



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

TIPPERARY TOWN HISTORICAL LANDFILL REMEDIATION

PLANNING AND ENVIRONMENTAL REPORT

Prepared for:
Tipperary County Council



Comhairle Contae Thiobraid Árann
Tipperary County Council

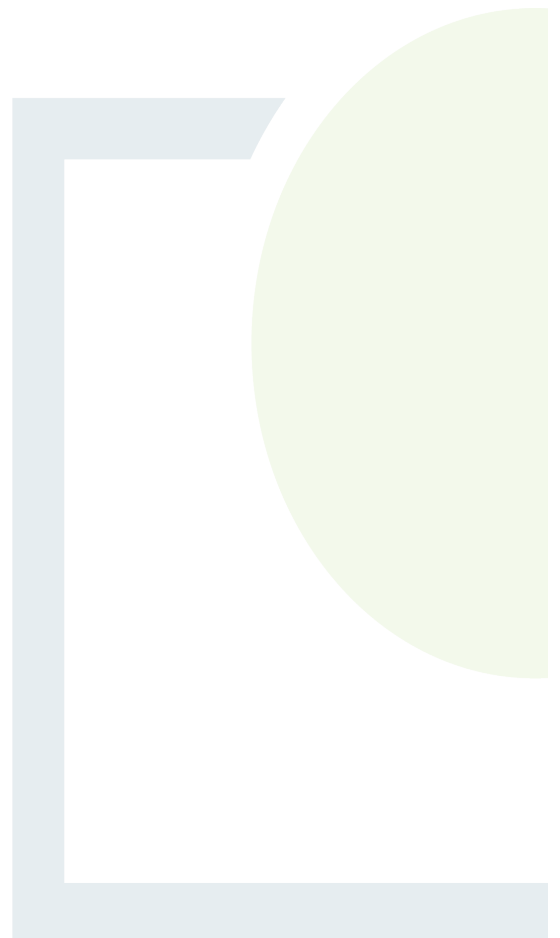
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TIPPERARY TOWN HISTORIC LANDFILL REMEDIATION

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Abstract: This document consists of a Planning and Environmental Report and has been developed in support of a Section 177AE application to An Bord Pleanála for approval of the Tipperary Town Historic Landfill Remediation project. The document reports on the Planning and Environmental considerations associated with the project.

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1. INTRODUCTION

1.1 Background

Fehily Timoney and Company (FT) have been engaged by Tipperary County Council to prepare a Section 177AE Appropriate Assessment Application to An Bord Pleanála for the Tipperary Town Historic Landfill Remediation project.

A Tier 1, Tier 2 and Tier 3 Risk Assessment has been carried out for the historic landfill in accordance with the EPA's Code of Practice: Environmental Risk Assessment for Unregulated Waste Disposal. Tipperary County Council subsequently applied for a Closed Landfill Certificate of Authorization (CoA) from the Environmental Protection Agency (EPA) and Certificate of Authorization Ref: H0004-01 was issued for the site on 6th February 2019. Tipperary County Council propose carrying out the Tipperary Town Historic Landfill Remediation project on the back of and in accordance with this Certificate of Authorization.

An Appropriate Assessment Screening Report was completed for the proposed project. This report concluded that in the absence of mitigation measures (which have not been considered at this screening stage), likely significant effects on the qualifying interests of Lower River Suir SAC cannot be ruled out on the basis of objective scientific information. A Stage 2 Appropriate Assessment (Natura Impact Statement) of the potential impact on the Lower River Suir SAC was therefore required. This Stage 2 Report has been completed.

Given a Stage 2 Appropriate Assessment (Natura Impact Statement) is required for the project, approval for the project must be sought from An Bord Pleanála under Section 177AE of the Planning and Development Act, as amended. A Section 177AE application has therefore been prepared for the project. This document consists of a Planning and Environmental Report and has been developed in support of a Section 177AE application to An Bord Pleanála for approval of the Tipperary Town Historic Landfill Remediation project. The document reports on the Planning and Environmental considerations associated with the project and has been laid out as follows:

- Section 2 - Site and Project Description
- Section 3 - Planning Considerations
- Section 4 - Conclusions

1.2 Accompanying Documents

The following documents accompany this document and the Section 177AE application for the project generally:

1. **An EIA Screening Assessment Report** (Reference: P0563 Tip Town EIA Screening) - This assessment was carried out to determine whether an Environmental Impact Assessment Report in accordance with Directive 2014/52/EU is required for the project. This document involved an examination and an assessment of potential environmental impacts having regard to proposed environmental mitigation measures. It was determined that neither a Mandatory EIAR nor Sub-threshold EIAR are required for the project.



The following relevant documents are appended to the EIA Screening Assessment Report:

- Appendix 1: Certificate of Authorisation (Licence number:H0004-01)
2. A **Natura Impact Statement** (Reference: P2246 NIS) – This assessment was carried out to determine whether the project is likely to have a significant effect on a European (Natura 2000) site, either individually or in combination with other plans or projects. This assessment concluded on the basis of objective scientific information, the proposed development will not, either alone nor in combination with other plans or projects, adversely affect any European (Natura 2000) site. The following relevant documents are appended to the Natura Impact Statement Report:
- Appendix 1: Certificate of Authorisation (CoA) (Licence number: H0004-01)Appendix 2: ERA’s in support of CoA Application to the EPA
 - Appendix 3: EPA AA Screening determination
 - Appendix 4: Aquatic Ecology Report
 - Appendix 5: Invasive species Management Plan, Invasive species treatment and monitoring
 - Appendix 6: Water quality monitoring 2010-2015
 - Appendix 7: European 2000 site synopses
 - Appendix 8: Finding of no Significant Effects Report
3. A **Construction Environmental Management Plan** (Reference: P0563_CEMP) – This document reports on the Environmental Management Plan (which defines development works environmental mitigation measures), Health and Safety Plan and Emergency Response Procedures to be adopted and implemented during the construction phase of the proposed development. The following relevant documents are appended to the Construction Environmental Management Plan:
- Appendix 1: Certificate of Authorisation (Licence number: H0004-01)
 - Appendix 2: Invasive Species Management Plan



1.3 1.3 Accompanying Drawings

The following drawings accompany this document and the Section 177AE application for the project generally. These drawings have been enclosed with the Section 177AE Planning Application.

Drawing No.	Drawing Title
P0563-0000-0001	Drawing Schedule
P0563-0100-0001	Site Location Map
P0563-0100-0002	Existing Site Survey
P0563-0100-0003	Land Folio Map
P0563-0100-0004	Demolition and Site Clearance Plan
P0563-0100-0005	Existing Site Monitoring Infrastructure
P0563-0100-0006	Proposed Landfill Capping Area
P0563-0100-0007	Proposed Landfill Capping Formation Level
P0563-0100-0008	Proposed Restoration Contours
P0563-0100-0009	Proposed Geogrid Layout
P0563-0100-0010	Proposed Cut and Fill Plan
P0563-0100-0011	Sections A-A, B-B, C-C AND D-D
P0563-0100-0012	Tracks, Fence and Parking Layout
P0563-0100-0013	Proposed Locations for Japanese Knotweed Burial
P0563-0100-0014	Proposed Site Layout Plan
P0563-0100-0015	Proposed Temporary Works
P0563-0500-0001	Proposed Sub Surface and Surface Water Drainage System
P0563-0700-0001	Proposed Passive Gas Collection System
P0563-0900-0001	Detail Sheet 1: Section A-A
P0563-0900-0002	Detail Sheet 1: Sections B-B and C-C



1.4 Description of the Site

The subject landfill is a historic landfill having received waste from Tipperary Town from the 1940's to c. 1990. Waste deposited at the site is understood to comprise of municipal and commercial wastes to depths of approximately 9 m to 12 m. Tipperary Town Council currently uses part of the site as a depot for the storage of road maintenance materials and machinery. Other lands adjoining the site are primarily associated with low intensity agriculture.

The historical landfill site is in the townland of Carrownreddy, immediately north of Tipperary town, partially within a wetland surrounded by agricultural lands adjacent to the town. The site is accessed from the east via the Carrownreddy road L-8217, which is a cul de sac accessed from the R661. The most proximate residential dwellings to the subject lands are located to the west of the site, along the eastern and western sides of the R497, the closest being within approximately 205 m west of the western site boundary. Springfield Grove residential estate is located approximately 260 m north-east of the northern site boundary.

The historical landfill consists of a mound which rises out of a natural hollow, part of which has been infilled with waste. The land to the west, east and north is noticeably lower, with the mound of waste, which is now mainly capped with a soil cover material. Surface profiles fall steeply towards the surrounding wetland and its edges.

The basin is fed from the west by the Fidaghta stream. Surface water accumulates in the basin surrounding the landfill mound, which is dominated by marsh and alder woodland. Part of the area now occupied by the landfill is shown on historical 6 inch mapping (1837 – 1842) as a waterbody with emergent vegetation called Carrownreddy Lough.

