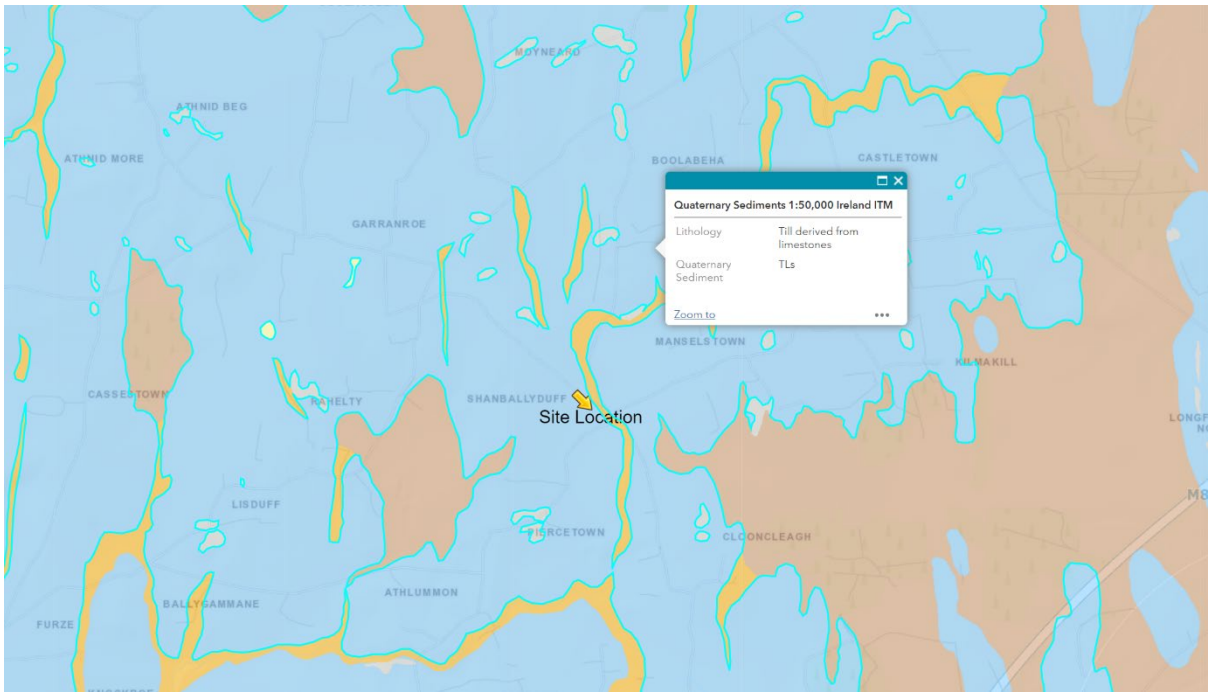

Figure 4: Subsoil map

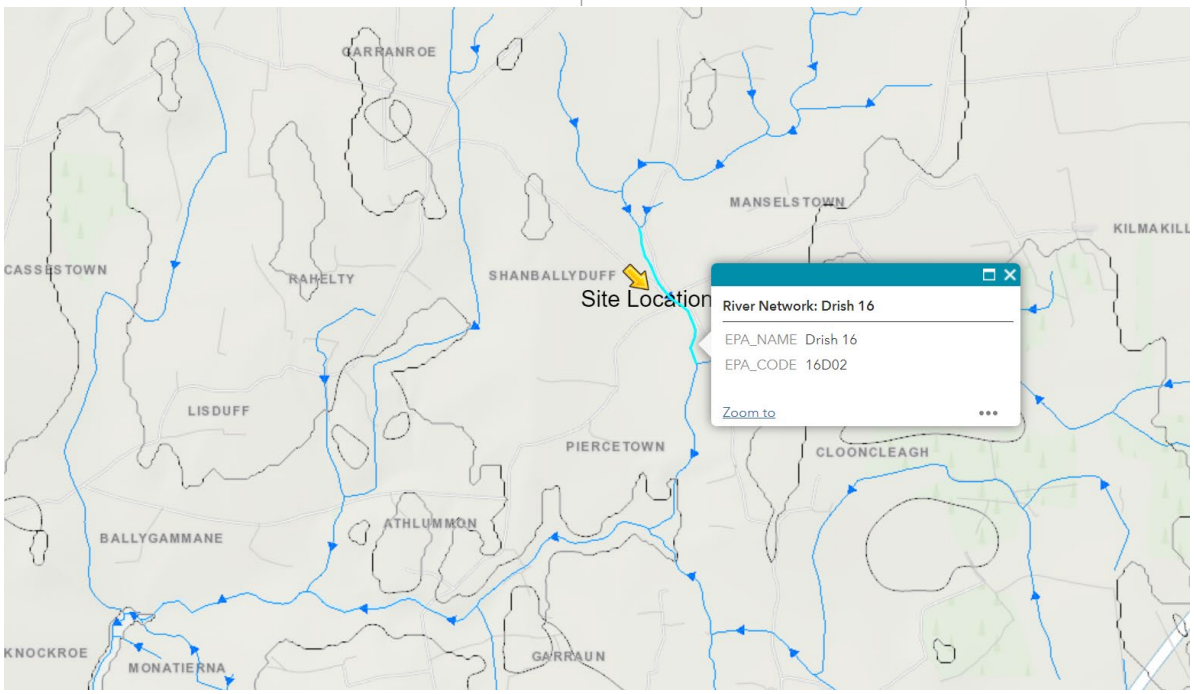

Figure 5: Watercourses and elevation near site location

3 Flood Risk Identification

An assessment of the potential and scale of flood risk at the site is conducted using historical and predictive information. This identifies any sources of potential flood risk to the site and reviews historic flooding information. The findings from the flood risk identification stage of the assessment are provided in the following sections.

Various areas in County Tipperary were assessed as part of the Catchment-based Flood Risk Assessment & Management (CFRAM) Programme in the South Eastern River Basin District. This programme analysed hiostoric flooding data to identify areas for the greatest potential for risk and impact from flooding.

3.1 Historical Flooding

Floodmaps.ie was studied for the historical flooding data for the areas surrounding the site. The maps of the probability of flooding occurring showed no historical floods occurring in the area upstream, downstream, or surrounding the site.

The only historical flood data available for the site is from the Geological Survey Ireland (GSI) winter 2015/2016 surface water flooding survey. The data shows that there was no flooding occuring near the site, with the nearest flood occurring 900m south east of the most south easterly point on the site. The data is included in Figure 6, with the site marked with a red X.

Figure 6: Geological Survey Ireland (GSI) Winter 2015/2016 Surface Water Flooding

3.2 National Indicative Fluvial Maps

As part of the flood risk assessment, the National Indicative Fluvial Mapping (NIFM) River Flood Extent maps were analysed. These maps show the modelled extent of land that might be flooded by rivers (fluvial flooding) during a theoretical or 'design' flood event with an estimated probability of occurrence, rather than information for actual floods that have occurred in the past. The data used is the High-End Future Scenario extents where data was generated taking in the potential effects of climate change using an increase in rainfall of 30%

