

ATTACHMENT D.1

TIER 1 RISK ASSESSMENT

APPLICATION TO THE EPA FOR A CERTIFICATE OF AUTHORISATION

FORMER MUNICIPAL HISTORIC LANDFILL

RANTAVAN

MULLAGH

CO. CAVAN

Prepared By:

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JULY 2012

TIER 1

ENVIRONMENTAL RISK ASSESSMENT

OF A

FORMER MUNICIPAL HISTORIC LANDFILL

AT

RANTAVAN

MULLAGH

CO. CAVAN

Prepared By:

**Waste Management Section
Cavan County Council
Farnham Street
Cavan
Co. Cavan**



2009

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	DWG No. 10-198-017	CONCEPT MODEL OF THE SITE	

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1 SITE SUMMARY

Mullagh dumping ground is located 1.5 kilometres from Mullagh Village in the townland of Rantavan on the L-7114-0 (refer to 1:50,000 map & Ariel photo below). The site encompasses an area of approximately 0.7 hectares. The land surrounding the site is predominately flat undulating in a south easterly direction. The dumping ground was opened on the 3rd of May 1972 and mainly accepted municipal waste from the surrounding area. The site employed the method of dump and burn and was finally closed on the 8th of February 1989.

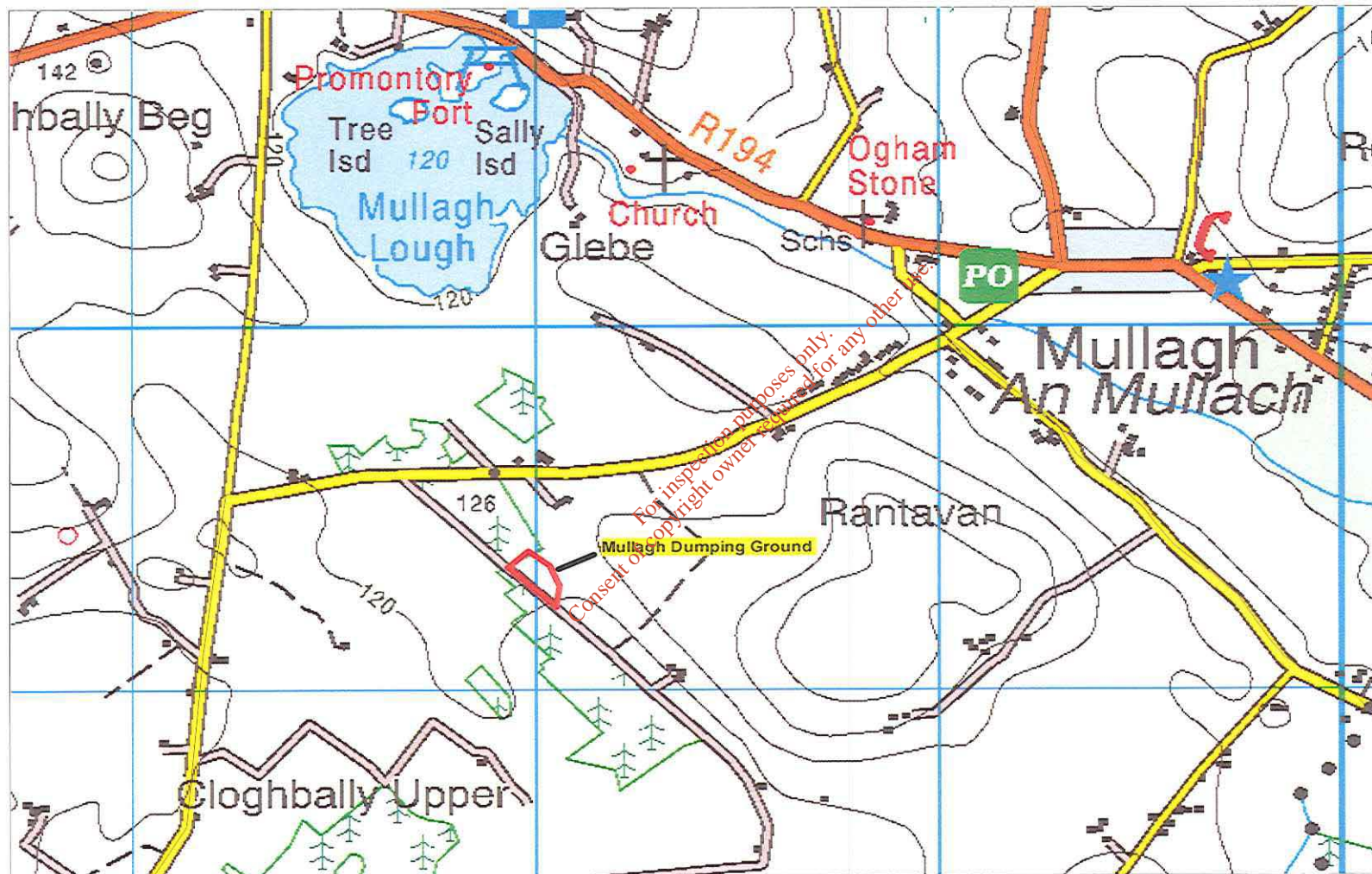
The site is currently grazed by local livestock and is bordered by grassland on the northern and eastern boundary and forestry and scrubland on the southern and western boundary. Waste material protrudes through the capping layer and encroaches on the nearby watercourse (refer to photo No. 1). The site is secure and delineated by mesh wire fencing along the southern perimeter.

