



**SOUTH TIPPERARY COUNTY COUNCIL**  
**ENVIRONMENTAL RISK ASSESSMENT FOR UNREGULATED WASTE DISPOSAL**  
**SITES**

**Tier 1 Risk Assessment on**  
**the closed landfill at**  
**Carronreddy, Tipperary Town**

**01/10/2009**

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## Tipperary Town Closed Landfill

The closed landfill is located in the Townland of Carrownreddy and is accessed from the Lake Road, off the R610 Tipperary to Dundrum Road. It is within the Tipperary environs area and is currently used as a depot by Tipperary Town Council. The information available on this site is limited; the extent of the area landfill is not accurately known but the area shown in Figure 6 is raised above the surrounding field and is considered to be the landfilled area.

The closed landfill in Tipperary Town operated as the town dump from circa 1940 until it closed as a landfill in 1990. The site is approximately 1.8 hectares, within this area is a fenced off area of 0.2 hectares which was apparently used exclusively for wastewater sludge. The waste body is reported to be 9–12m deep. The other wastes accepted at the site are most likely to have been municipal and commercial waste. Since the landfill at Donohill was developed this site has been operated as a Depot for storage of road works materials, machinery etc by Tipperary Town Council.

The lands adjoining the landfill appear to be used primarily for low intensity agriculture, grazing horses etc and at present there are no residences within 250m of the site, however given the zoning this may change over the next 5 years. Immediately to the north is a marshy area (once known as the Lake), the lands east of the site are identified in a Master Plan<sup>1</sup> by the developer as intended for light industrial warehousing etc, beyond this site (approx 200m north east of the closed landfill) the residential aspect of the development (~250 houses) is under construction. South of the site is currently grazed by horses but these lands will be developed for social housing (SW) and light industrial (SE). There are currently no proposals to develop the lands to the west. There are also plans to extend the Lake Road west to link up with the R497, the Donohill Road. Tipperary Town Council intend to move the Depot to an alternative location to enable the investigation and remediation of the site. Eventually the Environment Section intend to develop a Civic Amenity Site at this location.

The closed landfill is within a zone of archaeological potential and an archaeological assessment<sup>2</sup> was carried out at the site in May 2005. The resulting report stated that due to the landfilling activities of the past “the testing results suggest that the possible enclosure is no longer extant (if indeed one existed on this site)”. This report also outlines the history to the site; the First Edition of the Ordnance Survey c. 1840 indicates a lake, Carrownreddy Lough, immediately to the north of the site, in the 1901 version the Lough has substantially reduced in size and today this area is marsh.

## Walk-over Inspection

As stated previously the site is currently used as a Depot by Tipperary Town Council. The southern, and part of the eastern and western perimeters of the site are fenced. There is no visible boundary, other than the raised landfilled area, marking the northern boundary of the site. The southern part of the site has a hardcore surface and is used for storing road-works

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<sup>1</sup> Planning Ref 03/375

<sup>2</sup> Archaeological Test Trenching and Impact Assessment at Carrownreddy, Co. Tipperary  
Aegis Archaeology Limited May 2005

materials and machinery, chippings etc. There is also a shed on-site used for storage. At the time of my inspection there was a portacabin on-site with toilet facilities for staff. The remainder of the site, north of the shed has a considerable volume of discarded waste materials comprising of large mounds of construction & demolition waste, waste tyres (partially burned), household waste, white goods (fridges, washing machines etc), green waste etc.

### 3.3 Tipperary Town - 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 6

<i>Ref</i>	<b>Source</b>	<i>Score</i>	<i>Rational</i>
1a	Leachate	7	<ul style="list-style-type: none"> <li>&lt;5 hectares</li> <li>Waste likely to be both municipal &amp; industrial</li> </ul>
1b	Gas	7	<ul style="list-style-type: none"> <li>&lt;5 hectares</li> <li>Highest rating given as proportion of municipal: industrial wastes is not known.</li> </ul>

Table 7

<i>Ref</i>	<b>Pathways</b>	<i>Score</i>	<i>Rational</i>
2a	Groundwater vulnerability	2	<ul style="list-style-type: none"> <li>GSI data states that the site is rated as having high vulnerability.</li> </ul>
2b	Groundwater flow regime	5	<ul style="list-style-type: none"> <li>Bedrock described as karst</li> </ul>
2c	Surface water drainage	2	<ul style="list-style-type: none"> <li>Landfill is reportedly connected to town surface water drainage system</li> </ul>
2d	Landfill gas lateral migration	3	<ul style="list-style-type: none"> <li>Residences not currently within 250m of site, but will be within 5 years</li> <li>Karst bedrock</li> </ul>
2e	Landfill gas vertical migration	5	<ul style="list-style-type: none"> <li>Building on site, to be retained and further buildings to be constructed in proposed redevelopment</li> </ul>