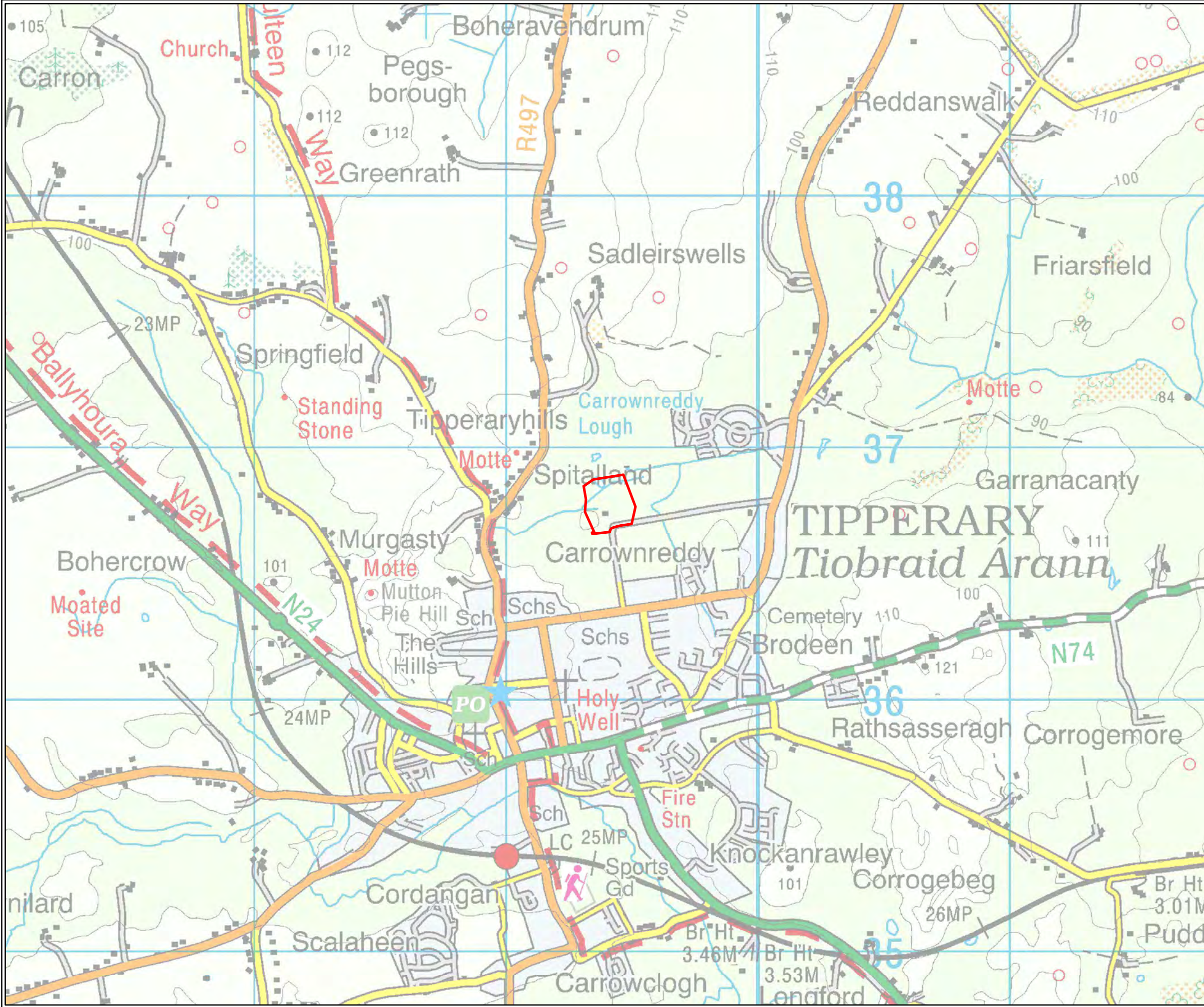
The soil underlying and surrounding the landfill mound is peat varying between 1-3m deep; beneath this, a stratum of clay forms an impermeable layer.

The Tipperary Town and Environs Development Plan 2013-2019 shows that a Recorded Monument is present on-site (Enclosure RMP No. TS 067-003). An archaeological impact assessment undertaken in 2005 by AEGIS Archaeology states however that 'although the site is located within the zone of potential interest, and in fact is on top of the archaeological site T1067-003---, *a possible enclosure, the testing results suggest that the possible enclosure is no longer extant (if indeed one existed on the site) and is now covered in a substantial depth of fill.*' This remains the case on-site.

A Site Location Map drawing showing the site and its immediate environs is enclosed with this planning application (Drawing Reference: P0563-0100-0001).

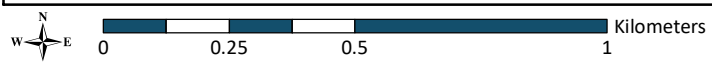
A site location map showing the site relevant to its wider context inclusive of surrounding land uses is shown in Figure 1-1 overleaf.

A Land Folio Map showing ownership details for the site and surrounding lands is enclosed with this application also (Drawing Reference: P0563-0100-0003).



— Landfill Boundary

TITLE:	
Site Location	
PROJECT:	
Tipperary Town Historical Landfill Remediation	
FIGURE NO:	
1.1	
CLIENT:	
Tipperary County Council	
SCALE:	REVISION:
1:15000	0
DATE:	PAGE SIZE:
09/11/2022	A3





2. PROJECT DESCRIPTION

2.1 Project Description

2.1.1 Overview Description of the Project

The proposed development (for which planning permission is sought) is as follows:

- *Development of a temporary site compound on the proposed engineered capped development and a temporary office location removed from the engineered cap within the site boundary.*
- *Demolition of existing structures including an existing agricultural building, concrete walls and post and wire fencing.*
- *Clearance of dense vegetation and tree felling.*
- *Grading/profiling of existing profile.*
- *Installation of an engineered landfill capping system to include: a landfill gas venting system, an LLDPE Barrier, a sub-surface drainage system, a geogrid layer, sub-soil and topsoil layers, a surface water drainage system, an access track and a shared access way to adjoining third party lands, fencing, a car park area, temporary works/mitigation measures security fencing, landfill gas/leachate management infrastructure, landscaping and an anchor trench/gas barrier.*

A Site Layout Plan showing the layout of the above project elements is enclosed with this planning application (Drawing Reference: P0563-0100-0014 identifies features that will be identifiable once the capping project is complete. Drawing references P0563-0100-0009, 0013 and 0015 show other features used during construction and works that are buried).

The following will be carried out on-site following on from completion of the proposed development works.

- *Ongoing Environmental monitoring.*
- *Oxidation of Methane in Landfill Gas.*
- *Maintenance of engineered cap on-site.*
- *Maintenance of surface water drainage system on-site.*

The application site defined by the red line boundary in accompanying drawings is 3.57 ha in size. The proposed capping area within the application site proposed is 2.29 ha in size.

It should be noted at this stage of the report that the 'construction' phase of the project relates to the remediation 'works' to be undertaken in the case of a closed landfill, as well as enabling works, and the 'operational' phase of the project relates to the post remediation stage inclusive of ongoing monitoring and maintenance/aftercare.

2.1.2 Purpose of / Rationale for the Project

Tipperary County Council is responsible the remediation of Tipperary Town Landfill, located in the Townland of Carrownreddy, Tipperary Town. The landfill is a historic landfill having received waste from Tipperary Town from the 1940's to c. 1990.



Waste deposited at the site is understood to comprise of municipal and commercial wastes to depths of approximately 9 m to 12 m. Tipperary Town Council currently uses part of the site as a depot for the storage of road maintenance materials and machinery.

Other lands adjoining the site are primarily associated with low intensity agriculture. A swamp/wetland area surrounds the site on all sides except along the southern boundary and along part of the south-eastern boundary.

The EPA issued a Certificate of Authorisation (CoA) for the site on the 6th of February 2019 (Licence number: H0004-01). Condition 3 of the CoA requires TCC to implement remediation works to this historic landfill in order to ensure “..proper closure of the activity ensuring protection of the environment”. The CoA is issued under Regulation 7 (6) of the Waste Management (Certificate of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations 2008. The purpose of the proposed remediation works is to implement CoA Condition 3.

Construction of an engineered cap is required to isolate the waste body from rainfall inputs which contribute to leachate generation which has the potential to contaminate surface and groundwaters. The proposed engineered cap will also be designed to mitigate the risk of landfill gas migration.

2.1.3 Construction phase

The final remediation plan, based on an earlier draft remediation plan submitted to the Agency under a Tier 3 assessment (O’Callaghan Moran & Associates, 2011) to remediate the existing historic landfill site, is in compliance with CoA Condition 3 and will be subject to EPA approval.

The estimated duration of works is 6-8 months. It is estimated that approximately 20 construction staff will be tasked with implementing the works over the course of the construction phase and three 25 tonne excavators will be utilized for the reprofiling.

A detailed design will be prepared for the works prior to commencement. The works will take place in accordance with a Construction Environmental Management Plan.

The remediation works will include:

- Development of a temporary site compound on the proposed engineered capped development and a temporary office location removed from the engineered cap within the site boundary.
- Demolition of existing structures including an existing agricultural building, concrete walls and post and wire fencing.
- Clearance of vegetation and tree felling.
- Grading/Profiling of Existing Profile.
- Installation of an engineered landfill capping system to include: a landfill gas venting system an LLDPE Barrier, a sub-surface drainage system, a geogrid layer, sub-soil and top soil layers, a surface water drainage system, an access track, fencing and car park area, security fencing, landfill gas/leachate management infrastructure, landscaping and an anchor trench/gas barrier.