The main receptor is the watercourse on the northern and eastern aspect of the site which is immediate to the site boundary. The watercourse appears discoloured which may be attributed to the dumping ground (refer to photo No. 2). Dwelling houses were noted on the northern, north eastern and south eastern aspect which range from 160 – 340 m from the site boundary. The dwellings in the area are serviced by Mullagh Public Water Supply with the exception of one dwelling which is serviced by a private well (approximately 340 m from the site boundary).

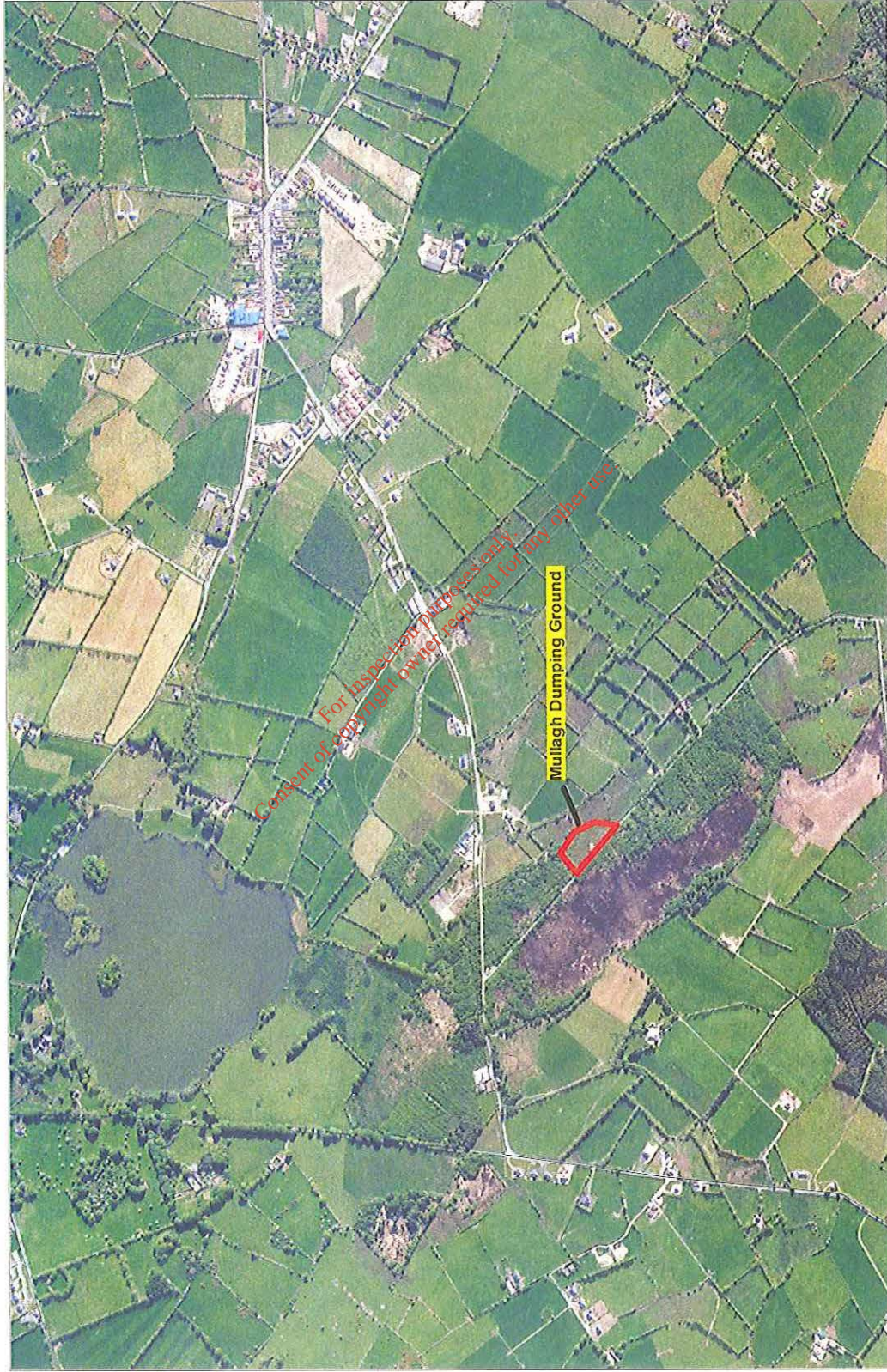
Historic Unlicensed Sites – Site Registration

ID Number	Council No. 269 EPA No. S22-02586
Site name	Mullagh Dumping Ground
Waste category	Local Authority
Townland	Rantavan
Waste activity	Disposal
Principal waste type	Municipal
Additional waste type	Industrial (Wellman International used the dumping ground)
Estimated waste quantity	
Verification Method	Interviews with overseers.
Date opened	03/05/1972
Date closed	08/02/1989
Owner of waste	Cavan County Council
Map	Available on file
GPS	268 004 284 298
Information Sources	Council file No. 269 Land registry Sandra Smith – Interviews with overseers
Date Checked	17/06/09

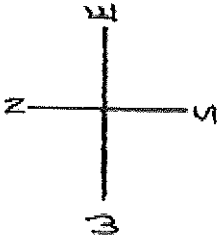
1.1 Map of Mullagh Dumping Ground (1:50,000)



