



WATERFORD COUNTY COUNCIL
ENVIRONMENTAL RISK ASSESSMENT FOR UNREGULATED WASTE
DISPOSAL SITES

Tier 1

Desk Study on Closed Landfill:

Coolfinn, Portlaoise Landfill

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1.0 Portlaw Landfill:

This closed landfill is located in the Townland of Coolfinn, just on the perimeter of Portlaw town. The GPS co-ordinates of the site are 247,450 (x) & 114,930 (y). The site is located within Portlaw town area and the lands on which the site is located are zoned for agricultural use/development. The residential zoning extends to 135m from the southern boundary and amenity zoning extends to 230m also from the southern boundary. The site can be accessed from Shanahan Lane off the R680, Kilmeaden to Carrick-on-Suir road. The northern boundary of the site is the River Clodiagh, which is designated as a Special Area of Conservation. To the west, again the River Clodiagh is located and also to the east but to the southeast, a temporary farm is located outside the boundary ditch. To the southern boundary is Shanahan Lane (local access road) and within 20 meters proximity is a residential dwelling which has been present since 2004.

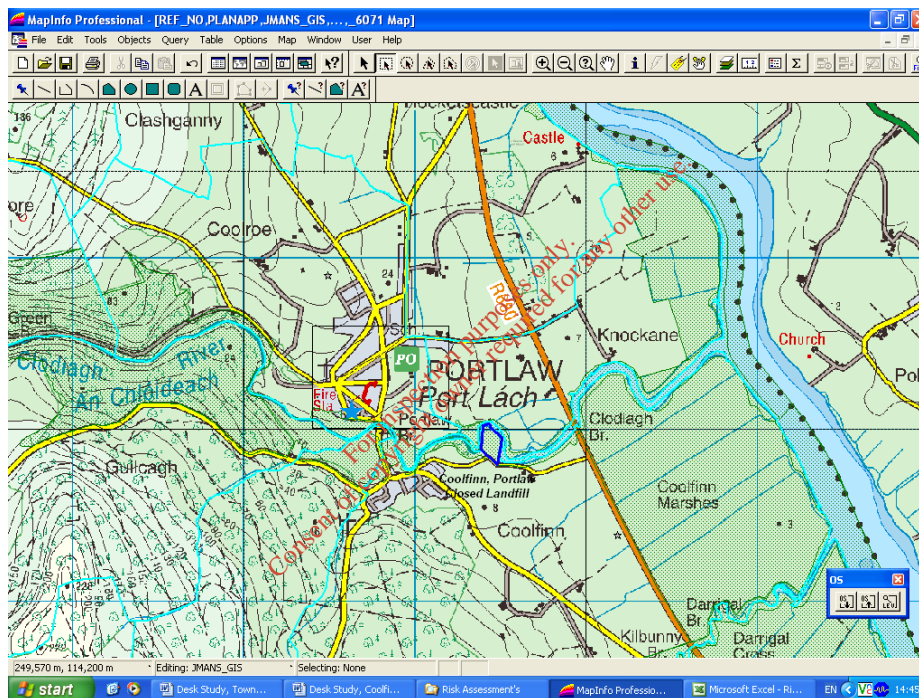


Figure 1: Site Location

The Portlaw site was used as a municipal landfill site, unfortunately an exact commencement date for the site was not determined but the site closed in 1994. The site was leased and operated by Waterford County Council. The size of the site is 2 acres approximately.

The Portlaw landfill accepted domestic and commercial and possibly a small quantity of industrial waste, although sources of industrial waste are unknown. The site is reported to be 5 – 10m deep. At closure, the landfill was capped with approximately 0.3m of topsoil.

1.1 Scope of the Risk Assessment:

For the risk assessment the material deposited at this site during the period of operation will be included within the scope of the risk assessment.

1.2 Geographical Information Systems (MapInfo):

A detailed analysis of the site location was compiled before commencing a walk over inspection. This analysis was compiled using Waterford County Councils geographical information systems software MapInfo. An aerial photograph of the area was located as to provide information on the surrounding land uses.