2.1.3.1 *Development of Temporary Site Compound and Office Area*

The temporary site compound covering a plan area of c. 200 m² shall comprise a materials storage area on the proposed engineered cap footprint and site offices and a parking area (100 m²) removed from the engineered cap.



The material storage compound will be founded on existing formations (comprising granular fill and concrete bases) located adjacent to the existing building on-site. Site offices in the form of portacabins for and site canteen/welfare facilities (contractor and employers representatives) will also be provided to the south west of the site (outside the footprint of the landfill area). These portacabins will be removed from the site upon completion of the works to facilitate any future use of lands for residential purposes.

The site offices and canteen/welfare facilities areas shall be founded on a small area that will be levelled, compacted and overlaid with gravel surfacing.

Domestic wastewater from the welfare facilities will be stored in a temporary above ground tank prior to disposal at a licensed facility.

Power to the site will be provided via electricity mains. Generators will be used on-site to supplement power requirements where necessary during the temporary works. There is no water supply to the site presently. Water will be provided via road tanker. There is no foul drainage network present on-site. Where excavations contain liquid leachate, this liquid will be directed to a temporary leachate holding tank in the form of an IBC before being removed from the site via road tanker and sent to an authorized wastewater treatment facility.

An Existing Site Survey drawing showing the locations of the proposed materials storage compound and proposed contractors compound is enclosed with this planning application (Drawing Reference: P0563-0100-0002).

2.1.3.2 Demolition of Existing Structures including an Existing Agricultural Building, Concrete Walls and Post and Wire Fencing

Structures associated with the existing site usage will be demolished as part of the site works. Structures to be demolished will include the existing agricultural style portal frame building used for salt storage and the adjacent and on-site concrete walls and concrete post and wire fencing. All above ground structures will be demolished and dispatched to an appropriately authorized waste facility for management. Concrete bases and foundations will be retained, and the proposed cap will be constructed over same. Recovered steel materials will be disposed at a licensed facility for re-use.

A Demolition and Site Clearance Plan enclosed with this application shows the existing structures on-site that will be demolished and removed from the site (Drawing Reference: P0563-0100-0004).

2.1.3.3 Clearance of Dense Vegetation and Tree Felling

A number of areas of dense vegetation which are situated centrally on-site will be cleared during the works. In addition tree lining situated along the northern and western perimeters of the site which consist of scrubland will be felled.

A Demolition and Site Clearance Plan enclosed with this application shows the areas of dense vegetation that will be cleared from the site and the areas of tree lining that will be felled during the works (Drawing Reference: P0563-0100-0004).

An Invasive Species Management Plan will be implemented during the works.

Preliminary surveys in May 2018 had identified the presence of invasive species at the site. Treatment and eradication of invasive species began in autumn 2018 and is currently ongoing. Monitoring is carried out on a bi-annual basis.



Following successful treatment of invasive species it is proposed to excavate materials containing roots, encapsulate them in a 0.7 mm visqueen barrier and to bury them with a minimum 2.0 m cover within a dedicated “fill” location within the waste body prior to placing the engineered cap.

The Proposed Locations for Japanese Knotweed Burial is shown in a drawing enclosed with this planning application (Drawing Reference: P0563-0100-0013).

2.1.3.4 *Grading/Profiling of Existing Profile*

The existing waste body was covered following cessation of waste filling, with an intermediate cap comprising of soil materials. The existing profile is uneven with steep side slopes.

The existing finished surface will require re-profiling to facilitate:

- Safe execution of the site remediation works
- Long term slope stability of side slopes
- Safe access for maintenance of the cap.

Re-profiling will principally involve the (shallow) cutting of material at the top of side slopes, at local high spots and of material containing invasive species. These “cut” materials will be used as “fill” in local depressions. All cut and fill works will be carried out within the site boundary.

Average side slopes will be profiled to a slope of 1:3. Side slopes will not be allowed to exceed 1:2.5. It is proposed to retain where possible the existing profiles, in particular those less than or equal to 1:2.5.

Thereafter imported granular “dust” material 50 mm to 100 mm thick will be used provide a formation for the engineered cap.

The re-profiled surface will be domed and designed to facilitate installation of the engineered cap.

The following drawings which are enclosed with this planning application show the proposed restoration contours and cut and fill plans.

- Drawing Reference: P0563-0100-0008 - Proposed Restoration Contours.
- Drawing Reference: P0563-0100-0010 - Proposed Cut and Fill Plan.

Cross-sectional drawings showing the proposed re-profiling are shown in the following drawing which is also enclosed with this planning application.

- Drawing Reference: P0563-0100-0011 – Sections A-A. B-B. C-C and D-D.

2.1.3.5 *Installation of Engineered Landfill Capping System*

The engineered landfill cap “barrier” system will:

- Isolate the waste body from rainfall inputs which might otherwise produce leachate. This will protect underlying ground water and adjacent surface waters.



- Minimise the potential for uncontrolled landfill gas migration to the atmosphere or adjacent lands.
- Provide a physical barrier between the finished surface and buried wastes.
- Facilitate controlled discharge of surface water runoff and sub surface drainage flows into the receiving surface waters.

The cap shall comprise and is described under the following headings:

- A passive below liner landfill gas venting system.
- A LLDPE barrier.
- A subsurface over liner drainage system discharging to a surface drainage system.
- A geogrid on side slopes to support soil on side slopes.
- A subsoil layer average thickness 850 mm.
- A topsoil layer average thickness 150 mm barrier.
- A surface drainage system discharging into the adjacent watercourses.
- Access track.
- Temporary works.
- Security fencing.
- Landfill gas and leachate infrastructure.
- Landscaping
- Anchor trench.

The following drawings which are enclosed with this planning application show the proposed landfill capping area and formation level.

- P0563-0100-0006 - Proposed Landfill Capping Area
- P0563-0100-0007 - Proposed Landfill Capping Formation Level

The following drawings which are enclosed with this planning application provides cross-section details on the proposed landfill cap:

- P0563-0900-0001 - Detail Sheet 1: Section A-A
- P0563-0900-0002 - Detail Sheet 1: Sections B-B and C-C.

Passive Below Liner Landfill Gas Venting System

Currently landfill gas as may be present vents gas to atmosphere via diffuse surface emissions. Once the LLDPE barrier is installed this preferential pathway to atmosphere will be isolated.

Below the LLDPE barrier a gas collection geocomposite and pipework system will be constructed to collect and direct landfill gas as may be present to controlled venting outlets to allow venting and/or oxidation of landfill gas as may be present to atmosphere.



The below liner gas collection geocomposite will be a cusped synthetic product or similar that is rolled out above the granular “dust” material overlying the re-profiled intermediate cap which overlies the waste. The gas collection geocomposite forms a “cavity” to intercept gas emissions from the underlying body.

The gas will be transferred via a supporting pipework system to elevated locations around the site to allow monitoring and passive venting of landfill to atmosphere. The underliner gas collection pipework will also connect into existing monitoring boreholes installed within the waste body.

Venting of gas will, subject to gas flow and quality, be allowed to vent to atmosphere either via a carbon filter located on one or more pipe stacks terminating 3-4 m above ground level or via a surface mounted biological filter constructed on the 1.0 m cap. The carbon filter if used will prevent odours being vented to atmosphere. The biological filter if used will prevent odours being vented to atmosphere and will oxidise methane if present.

A Proposed Passive Gas Collection System showing details of this system has been enclosed with this planning application (Drawing Reference: P0563-0700-0001)

Linear Low Density Polyethylene Barrier

The linear low density polyethylene (LLDPE) barrier will be a 1.0 mm thick “plastic” sheet that is impermeable to both water and gas. It will prevent gas escaping into the overlying soils and stops water from rainfall entering the underlying waste body.

The LLDPE sheets will be welded at joints.

Subsurface Drainage Over Liner Drainage System

The over liner sub surface drainage collection geocomposite will be a cusped synthetic product or similar that is rolled out above the LLDPE barrier. It will form a “cavity” to intercept rainfall inputs into the cap. Subsurface drainage flows from the drainage geocomposite will be transferred via a supporting pipework system to a surface drainage system at the toe of the cap and ultimately to the downstream watercourse.

A drawing showing the proposed subsurface drainage system is enclosed with this planning application (Drawing Reference: P0563-0500-0001).

Geogrid on Side Slopes

Following installation of the surface drainage geocomposites, a geogrid will be installed to support placement of subsoil materials on side slopes.

A drawing showing the proposed geogrid layout enclosed with this planning application (Drawing Reference: P0563-0100-0009).

Subsoil Layer

Suitably sourced subsoils (850mm) will then be imported to the site and placed atop of the sub surface drainage geocomposite and /or geogrid on side slopes.

The purpose of the subsoil layer will be to protect the synthetic geocomposite materials and to support landscaping.

Topsoil Layer

Suitable sourced topsoil (150 mm) will be placed atop the sub soil. The topsoil will have stones greater than 50 mm diameter removed by a proprietary stone picker or similar prior to seeding.



Surface Drainage System

The topsoil will have shallow grassed surface drainage swales that will direct surface water runoff to the receiving watercourses. The swales shall be constructed at grades between 1:50 and 1:100 to mitigate the risk of erosion. Final swale locations will be subject to finished profiles and layouts shown on drawing are indicative.

A drawing showing the proposed surface drainage system is enclosed with this planning application (Drawing Reference: P0563-0500-0001).