Table 8

<i>Ref</i>	<b>Receptors</b>	<i>Score</i>	<i>Rational</i>
3a	Human presence (leachate)	2	<ul style="list-style-type: none"> <li>Currently no houses within 250m, there will be within 5 years</li> <li>Note: All houses will be served by public water</li> </ul>
3b	Protected areas	1	<ul style="list-style-type: none"> <li>No protected areas within 1 km of site</li> <li>The marsh area has been considered as an undesignated GWDTE, precautionary approach.</li> <li>No consultation with the NPWS has taken place.</li> </ul>
3c	Aquifer category	5	<ul style="list-style-type: none"> <li>Regionally important aquifer underlies part of landfill</li> </ul>
3d	Public water supply	3	<ul style="list-style-type: none"> <li>Public water supply is greater than 1km away (Cordangan)</li> <li>Karst bedrock – but different geological formation</li> <li>Precautionary approach assumed</li> </ul>
3e	Surface water	3	<ul style="list-style-type: none"> <li>Surface water drain within 50m of site boundary</li> </ul>

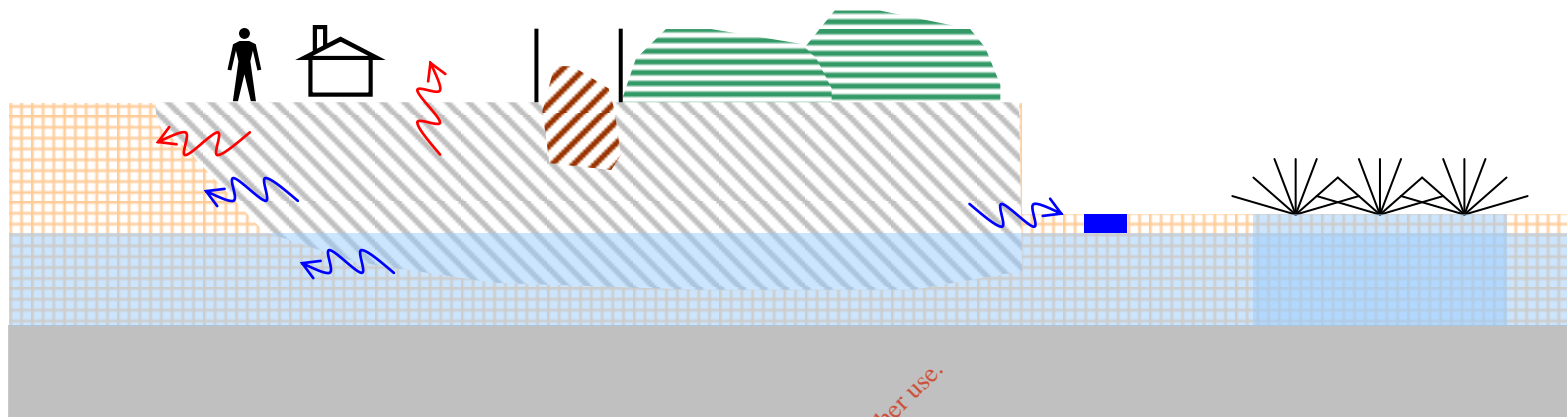
	bodies		
3f	Human presence (gas)	5	<ul style="list-style-type: none"> <li>▪ Building on site</li> </ul>













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### 3.4 Tipperary – Risk Classification