1.2 Ariel photograph of Mullagh Dumping Ground

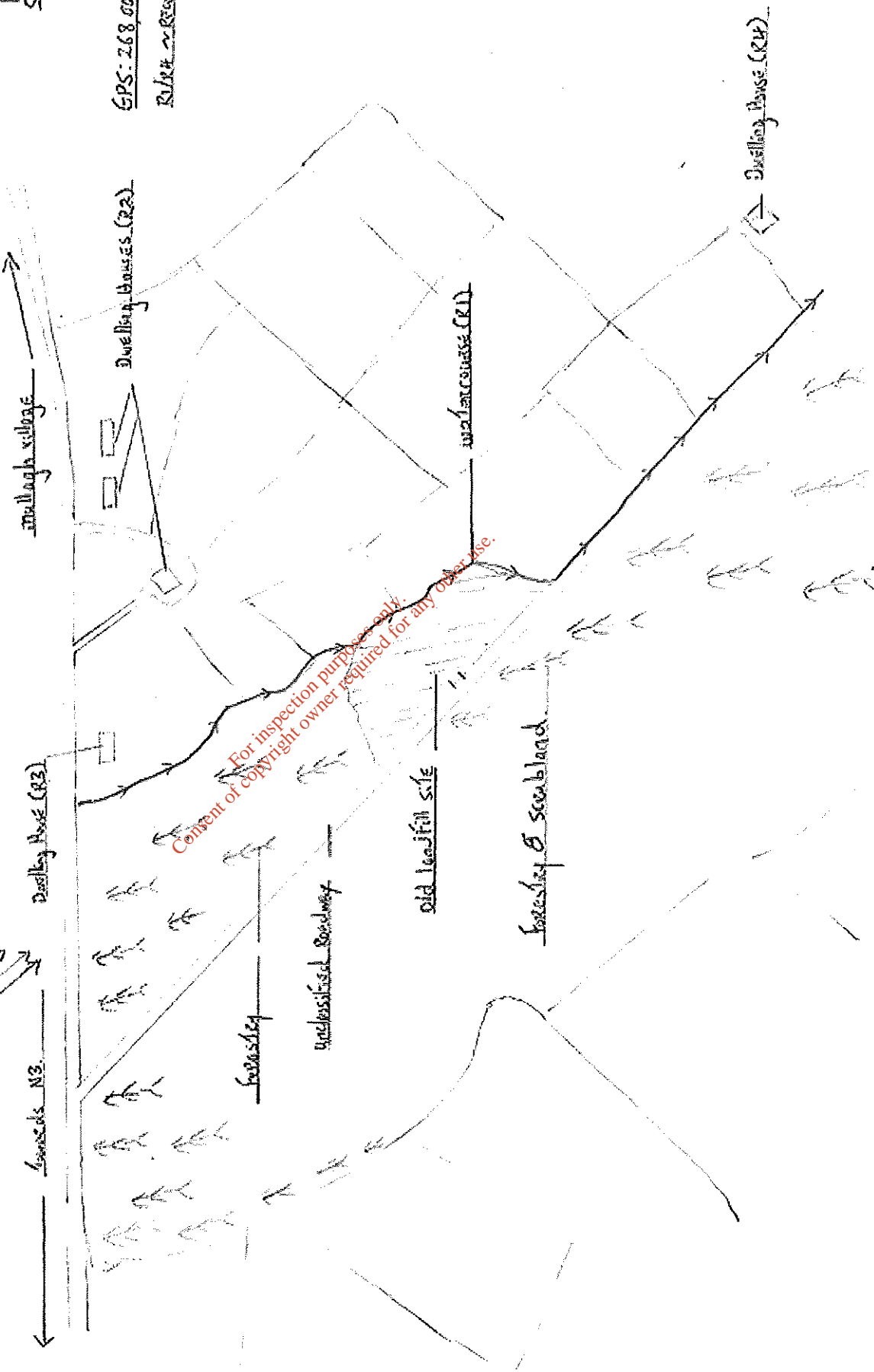


Site Plan



GPS: 268 004 284, 298
R1/R2 ~ Reservoirs

Slope (G. water flow)



2 SURVEY CHECKLIST

Walkover Survey Checklist – Mullagh Dumping Ground

Walkover Survey Checklist		
Information	Checked	Comment (including distance from site boundary)
1. What is the current land use?	√	The site is currently grazed by livestock.
2. What are the neighbouring land uses?	√	Northern boundary – Agricultural. Southern boundary – Forestry & scrubland. Eastern boundary – Agricultural. Western boundary – Forestry & scrubland.
3. What is the size of the site?	√	1 ¾ acres (0.7 hectares)
4. What is the topography?	√	The land is predominately flat, undulating in a south east direction.
5. Are there potential receptors (if yes, give details)?	√	Watercourse on the northern and eastern aspect immediate to the site boundary (R1). Dwelling houses on the north eastern aspect approx. 160 - 180 m from the site boundary (R2). Dwelling house on the northern aspect approx. 230 m from the site boundary (R3). Dwelling house on the south eastern aspect approx. 340 m from the site boundary (R4).
Houses	√	Dwelling houses on the north eastern aspect approx. 160 - 180 m from the site boundary. Dwelling house on the northern aspect approx. 230 m from the site boundary. Dwelling house on the south eastern aspect approx. 340 m from the site boundary.
Surface water features (if yes, distance and direction of flow)	√	Watercourse which borders the northern and eastern perimeter of the site. The watercourse flows in a south east direction.
Any wetland or protected Areas	√	Wetlands – not observed within 250 meters. SPA & SPC – not observed on National Parks and Wildlife Services GIS website.
Public Water Supplies	√	Mullagh Public Water Supply (PWS).