Access Track

Placement of a 1.0 m thick cap requires a stable toe formation and placement of the subsoil materials must commence at the bottom of the side slopes and progress upwards in order to protect the integrity of the underlying synthetic materials.

The wetland area to the north of the landfill is currently unable to provide a stable formation for the 1.0 m thick cap. It is proposed to place c. 2,250 m³ of granular fill over a separation membrane and geogrid above and within the existing wetland substrate to provide a stable formation for the cap and a perimeter track around the toe of the landfill to facilitate placement of imported capping materials. The track will be approximately 5.0 m wide; thickness will be approximately 1.0 m and length approximately 450 m long. The track finished profile will be at or below the existing water level depending on runoff flow from the cap and adjacent lands. In the event that prevailing site conditions do not support dumper trucks carrying soil materials, temporary works using sheet piles may be required, see below. This method of work has been selected to negate the need for excavating into the wetland in order to minimise disturbance and formation of suspended solids.

The new access track will

- Provide a foundation for side slope materials.
- Facilitate installation of the slit trench gas barrier.
- Facilitate placement of soil materials on the side slopes of cap.
- Facilitate access to and / or maintenance of the cap and adjacent wetland low flow channel (located outside the perimeter road) post cap construction.

Following re-profiling this 5.0 perimeter access track and adjacent works outside the fence will extend on average 10 m and up to a maximum of 15 m into the surrounding swamp (comprised of both reed and large sedge swamps [FS1] and wet willow-alder-ash woodland [WN6] Fossitt habitat types) from the base of the landfill mound. Vegetation on the existing side slopes and wetland will be cleared to facilitate construction of the engineered cap.

The access track will be constructed progressively above the wetland by placing aggregate on a separation membrane and allowing the track to settle onto the wetland minimising disturbance soils and resultant sediment mobilisation.

Fencing covering the perimeter of the access track and the southern section of the site will be developed on-site. A permanent parking area will be developed to the south of the site just past the site entrance. A Tracks, Fence and Layout Parking drawing enclosed with this application shows the layout and arrangement of proposed tracks and fencing and the parking area (Drawing Reference: P0563-0100-0012).



A strip of land will also be acquired from land folio TY51557F and will be developed as an access way to facilitate permanent, shared and independent post construction access way to adjoining third party land folios TY278848 and TY51557F. This access way will be surfaced with a granular material.

Temporary Works

Temporary settlement/silt ponds will be provided on-site during the works. Three settlement/silt ponds will be placed around the perimeter of the landfill side slopes and stockpiles of imported material over the course of the works.

Silt fencing will also be installed around the perimeter of the landfill side slopes to prevent the discharge of silt laden stormwater off-site.

The installation of temporary sheet piles may also be required along the northern perimeter of the work area, subject to prevailing site conditions, to facilitate drainage and placement of the engineered barrier materials, associated pipe infrastructure, gas barrier at the toe of the side slopes, fencing, access and placement of suitable soil fill on side slopes.

Sheet piles if used will require steel sheets 3 m to 5 m long will be placed and extracted using a 360-degree excavator with a vibrating head attachment or similar.

If excavations contain leachate, dewatering discharges will be directed to a temporary leachate holding tank in the form of an IBC which will be provided at the contractor's compound over the course of the works. These tanks will be regularly replaced once they become full. The contents of these tanks will be regularly collected from the site and disposed of at an appropriately authorized wastewater treatment facility.

It is not yet known whether dewatering is required, and if so, how much dewatering is required. If dewatering is required, water will be pumped into the onsite drainage network which will discharge to proposed temporary settlement ponds to remove suspended solids prior to discharge to receiving surface waters. If dewatering is required to remove surface water ingress from the adjacent swamp to facilitate placement of services, localised pumping may be required to pump water back into the swamp outside this sealed area.

Detailed design drawings showing the required mitigation measures to be adopted during the project will be developed. Mitigation measures, as required, will be installed prior to the commencement of works, as required.

A Proposed Temporary Works drawing depicting the temporary works that will be or may be installed on-site as the case may be adjoins this planning application (Drawing Reference: P0563-0100-0015).

Security Fencing

Following placement of the cap a perimeter palisade fence 2.0 m high will be installed around the landfill footprint.

Installation of Landfill Gas/Leachate Management Infrastructure

Existing wells within and external to the landfill footprint will be used to monitor gas and leachate qualities.

Existing wells will have a chamber atop the wells at the same elevation as the surrounding ground.



The EPA will require regular monitoring of landfill gas quality. Subject to gas quality at venting locations landfill gas will either be vented to atmosphere via a carbon filter, (most probable based on observed gas quality as of 2020) or vented to atmosphere via a biological filter if elevated methane concentrations are observed to increase following installation of the LLDPE barrier.

The activated carbon filter will remove odours if present.

Landscaping

Figure 2-2 shows an artist's impression of the final cap. Post capping and placement of the subsoils and topsoil layers it is proposed to landscape the site using an amenity wildflower grass cover. The cap will also make provision for an internal hardcore track to facilitate access to the perimeter track at the toe of the landfill and a small parking area for council staff conducting maintenance and monitoring as may be required. Grass will be used to prevent erosion of the soils and to provide an attractive final appearance similar to surrounding land use.