Table 9

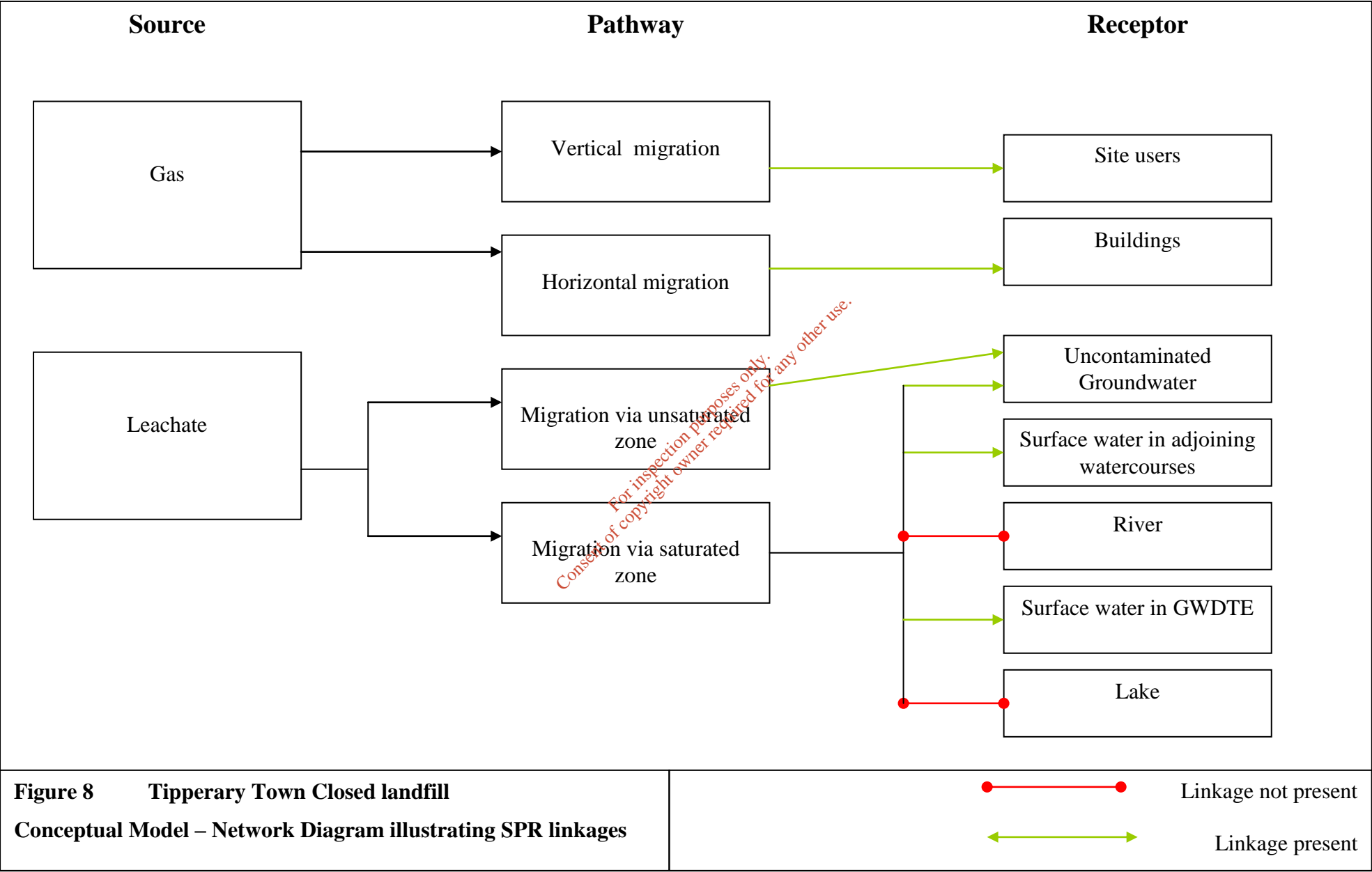
S-P-R Linkage Score		Max Score	Actual Score	Normalised Score	Risk Classification
SPR 1	Leachate migration to surface waters through combined groundwater and surface water pathways	300	$1a \times (2a + 2b + 2c) \times 3e$ = 189	63%	Class B – Moderate risk
SPR 2	Leachate migration to protected areas through combined groundwater and surface water pathways	300	$1a \times (2a + 2b + 2c) \times 3b$ = 63	21%	Class C – Lowest risk
SPR 3	Leachate migration to human receptors via groundwater	240	$1a \times (2a + 2b) \times 3a$ = 98	41%	Class B – Moderate risk
SPR 4	Leachate migration to protected areas via groundwater	240	$1a \times (2a + 2b) \times 3b$ = 49	20%	Class C – Lowest risk
SPR 5	Leachate migration to bedrock via groundwater	400	$1a \times (2a + 2b) \times 3c$ = 245	61%	Class B – Moderate risk
SPR 6	Leachate migration to public water sources via groundwater	560	$1a \times (2a + 2b) \times 3d$ = 147	26%	Class C – Lowest risk
SPR 7	Leachate migration to surface water via groundwater	240	$1a \times (2a + 2b) \times 3e$ = 147	61%	Class B – Moderate risk
SPR 8	Leachate migration to surface water via surface water	60	$1a \times 2c \times 3e$ = 42	70%	Class A – Highest risk
SPR 9	Leachate migration to protected area via surface water	60	$1a \times 2c \times 3b$ = 14	23%	Class C – Lowest risk
SPR 10	Gas migration to human receptors via subsoil – lateral	150	$1b \times 2d \times 3f$ = 105	70%	Class A – Highest risk
SPR 11	Gas migration to human receptors via subsoil – vertical	250	$1b \times 2e \times 3f$ = 175	70%	Class A – Highest risk
Overall Site Classification: Class A – Highest Risk					