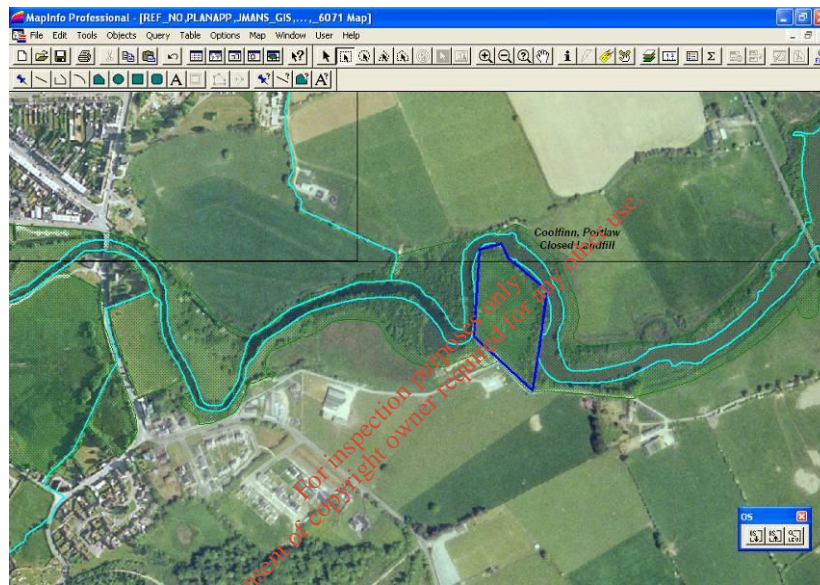


Figure 2: Aerial Photo of the site

The aquifer type and vulnerability were also determined from MapInfo. The site overlies an aquifer which is classed as extreme vulnerability.

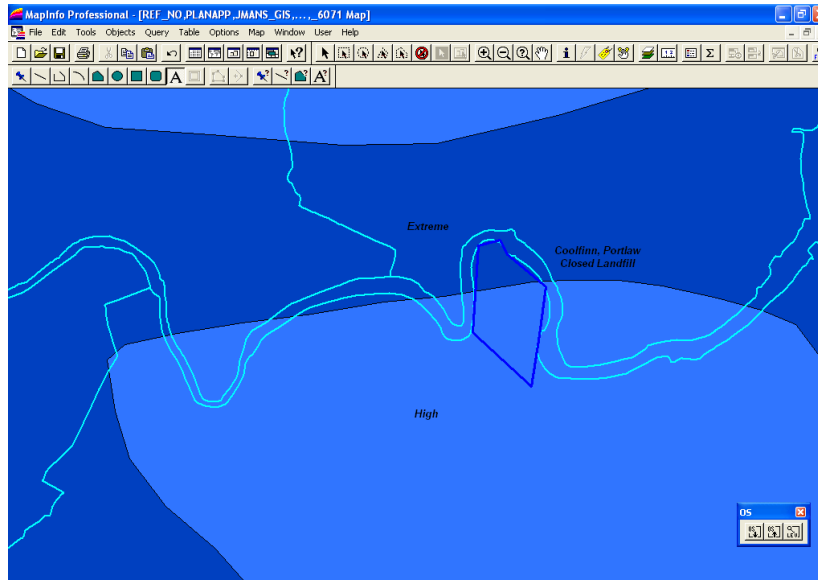


Figure 3: Aquifer Vulnerability

The site overlies an aquifer which is classed as a Regionally Important Fissured Bedrock.