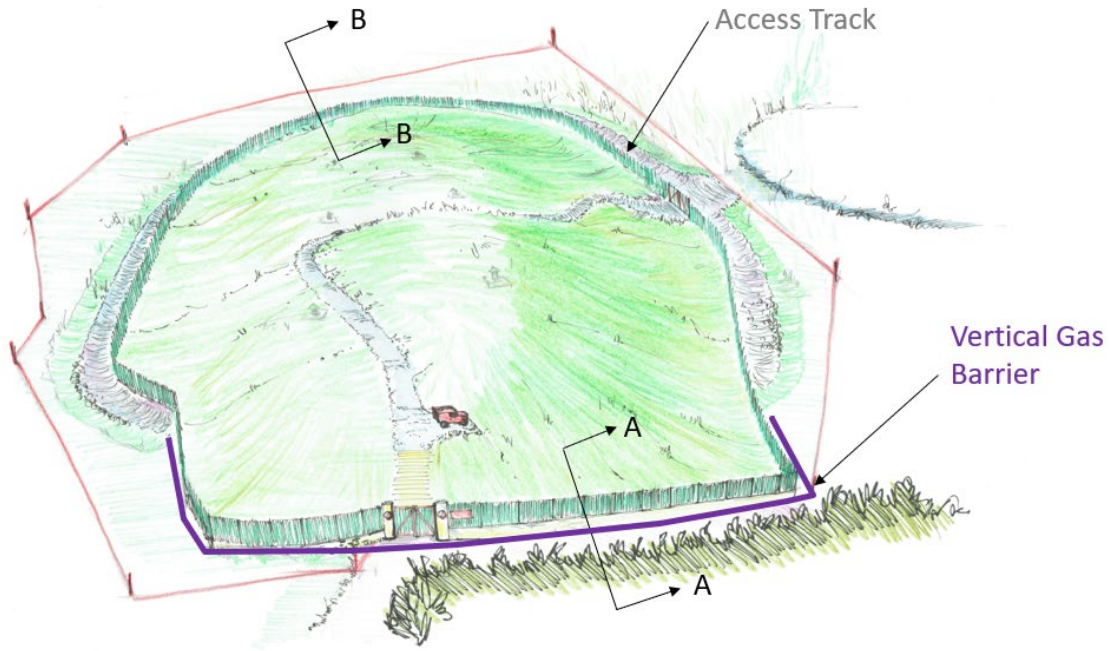


Figure 2-1: Artist Impression of the Proposed Development

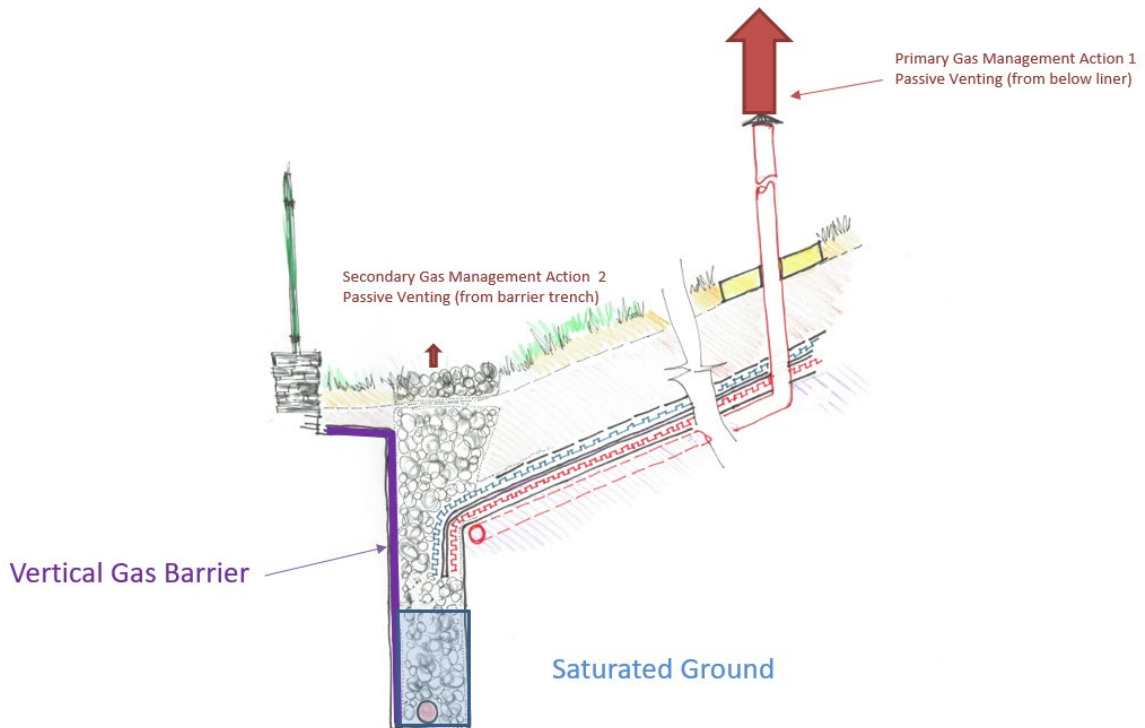


Figure 2-2: Artist Impression Section AA at front of site

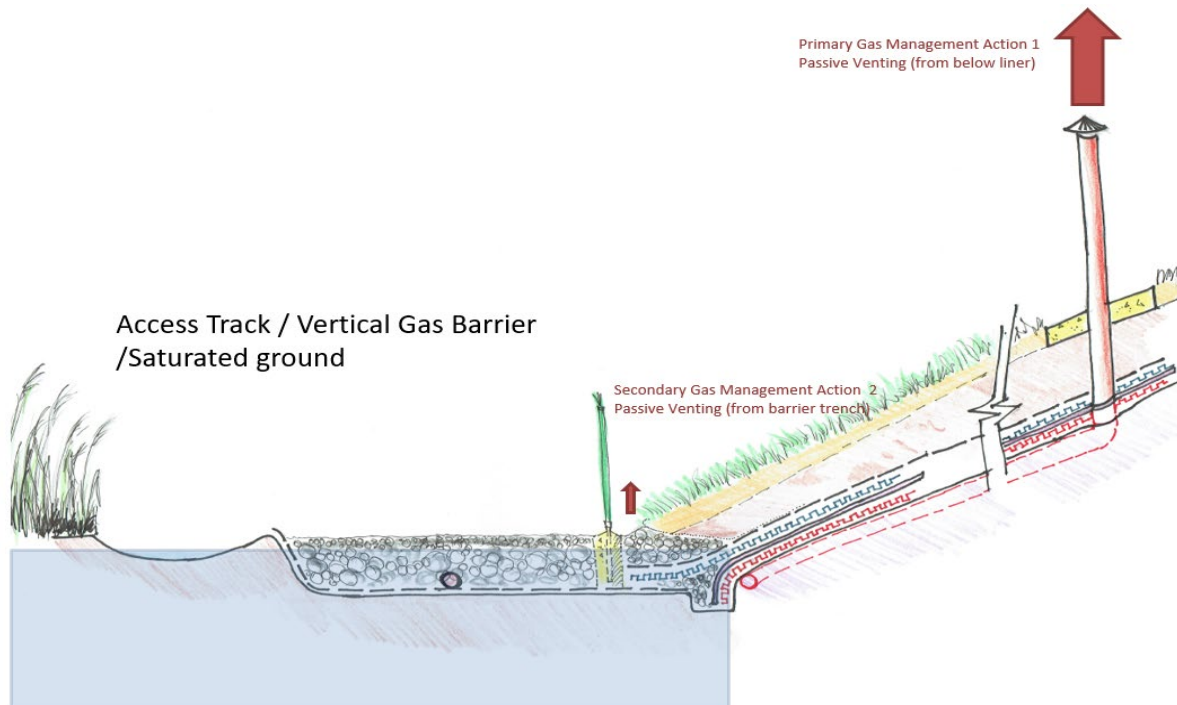


Figure 2-3: Artist Impression Section BB at back of site

Installation of Anchor Trench/Gas Barrier

Figure 2-3 shows a typical section AA through the toe of the landfill side slope at the front of the site. It will comprise: an anchor trench, a gas barrier and a perimeter boundary fence. The section shows that the primary gas mitigation measure will be to intercept gas using the underliner gas collection geocomposite and to convey this gas via a pipe system to elevated points on the landfill for passive venting via a carbon filter. This system provides a preferential path for landfill gas venting.

The water at the base of the perimeter boundary fence will also provide a barrier to off-site gas migration.

The anchor trench will be required around the boundary of the entire landfill to anchor the proposed engineered cap. The depth of the anchor trench will typically be 600 mm. The anchor trench will also contain gas collection pipework below the LLDPE barrier and subsurface drainage pipework above the LLDPE barrier.

The gas barrier “slit” trench is a secondary “insurance” gas mitigation measure. It is a perimeter venting trench with a LLDPE vertical gas barrier located on the outside of the perimeter trench. This “insurance” measure is a backup to mitigate further the risk of gas migration off site in the unlikely event that the passive under liner gas system becomes compromised. The “slit” trench excavation inverts will vary between 1 and 3 m below existing ground level and will be filled with stone and allowed to become saturated with water.

Figure 2-4 shows a typical section at the toe of the landfill side slope at the rear of the site. At this location groundwater is at or close to the surface. The perimeter track post construction is designed to saturate the base of the perimeter slit trench with water. Water with a free surface to atmosphere allows venting of landfill gas to atmosphere and acts as a natural barrier mitigating the risk of off-site landfill gas migration.



2.1.4 Operational / Post Construction phase

2.1.4.1 *Environmental Monitoring*

There will no operational activities associated with this site other than conducting environmental monitoring. A plan showing existing site environmental monitoring infrastructure is enclosed with this application (Drawing Reference: P0563-0100-0005).

2.1.4.2 *Oxidation of Methane in Landfill Gas*

At present venting to atmosphere of landfill gas and oxidation of methane occurs naturally via the existing soil cap. Once a LLDPE barrier is installed gas as may be present will be directed via the underliner gas pipe system to vent stack locations. The design will make:

- Provision for passive venting of landfill gas to atmosphere via vent stacks.
- Provision if required in the future for oxidation of methane if required.

In the unlikely event that oxidation of methane will be required in the future, provision will be made to allow future excavations 5.0 m* 5.0 m * 1.0 m deep into the cap at gas venting locations to be infilled with a bespoke wood chip biological filter material. Provision will be made in the cap design at designated venting locations for a 100 mm reinforced concrete plinth to be constructed over the sub surface drainage geocomposite the cap This will allow local excavation and infill with wood chip material, if required in the future, to occur without damaging the barrier system.

The biological filter, if required, will be placed above the barrier and adjacent to supply pipework to the vent stack. The wood chip filter will be approximately 1.0 m deep and will have a surface finish co-incident with the cap surface. If oxidation is required the valve on the vent stack will be closed and gas will be directed to the underside of the biological filter using slotted drainage pipe or similar.

The biological filter will remove odours and oxidise methane if required.

A biological filter if required will be surrounded by a 1.0 m high stock proof fence.

2.1.4.3 *Maintenance of Cap*

The amenity grass cover will require maintenance. This may be provided by grazing and or by mowing.

2.1.4.4 *Maintenance of Surface drainage*

The perimeter track adjacent to the constructed drainage channel in the wetland is designed to facilitate future mowing, if required, of the low flow drainage channel which is designed to provide a preferential path for low surface water runoff flows from the upstream catchment.

Surface water swales may also require remedial works in the event that settlement or erosion compromises channel integrity. Normally tracking with an excavator is sufficient to seal settlement cracks as may develop.

Sub surface drainage pipes may require periodic jetting of pipes if they become compromised with roots or silt.



3. PLANNING CONSIDERATIONS

3.1 Relevant Planning History

Existing development at Tipperary Town Landfill was not subject to any planning process, application or grant of planning permission. The landfill commenced operations in the 1940's and is therefore 'Pre '63' Exempted Development under the Planning and Development Act, as amended.

3.2 Planning Policy Context and Project Compliance with Planning Policy

3.2.1 Tipperary Town & Environs Development Plan 2013-2019 as varied

The Tipperary Town and Environs Development Plan 2013-2019 (as varied) is the relevant statutory plan which guides the use and development of the subject site. Under the current Tipperary Town and Environs Development Plan, the majority of the application site, inclusive of the whole of the proposed capping area, is subject to zoning objective 'A – Amenity', the primary objective of which is 'To preserve and enhance Recreation and Amenity areas.' It is contended that the proposed enhanced remediation works, will aid in achieving this objective and therefore complies with the plan. North-eastern, eastern, western and north-western fringes of the site are located in areas zoned for 'Ag - Agriculture.' These areas will be retained for agricultural use once development works have been finalized. The south western corner of the site is located in an area zoned for 'R1 - Phase 2 Residential Lands.' Temporary site canteen/welfare facilities in the form of portacabins will be provided at this location during development works. These portacabins will be removed from the site upon completion of the works to facilitate any future use of lands for residential purposes.

As indicated in Section 5.13 of the Development Plan, the site of the former municipal landfill at Carrownreddy has been identified under the Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations 2008 as the site of an historic unlicensed waste disposal and recovery activity.

It is further noted that Tipperary County Council has undertaken an Environmental Risk Assessment of the former landfill and has prepared a remediation plan for the site in accordance with the Closed Landfill Certification of Authorization issued for the site by EPA.