Private Wells	√	Dwelling house on south eastern aspect approx 340 m from site boundary is served by a private well. The said well is located upslope of the dwelling.
Services	√	Water and electrical services.
Other buildings	√	N/A.
Other	√	N/A.
6. Are there any potential sources of contamination (if yes, give details)?	√	Waste protruding from the waste body on the northern and eastern perimeter of the site. The said waste is encroaching on the watercourse due to insufficient soil coverage (refer to photo No. 1, 2 & 3).
Surface waste (if yes, what type?)	√	Surface waste observed which included car tyres, car bumpers, glass bottles, plastic etc (refer to photo No. 4 & 5).
Surface ponding of leachate	√	None evident.
Landfill gas odours	√	None detected – downwind of site (N.E. breeze blowing during time of inspection).
7. Are there any outfalls to surface water? (If yes, are there discharges and what is the nature of the discharge?)	√	No drainage channels transecting the waste body and thus no discharge to watercourse.
8. Are there any signs of impact on the environment? (If yes, take photographic evidence)	√	Surface waste protruding from the waste body (refer to photo No. 4 & 5). Waste protruding from side of waste body along watercourse.
Vegetation die off, bare ground	√	None evident.
Leachate seepages	√	None evident.
Odours	√	None detected.
Litter	√	None evident. The roadway bordering the site was free from litter.
Gas bubbling through water	√	None evident.
Signs of settlement,	√	None evident.
subsidence, water logged areas	√	Water logged area approx. 20 from gate entrance.
Drainage or hydraulic issues	√	As above.
Downstream water quality appears poorer than upstream water quality	√	Downstream water quality appeared poorer than upstream (refer to photo No. 6 & 7). Watercourse appeared somewhat discoloured down slope of the

		waste body (note: cattle encroaching on the said watercourse and may be impacting on water quality).
9. Are there any indications of remedial measures? (Provide details)	√	Installation of mesh wire fencing along roadway and possible capping with clay.
Capping	√	As above.
Landfill gas collection	√	None evident.
Leachate collection	√	None evident.
10. Describe fences and security features (if any)	√	Mesh wire fencing along roadway on southern perimeter.
Any other relevant information?	√	Spoke with Mr. Peter Duffy (adjacent landowner) regarding dump site. Mr. Duffy stated that extensive dumping occurred in the mid 80's.
Health & Safety	√	Mesh wire fencing along roadway on southern perimeter preventing public access. The site is located in a remote location and thus relatively inaccessible to the public.
Remediation	√	The importation of soil and the covering of exposed waste protruding from the waste body. The installation of mesh fencing on the northern and eastern perimeter to prevent livestock access. The piping of the watercourse on the northern and eastern perimeter to prevent interaction with the waste body.

General Comments

The site has assimilated into the surrounding environs.

Watercourse borders the northern and eastern perimeter of the site. Possible contamination due to waste body encroaching on watercourse.

Spoke with Mr. Peter Duffy (adjacent landowner) regarding private wells in the vicinity of the dump site. Dwelling house (owned by Mr. Duffy) on south eastern aspect approx 340 m from site boundary is served by a private well. The said well is located upslope of the dwelling.

Spoke with Mr. Liam Daily (adjacent landowner) regarding private wells in the vicinity of the dump site. Dwelling house (owned by Mr. Daily) on north eastern aspect approx. 160 m from site boundary is served by Mullagh PWS. Mr. Daily also stated that dwelling houses in the vicinity of his house were served by Mullagh PWS.

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Inspection date 2009

3 SITE PHOTOS



Photo No. 1 – Waste protruding from waste body.



Photo No. 2 – Waste protruding from waste body.



Photo No. 3 – Waste encroaching on watercourse.



Photo No. 4 – Surface waste.



Photo No. 5 – Surface waste.



Photo No. 6 – Discoloration in watercourse.



Photo No. 7 – Discoloration in watercourse.

4 RISK RANKING REPORT



Risk ranking report for Mullagh dumping ground - Cavan County Council (S22-02586)

Date: 08/09/2009

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Legend

- Unregulated Landfill
- Local Authorities

Towns by Size

- Small
- NI
- Medium
- Large

Rivers by Order

- 1
- 2
- 3
- 4
- 5
- 6
- 7

Water Bodies

- Lakes
- Transitional
- Coastal

Grid reference of the centre of the site: 267999E, 284307N

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Risk ranking report for Mullagh dumping ground - Cavan County
Council (S22-02586)

Date: 08/09/2009

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Table	Points available	Rationale	SPRLinkage	Linkage Score	Norm Score
1a	5.00	EITHER (Type: Industrial, Area <=1 Ha) OR (Type: Municipal, Area <=1 Ha)	SPR1	75.00	25.00
			SPR2	0.00	0.00
1b	5.00	EITHER (Type: Industrial, Area > 1 <= 5 Ha) OR (Type: Municipal, Area <=1 Ha)	SPR3	30.00	12.50
2a	2.00	High Vulnerability / High - Low Vulnerability	SPR4	0.00	0.00
2b	1.00	Poorly Productive Bedrock Groundwater Bodies (LI, PI, Pu)	SPR5	15.00	3.75
2c	2.00	Possible connection between drainage ditches associated with the waste body and adjacent surface water body.	SPR6	0.00	0.00
			SPR7	45.00	18.75
2d	1.50	All other tills (Including limestone, sandstone etc. - moderate permeability)	SPR8	30.00	50.00
2e	0.00	No buildings, structures or enclosed spaces present above waste body.	SPR9	0.00	0.00
3a	2.00	Greater than 50m but less than 250m of the waste body	SPR10	7.50	5.00
3b	0.00	Greater than 1 Km of the waste body	SPR11	0.00	0.00
3c	1.00	Poor aquifers (PI, Pu)			
3d	0.00	Greater than 1km (No Karst Aquifer)			
3e	3.00	Within 50m of site boundary.			
3f	1.00	Greater than 150m but less than 250m			

Risk Classification: B: Moderate Risk

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[Click here for the walkover survey checklist](#)



Risk ranking report for Mullagh dumping ground - Cavan County
Council (S22-02586)

Date: 08/09/2009

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Site Summary

Facility Description

The facility encompasses an area of approximately 0.7 hectares in the Townland of Rantavan outside Mullagh village. The site is currently grazed by livestock and has assimilated into the surrounding environs.