The Flood event probabilities which were analysed are referred to in terms of a percentage Annual Exceedance Probability, or 'AEP'. This represents the probability of an event of this, or greater, severity occurring in any given year. The worst case scenario maps available are for 1% AEP flood events. For a 1% AEP, the odds of occurrence in a given year are 100:1 with a return period of 100 years. The data has been produced for catchments greater than 5km2 in areas for which flood maps were not produced under the National CFRAM Programme and should be read in this context.

The purpose of the Flood Maps is not to designate individual properties or point locations at risk of flooding, or to replace a detailed site-specific flood risk assessment, but these were used as there is no other river flood risk data available for the site or the surrounding areas.

The maps indicate that for a 1% AEP there is minimal probability of the site being affected by a flood. The maps show the furthest extent of a flood would extend just up to the entrance of the facility on the eastern boundary. Figure 7 shows the map for a 1% AEP event, with the site marked with a red X.

Figure 7: National Indicative Fluvial Map for 1% AEP

3.3 Drainage Districts Benefited Lands

The drainage districts were also analysed to determine if historic alterations to the land have occurred to make the land less vulnerable to flooding. Drainage Districts were carried out by the Commissioners of Public Works under a number of drainage and navigation acts from 1842 to the 1930s to improve land for agriculture and to mitigate flooding. The purpose of the schemes was to improve land for agriculture, by lowering water levels during the growing season to reduce waterlogging on the land beside watercourses known as callows.

Figure 8 includes a map of the lands surrounding the site which has been drained by this scheme. The highlighted land is Benefited Land which drained as part of the Drainage District. Figure 8 shows that the land on which the site was located was not drained by the drainage districts scheme, and so is less vulnerable to flooding than the surrounding area.

Figure 8: Drainage Districts Benefited Lands

4 Conclusion

The site is at minimal risk of flooding, as there has been no historical flooding near the site. The soils surrounding the site have good drainage, which lowers the chance of flooding on site. The studies show that the site is far enough away from the River Drish to not be affected by a 1% AEP flood event. The site has no been improved by any schemes as it is not vulnerable to flooding.