In respect of development proposals on or within the site of the historic landfill, or within 250 metres thereof, developers must take cognizance of the status of these lands and how they are affected by the historic landfill site. In this context we note the contents of Policy Objective INF 19 stipulates the following:

INF 19: *The Planning Authority may require, as part of development proposals on or within the vicinity of the former municipal landfill site, the developer to implement mitigation measures as deemed necessary, to offset any potential risk which may result from the closed landfill. The extent of any measures required will be predicated on the status of South Tipperary County Council's remediation plan. As such the developer is required to develop such measures with South Tipperary County Council.*

The mitigation measures referred to above may include the following:

- Gas Protection Measures for houses within 250 m of the closed landfill;
- No houses to be permitted within 50 m of the closed landfill;
- No private gardens within 10 m of the closed landfill;
- Gas monitoring boreholes etc.



Tipperary County Council will have regard to the above when considering any development applications on or within the vicinity of the landfill site.

In addition to the above, the Development Plan identifies that the site of the historic landfill also comprises the site of a Recorded Monument (Enclosure RMP No. TS 067-003), noting that the Council will require that an archaeological assessment be undertaken and any required archaeological mitigation measures be implemented at the site when reinstating the lands.

In this context, we note that an archaeological test trenching and an impact assessment was undertaken by AEGIS Archaeology limited on behalf of Tipperary County Council in 2005 which provides an assessment of the archaeological features in the vicinity of the site, including any standing remains. This assessment concluded that *'although the site is located within the zone of potential interest, and in fact is on top of the archaeological site T1067-003---, a possible enclosure, the testing results suggest that the possible enclosure is no longer extant (if indeed one existed on the site) and is now covered in a substantial depth of fill.'* The assessment went on to define mitigation measures to be adopted during reinstatement works. These mitigation measures still hold relevant given the nature of the proposed works in this instance and will be adopted and implemented during the proposed works (i.e. Archaeological Monitoring during groundworks). For full details, please refer to Appendix 1 of this report which comprises a copy of the above-mentioned assessment.

3.2.2 Tipperary County Development Plan 2022 – 2028

The County Development Plan broadly supports the policy objectives defined in the Southern Region Waste Management Plan (including policy objectives relating to historic landfill remediation. The Plan states the following:

- *'It is a key objective of the Council to support the Waste Action Plan for a Circular Economy (DECC, 2020) and to support the sustainable management of waste in line with the Regional Waste Management Plan for the Southern Region 2015-2021.'*

The following Policy is defined in the Plan:

- *Policy 10-4 – 'Ensure the sustainable management of waste in line with the Regional Waste Management Plan for the Southern Region 2015-2021 (and any review thereof) in the management of new development.'*

As will be discussed in the Section 3.2.3 below, the proposed development is supportive of policy measures and objectives defined in the Southern Region Waste Management and in turn accords with the intentions and objectives of the County Development Plan.

3.2.3 Southern Region Waste Management Plan

The following Policy has been defined in the Southern Region Waste Management Plans regarding historic landfill remediation:

- **G.2 Policy** – Roll out the plan for remediating historic closed landfills, prioritising actions to those sites which are the highest risk to the environment and human health.



The following relevant Policy Actions are defined in relation to the above:

- Policy Action G.2.3 - Prepare authorization applications to the EPA for landfill sites identified in accordance with the roadmap during the lifetime of the plan (subject to Department funding being available)
- Policy Action G.2.4 - Remediate high risk sites in accordance with the plan agreed in the EPA authorization and in accordance with the requirements of the EU Habitats Directive & Water Framework Directive (subject to Department funding being available)

The progression and completion of the Tipperary Town Historic Land Remediation Project will accord with and support the Policy and Policy Actions defined above in the Southern Region Waste Management Plan. The Remediation Plan will be in accordance with the EPA's Closed Landfill Certificate of Authorization for the landfill.

There are other policies defined in the Plan relevant to the project or landfill remediation generally. The project therefore complies with this plan.

3.3 Justification for the Project

The Proposed Development will reduce environmental risk associated with the historic landfill site and will have a positive impact on the receiving environment.

The development of an engineered cap above the body of deposited waste will prevent rainwater ingress and the generation of landfill leachate on-site. This in turn will ensure greater levels of protection of the receiving environment including underlying ground and groundwater, receiving downstream surface waters (the Spital-land, Ara, Aherlow and Suir rivers) which are protected under the Water Framework Directive, and receiving European (Natura 2000) sites namely the Lower River Suir SAC which is hydrologically connected to the site and which is protected under the Habitats Directive.

It is likely that water quality of receiving surface waters will improve following the completion of the proposed development.

The proposed development will also result in the controlled management of landfill gas emissions and will prevent the release of uncontrolled landfill gas emissions, thereby contributing to improved ambient air quality in the vicinity of the landfill site.

The proposed development will reduce environmental risk on-site and support enhancing the amenity value of the site in accordance with the Tipperary Town & Environs Development Plan 2013-2019 as varied. The management and reduction of environmental risk at this historic landfill will also accord with and support policy regarding landfill remediation defined in the Southern Region Waste Management Plan.

It can therefore be seen that there is robust justification for the proposed development.

3.4 Compulsory Purchase of Lands to facilitate the Proposed Development

Several portions of land within the footprint of the development site are under the ownership of third parties. In exercise of the powers conferred upon them by Section 76 of the Housing Act, 1966, and the Third Schedule thereto (as amended by the Planning and Development Act, 2000), Tipperary County Council propose acquiring these lands through the completion of an associated Compulsory Purchase Order (CPO) in tandem with this Section 177AE planning application.



A distinct need for the CPO exists. The carrying out of the remediation works will ensure that Tipperary County Council conforms with the terms and conditions prescribed in the Certificate of Authorisation (Ref: H0004-01) for Tipperary Town Historic Landfill granted by the EPA, which was developed in accordance with the Waste Management (Certification of Historic Unlicensed Waste Disposal and Recovery Activity) Regulations, 2008.

A variety of necessary management and maintenance works connected to this remediation project will be carried out on the subject lands to be acquired. Acquiring the subject lands will also prevent third parties carrying out unforeseen works that may compromise the integrity of the landfill. The successful and effective remediation of the Tipperary Town Historic Landfill, its ongoing maintenance, and the consequent environmental benefits, can therefore only be achieved through Tipperary County Council acquiring the subject parcel of land.

Under the prospective CPO a strip of land will be acquired from land folio TY51557F to facilitate permanent, shared and independent post construction access to land folios TY278848 and TY51557F.

Comprehensive details on the prospective CPO are provided in the associated CPO confirmation request being made by Tipperary County Council to An Bord Pleanála; including mapping showing lands to be acquired ('The Deposited Maps') and a description of the nature and extent of lands to be acquired (detailed under a 'Form of CPO').

3.5 Other Significant Development Projects in the vicinity of the Proposed Development

The N24 Cahir to Limerick junction development is in the process of being designed and will be constructed in the vicinity of the development site to the north. The Project is currently at Phase 3 Design and Environmental Evaluation. A meeting between Tipperary County Council representatives and the Mid-West National Road Design Office was undertaken on the 14th of July 2022 to discuss the potential for this project interacting with the proposed development.

The following persons attended this meeting

- Kiernan McKenna, Environment & Climate Action Section, Tipperary County Council.
- Louise Ryan, Environment, Environment & Climate Action Section, Tipperary County Council.
- Eileen McCarthy, Mid-West National Road Design Office.
- Jose Plaza, Mid-West National Road Design Office.
- Lisa Harty, Mid-West National Road Design Office.
- Ian Crowley, Mid-West National Road Design Office.

The N24 Project Director Eileen McCarthy indicated the preference for the N24 route in the vicinity of the closed landfill is to be situated away from the landfill such that there will be no land take requirements conflicts between the two projects. The potential cumulative impact associated with both projects is assessed in the EIA Screening Report that accompanies this planning application.



4. CONCLUSIONS

The proposed development aligns with and supports planning policy defined in the Tipperary Town & Environs Development Plan 2013-2019 as varied and Southern Region Waste Management Plan. It is likely that that proposed development will result in significant positive environmental impacts, namely improved ground and groundwater quality underlying the site, improved water quality at receiving surface water bodies and improved ambient air quality in the vicinity of the site.

The EIA Screening Report has concluded that no element of the proposed development is likely to have a significant adverse impact on the receiving environment (with the adoption of proposed mitigation measures). A Construction Environmental Management Plan will be in place to ensure environmental protection during development works.

The Natura Impact Statement has concluded on the basis of objective scientific information, the proposed development will not, either alone nor in combination with other plans or projects, adversely affect any European (Natura 2000) site.