Receiving Environments

Watercourse observed on the northern and eastern aspect of the site immediate to the site boundary.

Known Impacts

The watercourse immediate to the site boundary appeared discolored. Possible impact due to the waste body encroaching on the watercourse. Further investigations are required to validate same.

Emissions Observed

Watercourse immediate to site boundary appeared discolored. Further investigations i.e. sampling is required to validate same.

Remediation Measures

The importation of soil and the covering of exposed waste protruding from the waste body. The installation of mesh fencing on the northern and eastern perimeter to prevent livestock access. The piping of the watercourse on the northern and eastern perimeter to prevent interaction with the waste body.

Technical Requirements

The site has been capped with soil. Fencing and a gate has been installed on the boundary nearest the local roadway. The site is unlined with no leachate or gas collection system.

Treatment Methods

No treatment of leachate or gas on site (if arising from the site). Further investigations are required to validate same.

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[Click here for the walkover survey checklist](#)

Risk Score Rating

SPR Linkage Number	Linkage %	Risk Level
1	25	C
2	0	C
3	12.5	C
4	0	C
5	3.75	C
6	0	C
7	18.75	C
8	50	B
9	0	C
10	5	C
11	0	C

A – High Risk

B – Moderate Risk

C – Low Risk

Mullagh dumping ground has a moderate risk (B) classification as indicated from the above table. Moderate risk sites are sites where any of the Source-Pathway-Receptor (SPR) linkages have a score between 40% and 70% ⁽²⁾. The risk assessment methodology for Mullagh highlighted SPR linkage number 8 which has a risk score rating above 40%. The said linkage refers to leachate migration through surface water.