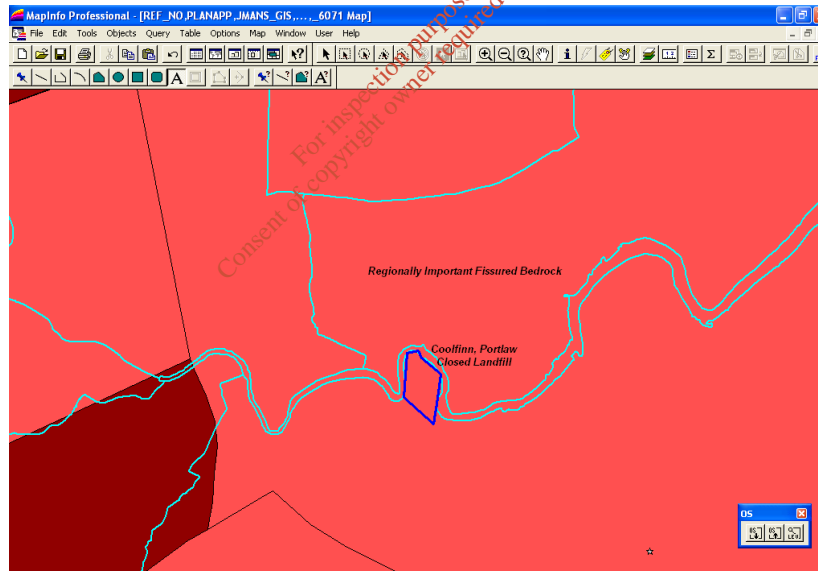


Figure 4: Aquifer Type

The geology characteristics of the area are a vital component for compiling the risk assessment especially in determining the value for table 2d & 2e. The Environmental Protection Agency website was used for obtaining this information. The site location overlies a soil characteristic which is determined as Mineral Alluvium. Adjacent lands to the site location consist of different soil characteristics such as, to the north a soil characteristic which is classed as Grey Brown Podzolics/Brown Earths Basic is present

and to the south a soil characteristic which is classed as Acid Brown Earths/Brown Podzolics is present. For the purpose of the risk assessment a geology characteristic of Mineral Alluvium was used.

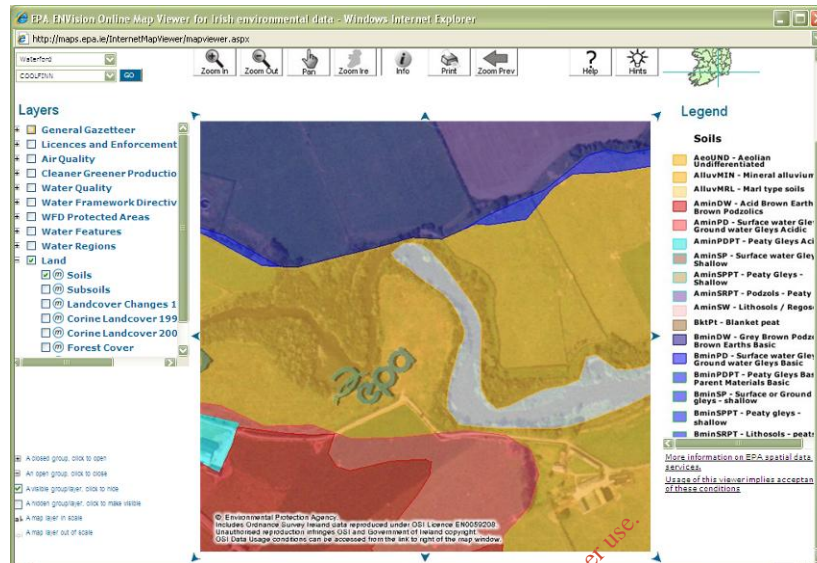


Figure 5: Geology Characteristics

The site and area was also researched on the MapInfo as to determine whether any SPA, SAC, NHA were present. It is important to note that the site is located within a Special Area of Conversation which is regarded as a flood plain for the river Clodiagh.

1.3 Walk-over Inspection:

Waterford County Council, Environment Section completed a walk-over inspection on the 21st November 2008. The closed landfill appears as a flat & level topography. The river level which bounds the site was lower than neighboring fields but this is likely to fluctuate, depending on rainfall etc. The site is privately owned and it is currently used for agriculture. It appeared that the area was mainly used for grazing, although it is possible that silage may have been harvested in summer months. Waterford County Council have discussed with the current landowners (Mr. Richard O' Hara & Mrs. Rita O' Hara) that further works may be required for completion of a tier 2 & 3 risk assessment as set out in the Environmental Protection Agency code of practice for environmental risk assessment for unregulated waste disposal sites. Approval and co-operation has been sought from the landowners and Waterford County Council is satisfied that should further works be required, there shall be no issue's regarding land access.

Vegetation on the site primarily consisted of grasses with some rushes & marsh areas in parts. The site was soft underfoot and there were areas of water ponding which would indicate that the site had poor drainage capabilities. It is anticipated that these poor drainage capabilities is as a result of lack of adequate depth of subsoil and topsoil

materials when capping the site. In general the site appears no different from neighboring agricultural land in terms of vegetation and land use. There appeared to be no vegetation die off or bare ground within the site.