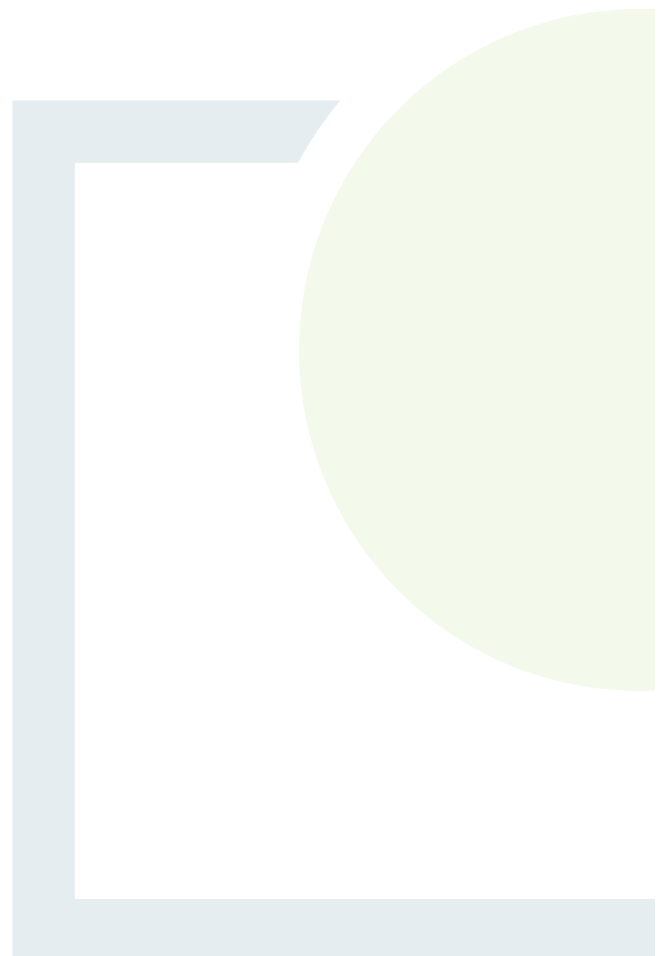
Given all of the above, the proposed development is considered to adhere to principles of proper planning and sustainable development. Therefore, the proposed development should be granted approval by An Bord Pleanála.



CONSULTANTS IN ENGINEERING,
ENVIRONMENTAL SCIENCE
& PLANNING

APPENDIX 1

Archaeological Test Trenching
& Assessment Report
prepared by AEGIS
Archaeology Limited (2005)



Archaeological Test Trenching & Assessment Report

at
Carrownreddy, Co Tipperary

Excavation Licence Number: 05E0205

Planning reference: Part 8

ÆGIS reference: 173-2



by
Frank Coyne BA MIAI

of
ÆGIS ARCHAEOLOGY LIMITED

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Client:

South Tipperary County Council,

County Hall, Clonmel,

Co Tipperary

May 2005

COPIES OF THIS REPORT HAVE BEEN PRESENTED TO:

CLIENTS:	Environment and Waste Management Section South Tipperary County Council County Hall, Tipperary Contact: Eimear Cody
STATUTORY BODIES:	Archaeological Planning and Licencing Unit, National Monuments Section (formerly <i>Dúchas</i>) National Museum of Ireland
LOCAL AUTHORITY:	Planning Dept: South Tipperary County Council

PLEASE NOTE...

*That the archaeological recommendations, mitigation proposals and suggested methodology followed in this report were first formulated and approved by the National Monuments Section, (formerly *Dúchas*), Dun Sceine, Harcourt Lane Dublin 2, prior to the commencement of the archaeological dimension of the project.*

Every effort has been taken in the preparation and submission of this report to provide as complete an assessment as possible within the terms of the brief, and all statements and opinions are offered in good faith. However, ÆGIS cannot accept responsibility for errors of fact or opinion resulting from the data supplied by any third party, for any loss or other consequences arising from decisions made or actions taken on the basis of facts and opinions expressed in this report, (and any supplementary information), howsoever such facts and opinions expressed may have been derived, or as the result of unknown and undiscovered sites or artefacts.

*This report is based on a template formulated by T. Collins and A. Hayes. ÆGIS acknowledges the information supplied from the Archaeological Survey of Ireland Files, maintained by National Monuments Section (formerly *Dúchas*), and the information supplied by the client. The trenching was funded in full by the client.*

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I. Abstract

This report details archaeological test trenching and an impact assessment undertaken by ÆGIS ARCHAEOLOGY LIMITED on behalf of the client in advance of the development of a recycling centre and local area depot. The site lies within the zone of archaeological potential for TI067-003---, a possible enclosure.

Nothing of an archaeological nature was discovered during the archaeological test trenching. While there is a direct impact on Recorded Monument (RMP) TI067-003—, a possible enclosure, this site is now completely covered in landfill, and no archaeological material was encountered.

The entire archaeological dimension of the project was funded by the client.

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III. Abbreviations and Terms Used

Bank Right bank and left bank of a river or stream may be determined when one looks downstream, i.e. in the direction that the river is flowing. It may also be an earthen 'wall' around an enclosure, often associated with a ditch.

Barony, Parish, Townland These terms refer to land divisions in Ireland. The barony is the largest land division in a county, which is formed from a number of parishes. These parishes are in turn made up of several townlands, which are the smallest land division in the country. The origins of these divisions are believed to be in the Early Medieval/Christian period (AD500-AD1000), or may date earlier in the Iron Age (500BC-AD500).

Context Each feature found during the excavations is allocated a number, commonly termed a 'Context Number' in order to record the archaeology.

First Edition This relates to editions of the OS 6 inch maps for each county. The first edition map completed for the area dates to the early 1840s and this is referred to in the text as the "first edition".

TI - This number is the number of the site on the RMP map (see below). It begins with the county code, here TI for Tipperary, the 6-inch sheet number, followed by the number of the archaeological site.

M Metres, all dimensions are given in metres or part of a metre, unless otherwise stated

OS Ordnance Survey

Ph Parish

RMP Record of Monuments and Places. An update of the older SMR, (sites and monuments record), on which all known archaeological sites are marked and listed in an accompanying inventory. The sites marked afford legal protection under the National Monuments Acts 1930-1994. The record is based on the 6-inch map series for the country and is recorded on a county basis.

Sheet This relates to the 6-inch map for each county, which are divided into sheets and numbered accordingly

Td Townland

1. Introduction

1.1 Location and The Existing Environment (figs 1 & 2)

The site in question is located in the townland of Carrownreddy, the parish of Tipperary and the barony of Clanwilliam in Co. Tipperary. The site is situated north of Tipperary town. It is bordered on the southern side by the Lake Road, which leads from the Dundrum Road, north of Tipperary town. To the north there is an area of trees and marshy ground with Carrownreddy Lough further to the north. To the east is an area of marsh and open green fields, while to the west is an area of marsh and open green field, which has also been used for dumping. The site was in use as a land fill for approximately 50 years, and closed in 1989 (E. Cody, pers comm).

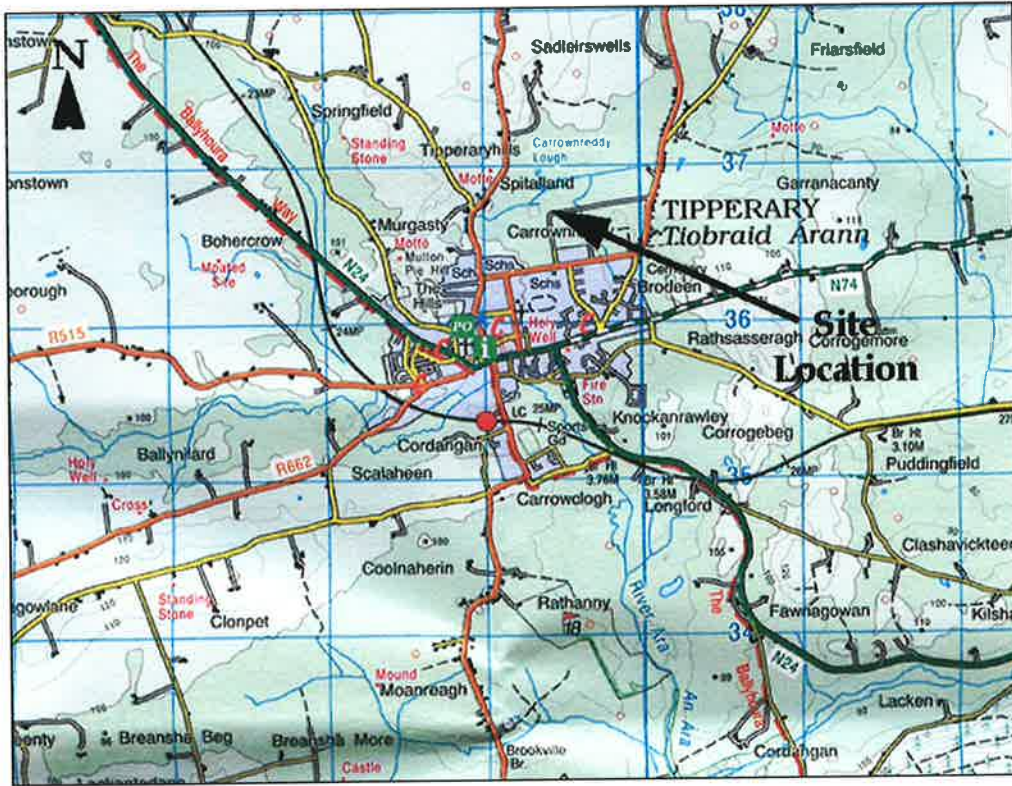


Figure 1. Location of site, Discovery Series sheet 66, north to top (each box=1Km²)