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5 MAPS

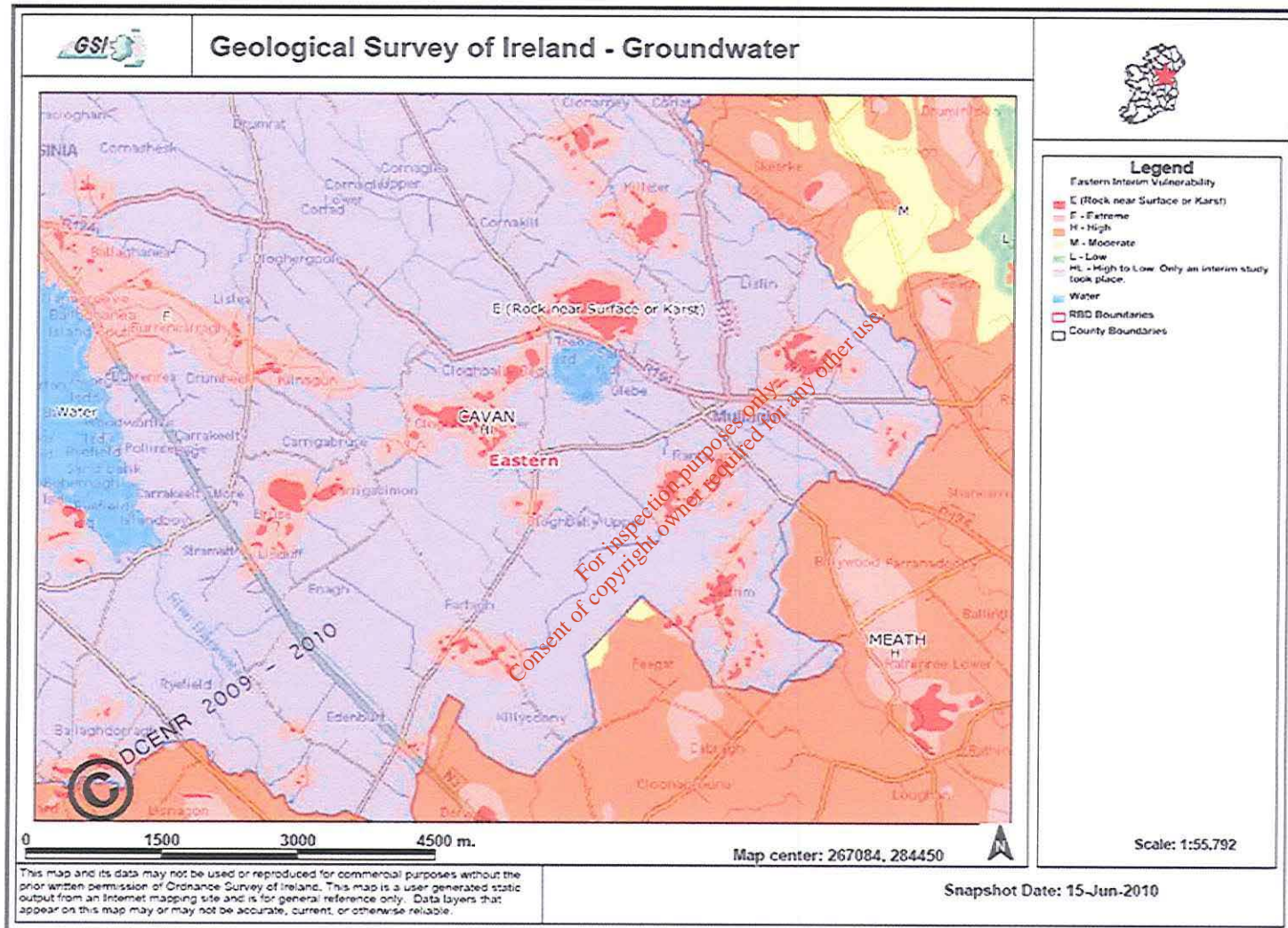
Technical Data

- The vulnerability map ⁽¹⁾ classifies Mullagh dumping ground as High to Low (HL) (refer to attached map 5.1).
- The aquifer map ⁽¹⁾ classifies Mullagh dumping ground as a Poor Aquifer (PI). The bedrock is generally unproductive except for local zones (refer to map 5.2).
- The bedrock map ⁽¹⁾ classifies Mullagh dumping ground as predominately Silurian Metasediments & Volcancis (SMV) (refer to map 5.3).
- The subsoil map ⁽¹⁾ classifies Mullagh dumping ground as Peat (refer to map 5.4).

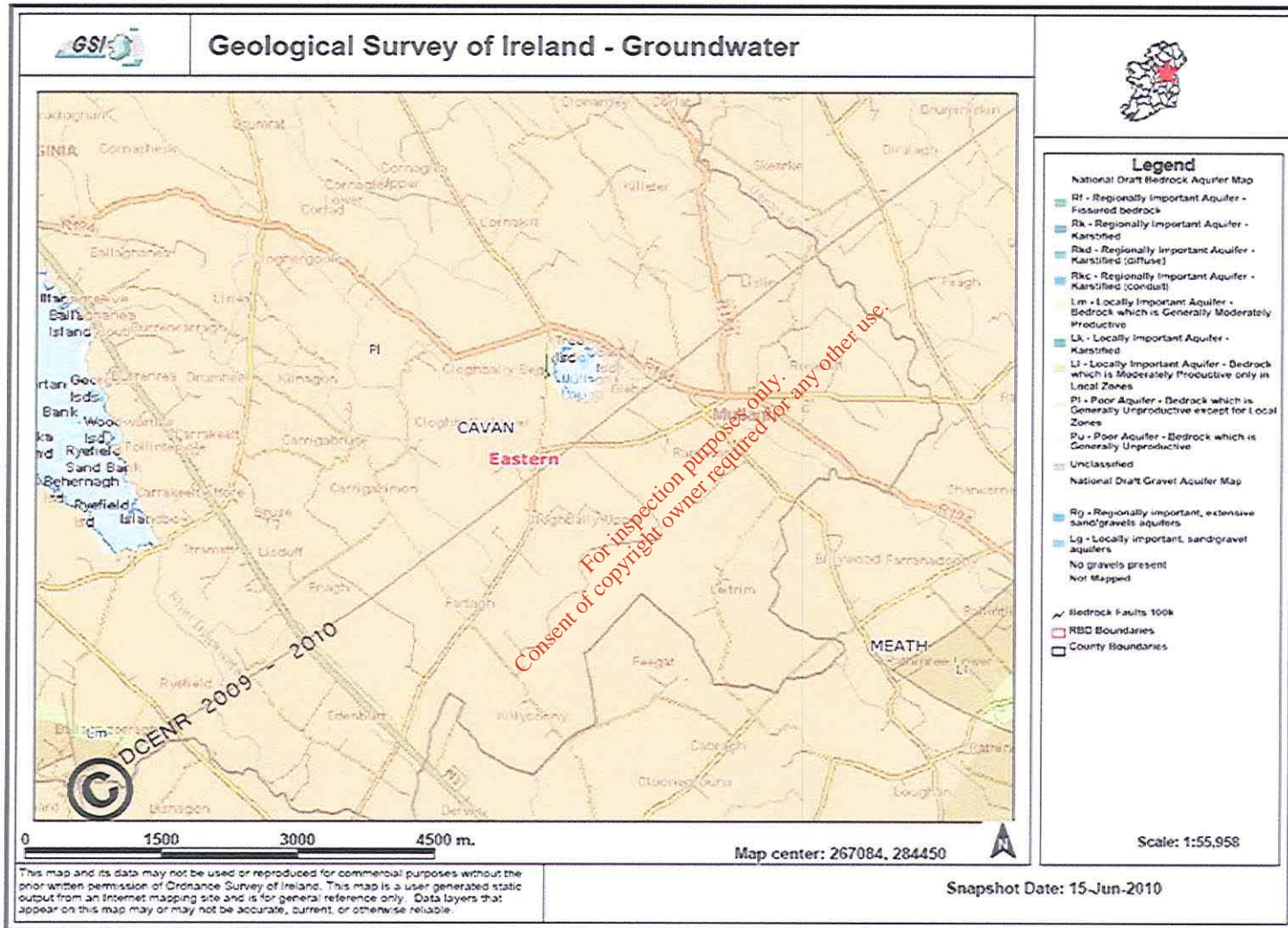
The vulnerability rating for the site is deemed High to Low as only an interim study was undertaken. The precautionary principal is applied and the site is therefore deemed High (H). The aquifer is classified as poor (PI) and the subsoil is classified as peat. Both the aquifer and subsoil classification would minimise the impact on groundwater resources.