1.4 Portlaw - Risk Screening

The risk assessment methodology outlined in the Code of Practice Manual is based on the principle of linkages between the Source, Pathway, and Receptor. Refer to Chapter 4 of the Manual for the Risk Score Tables.

Table 2

Ref	Source	Score	Max	Rational
1a	Leachate	5	10	<ul style="list-style-type: none"> ▪ <1 hectare ▪ Waste included both municipal & commercial wastes
1b	Gas	5	10	<ul style="list-style-type: none"> ▪ <1 hectare ▪ Highest rating given as proportion of municipal: industrial wastes is not known.

Table 3

Ref	Pathways	Score	Max	Rational
2a	Groundwater vulnerability	2	3	<ul style="list-style-type: none"> ▪ GSI data states that part of site is rated as having high vulnerability.
2b	Groundwater flow regime	3	5	<ul style="list-style-type: none"> ▪ 2 bedrock types present, most vulnerable rating used (Locally important Groundwater Bodies)
2c	Surface water drainage	2	2	<ul style="list-style-type: none"> ▪ Landfill is directly connected to adjacent surface water bodies (River Clodiagh on the North, West & Eastern boundary)
2d	Landfill gas lateral migration	3	3	<ul style="list-style-type: none"> ▪ Residence within 250m of closed landfill ▪ Sand & Gravel soil
2e	Landfill gas vertical migration	N/A	5	<ul style="list-style-type: none"> ▪ No structure located directly over landfill

Table 4

Ref	Receptors	Score	Max	Rational
3a	Human presence (leachate)	3	3	<ul style="list-style-type: none"> ▪ House with private well <50m from landfill
3b	Protected areas	3	3	<ul style="list-style-type: none"> ▪ SAC within 50m of landfill
3c	Aquifer category	3	5	<ul style="list-style-type: none"> ▪ Locally important moderately productive in Local Zones
3d	Public water supply	0	7	<ul style="list-style-type: none"> ▪ >1 km from the source ▪ Fissure Bedrock aquifer
3e	Surface water bodies	3	3	<ul style="list-style-type: none"> ▪ River Clodiagh is within 50m of site boundary
3f	Human presence (gas)	5	5	<ul style="list-style-type: none"> ▪ House within 50m of site

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1.5 Portlaw – Risk Classification

Table 5

<i>S-P-R Linkage Score</i>		Max Score	Actual Score	Normalised Score	Risk Classification
SPR 1	Leachate migration to surface waters through combined groundwater and surface water pathways	300	$1a \times (2a + 2b + 2c) \times 3e = 105$	35%	Class C – Lowest risk
SPR 2	Leachate migration to protected areas through combined groundwater and surface water pathways	300	$1a \times (2a + 2b + 2c) \times 3b = 105$	35%	Class C – Lowest risk
SPR 3	Leachate migration to human receptors via groundwater	240	$1a \times (2a + 2b) \times 3a = 75$	31%	Class C – Lowest risk
SPR 4	Leachate migration to protected areas via groundwater	240	$1a \times (2a + 2b) \times 3b = 75$	31%	Class C – Lowest risk
SPR 5	Leachate migration to bedrock via groundwater	400	$1a \times (2a + 2b) \times 3c = 75$	19%	Class C – Lowest risk
SPR 6	Leachate migration to public water sources via groundwater	560	$1a \times (2a + 2b) \times 3d = 0$	0%	Class C – Lowest risk
SPR 7	Leachate migration to surface water via groundwater	240	$1a \times (2a + 2b) \times 3e = 75$	31%	Class C – Lowest risk
SPR 8	Leachate migration to surface water via surface water	60	$1a \times 2c \times 3e = 30$	50%	Class B – Moderate risk
SPR 9	Leachate migration to protected area via surface water	60	$1a \times 2c \times 3b = 30$	50%	Class B – Moderate risk
SPR 10	Gas migration to human receptors via subsoil – lateral	150	$1b \times 2d \times 3f = 75$	50%	Class C – Lowest risk
SPR 11	Gas migration to human receptors via subsoil – vertical	250	$1b \times 2e \times 3f = 0$	0%	Class C – Lowest risk
Overall Site Classification: Class B – Moderate risk					