Source	Receptors	Pathways	Geology
 Main waste body (depth 9-12m)	 Surface water drain	 Gas migration – vertical & lateral	 Subsoil – parent material limestone glacial till Vulnerability Rating: High
 Wastewater treatment plant sludge area (depth not known)	 Groundwater (GW depth not known)	 Leachate migration – saturated and unsaturated zone	 Bedrock – Regionally important karst bedrock
 Material deposited since landfill closed	 Marshy area (undesigned GWDTE)		
	 Human beings		
	 Buildings on-site		

**Figure 5 Conceptual Site Model**  
**Tipperary Town Closed landfill**

**Not to scale**



### **Conclusions - Tipperary Town**

The highest risks associated with the closed landfill in Tipperary Town are associated with leachate migration to surface water drains and also the risks presented by landfill gas to the users of the site. The risk from leachate migration to other receptors is considered moderate to low due to the size of the landfill (<5 hectares) and the lack of protected areas in the vicinity of the landfill.

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## 5.0 References

1. Archaeological Test Trenching & Assessment Report at Carrownreddy, Co. Tipperary, Aegis Archaeology Limited, May 2005
2. Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal Sites, Environmental Protection Agency, 2007
3. A Review of the Environmental Risk Associated with the Municipal Waste Landfills in South Tipperary; Fehily, Timoney & Company, December 2007
4. Hydrogeological Assessment of the Carrick on Suir Landfill, Fehily Timoney & Company, March 2001
5. Tipperary Town and Environs Development Plan 2007

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## Tipperary Walkover Survey Checklist & Photographic Survey 21/08/2007




Checklist Questions	Checked	Comment (include distances from site boundary)
1. What is the current land use?	√	Tipperary Area Depot – storage of materials, equipment etc and unauthorised deposition of waste materials
2. What are the neighbouring land uses?	√	North – marsh area West – Agriculture; horses grazing. South – Agriculture; horses grazing & local access road East – Agriculture; horses grazing (zoned for light industrial development up to site boundary, residential development 200m NE)
3. what is the site size?	√	Unlined - ~1.8 hectares
4. What is the topography?	√	Closed landfill is elevated above surrounding fields ~2-3m
5. Are there any potential receptors?	√	Yes
Houses		200m north east of site under construction
Surface water features		Land drain north of site
Any wetland or protected area		Marsh area north of site
Public water supplies		Public water supply at Cordangan >1 km
Private wells		None known
Services		None
Other buildings		Yes, Area depot storage building & portacabin
Other		None
6. Are there any sources of potential contamination?		Yes
Surface waste		Yes – C&D, waste tyres, household waste, WEEE etc
Surface ponding of leachate		None observed – could not access fenced off area
Leachate seepage		None observed
Landfill gas odours		None observed
7. Are there any outfalls to surface water?	√	Land drains through marshy area
8. Are there any signs of impact on the environment?	√	Not possible to determine whether any impacts on the environment are from the current use of the site or the past use.
Vegetation die-off		Not possible to determine due to deposited waste
Leachate seepages		None observed
Odours		None observed
Litter		Yes
Gas bubbling through water		None observed
Signs of settlement, subsidence, water logged areas		Not possible to determine due to deposited waste
Drainage or hydraulic issues		None observed
Downstream water quality appears poorer than upstream water quality		Not noted.
9. Are there any indications of remedial measures?	√	
Capping		Part of the area used by the has a concrete base
Landfill gas collection		None

Checklist Questions	Checked	Comment (include distances from site boundary)
Leachate collection		None
10. Describe fences and security features (if any).	√	Partially fenced; southern boundary & part of eastern & western boundaries

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# Tipperary Town – Closed landfill

	
<p>Entrance</p>	<p>Waste materials at site, storage building &amp; portacabin in background</p>
	
<p>Fenced off area where sewage sludge was deposited (in background)</p>	<p>Waste materials at site</p>
	
<p>Waste materials at site</p>	<p>Waste materials at site</p>

 <p>Marsh area to north of landfill</p>	 <p>View of landfill from adjacent land</p>
 <p>View of landfill from adjacent land</p>	

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