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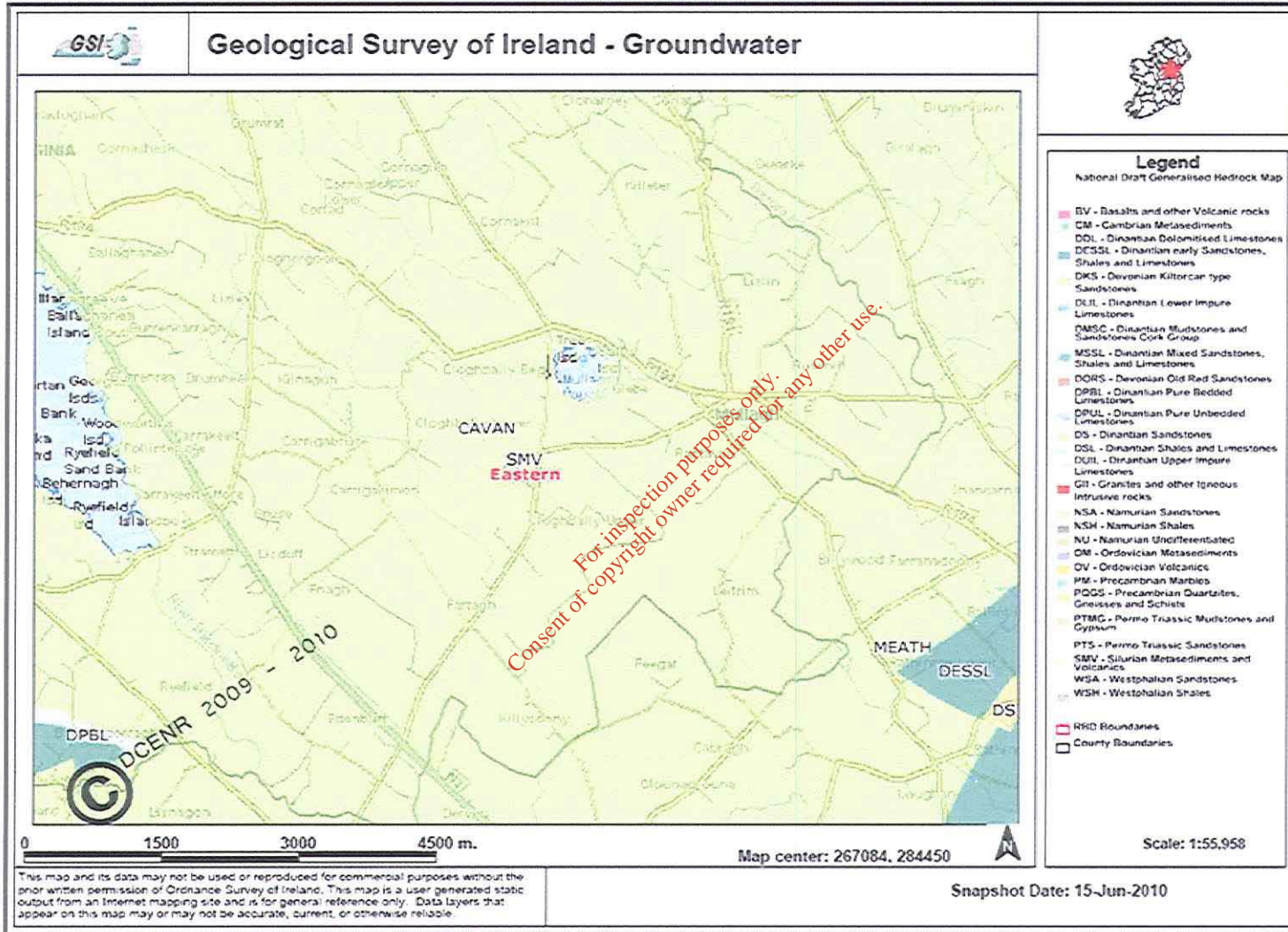
5.1 VULNERABILITY MAP



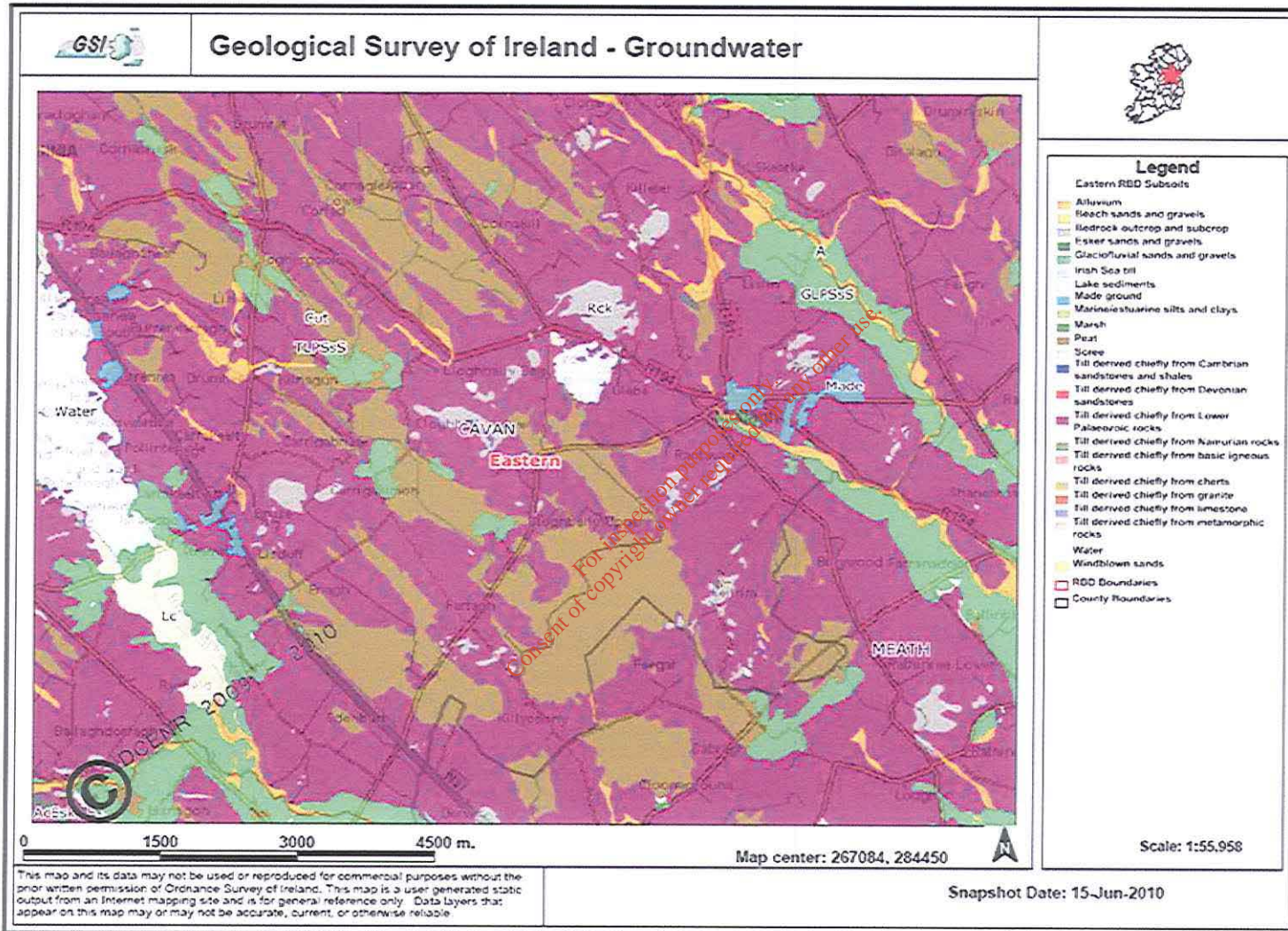
5.2 AQUIFER MAP



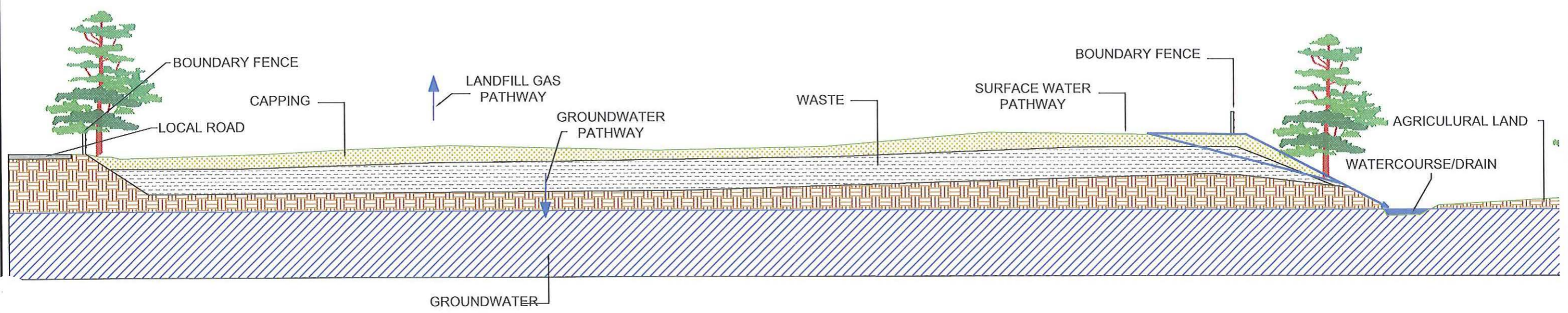
5.3 BEDROCK MAP



5.4 SUBSOIL MAP










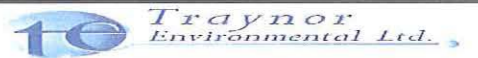
NOTES



CONCEPT MODEL
SCALE 1:200

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-  LANDFILL WASTE SOURCE
-  PATHWAY
-  EVIDENT PATHWAY
-  RECEPTOR (GROUNDWATER)
-  RECEPTOR (STREAM)
-  CAPPING
-  EXISTING SUBSOIL

REV.	DATE	DESCRIPTION	APPROVED
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CLIENT		CAVAN COUNTY COUNCIL	
PROJECT TITLE			
SITE INVESTIGATION & RISK ASSESSMENT OF EXISTING HISTORIC LANDFILL SITE AT RANTAVAN, MULLAGH, CO CAVAN			
DRAWING TITLE			
CONCEPT MODEL OF THE SITE			
SCALE	DRAWN	CHECKED	APPROVED
1:200	PAURIC LOUGHLIN	PADRAIG JORDAN	HEVIN TRAYNOR
	DATE	DATE	DATE
	NOVEMBER 2010	NOVEMBER 2010	NOVEMBER 2010
DRAWING No.			REV.
10-198-017			