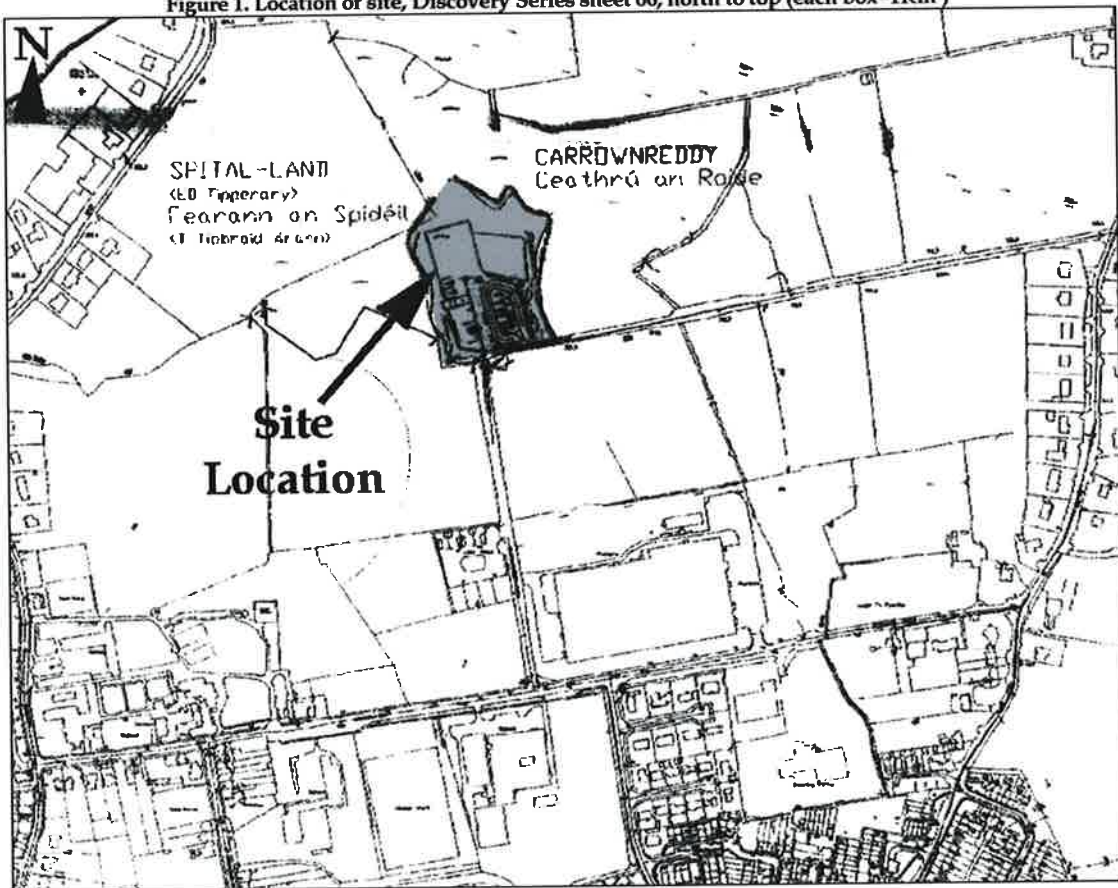


Figure 2. Location of site, north to top (supplied by client), for illustration only

1.2 The Test Trenching Project: Scope of Study

The proposed development at Carronreddy, Co. Tipperary entails the proposed construction of a Civic Amenity Site and Area Depot, including all ancillary site services and works.

This report was fulfilled a request for further information (ref DAU-2004-TS-TS-Part 8), dated 20 December 2004. It read:

The proposed development is right on top of Recorded Monument TI067-003, possible enclosure, which is subject to statutory protection in the Record of Monuments and Places, established under section 12 of the National Monuments (Amendment) Act 1994.

It is our recommendation that an Archaeological Impact Assessment, as described below, should be prepared to assess the potential impact, if any, on archaeological remains in the area where development is proposed to take place. The statement should be carried out at the earliest possible stage. This will enable the Planning Authority and this office to formulate an informed archaeological statement with regard to this site.

Archaeological Impact assessment should be compiled as follows;

- 1. The applicant is required to engage the services of a suitably qualified archaeologist to carry out an archaeological assessment of the development site. No sub-surface work should be undertaken in the absence of the archaeologist without his/her express consent.*
- 2. The archaeologist should carry out any relevant documentary research and inspect the site. Both the physical and visual impact of the potential development should be assessed. Test trenches may be excavated at locations chosen by the archaeologist (licensed under the national Monuments Acts 1930-1994), having consulted the site drawings.*
- 3. Having completed the work, the archaeologist should submit a written report to the Planning Authority and to the Heritage and Planning Division of the Department of Environment, Heritage and Local Government in advance of the planning decision. Where archaeological material/features are shown to be present, preservation in situ, preservation by record (excavation) or monitoring may be required.*

It should be borne in mind that, if significant archaeological remains are found, or the impact upon the archaeological heritage is negative, refusal might still be recommended, and/or further monitoring/excavation required. It is our view that a final decision should not be made to proceed until the Planning Authority and this office has had the opportunity to evaluate the Archaeological

Assessment. We will forward a recommendation based on the Archaeological assessment to the Planning Authority.

This report fulfils these criteria and also follows the most recent EPA guidelines on the compilation of an EIS (2002). A brief historical introduction to the area is provided and archaeological features in the vicinity, including any standing remains, are discussed. The report details the potential archaeological and cultural heritage features on the site and in its vicinity and discusses the proposed impact of the development on that archaeology and cultural heritage.

1.3 Previous Archaeological Work

This site had not previously been subject to intrusive archaeological testing.

1.4 Historical Background

There was no information available relating to the original Irish spelling of Carrownreddy, however it is likely that it was a variation on *Cairn Reidy* or Reidy's Cairn (burial mound). It has been noted that remarkably little is known historically of the foundation and development of Tipperary Town during the medieval period (Thomas 1992, 194). The first historical reference to the town dates to 1215 when reference was made to "the church of the vill of Tibrari" (Bradley 1985, 54). There are references to a King John's castle in the town, which was built in order to defend the territory conquered by the Anglo-Normans, and the development of the town has been attributed to the presence of this castle (Lewis 1837, 635). It has been suggested that this may refer to the motte and bailey located c.1km to the northwest of the town (Bradley 1985, 54). However, it has also been suggested that the site of this castle is marked by the earthworks located at the southeast corner of the town (Thomas 1992, 194). The remains of an Augustinian monastery are located in the south end of the town and its foundation has been dated to 1350.

Tipperary Town was provided with a murage grant lasting for ten years in 1300 and this was followed by a second grant in 1310, which was for a shorter period of three years. These grants were for the construction of a town wall but there is no cartographic or field evidence, which indicates that this wall was ever built. However, the provision of the second, short-

term murage grant has been taken as evidence that the construction of the town wall was still ongoing at this time (Thomas 1992, 195). A tentative outline of the possible course of the town wall has been proposed and this is based on the present street layout in relation to features such as the earthwork in the southeast corner, the Augustinian monastery and St. Mary's church in the northwest corner of the town (*ibid.*). This would place the development site immediately inside the town wall, which would have formed the western boundary of the site.

Whether or not the town was ever walled, it was attacked and burnt to the ground by the O'Briens in 1329. It then went through a period of decline in the 15th and 16th centuries when it all but disappeared from the historical record (Bradley 1985, 54). This decline is thought to be because the major landlords in this area, the de Grandisons, also owned major properties in Clonmel developed that town at the expense of Tipperary (Thomas 1992, 195). The town was re-developed in the 17th and 18th centuries and a clear burgage plot pattern is present along Main St. but it lacks obvious boundaries, which is indicative of a post-medieval date (Bradley 1985, 54).

The foundation of the parish church of St. Mary's dates to 1830 but the O.S. maps (1997) record it as the site of an earlier church. However, it has been recorded that the Augustinian monastery survived until the dissolution and it was still in use as the parish church at this time (*ibid.*). This may indicate that St. Mary's was not the site of a medieval church and a second medieval street plan has been proposed, based on this interpretation (Thomas 1992, 195). This places the north wall of the town along Main St. and if such an interpretation were correct then the development site lies outside the boundary of the medieval town.

There were two archaeological excavations carried out in the field to the north of St. Mary's church, which, based on both of the proposed plans of the town wall, lies outside the boundary of the medieval town. A series of test trenches opened in this area revealed the presence of five skeletons in the area just to the north of the churchyard wall and these were dated to the post-medieval period (Hodkinson 1998). The entire field was subsequently excavated and these investigations revealed the presence of another fourteen post-medieval burials in unmarked east to west orientated graves (Cummins 1999; summarised above 1.3). The remains of a 13th/14th century corn drying kiln, an associated hut site and a sand quarry were also uncovered in this field (*ibid.*).

These burials may date to the famine period of the mid-19th century (Figure 3) but there are no detailed records regarding the burial of famine victims in Co. Tipperary. The surviving

documentation from Tipperary Town workhouse in 1850 lists the number of dead for that year as 495 adults and 741 children and that these were buried in St. John's graveyard in the Tipperary hills (Murnane 1996). A study of the oral traditions relating to the burial of famine burials in Co. Tipperary describes the practise as follows, "Graves were made in any place. As far as possible, relatives did their best to bury their dead friends in their native graveyards. Graves were made outside graveyards, where deaths were too numerous and entailed too much trouble to transfer to other places", (MacCarthaigh 1996, 44).

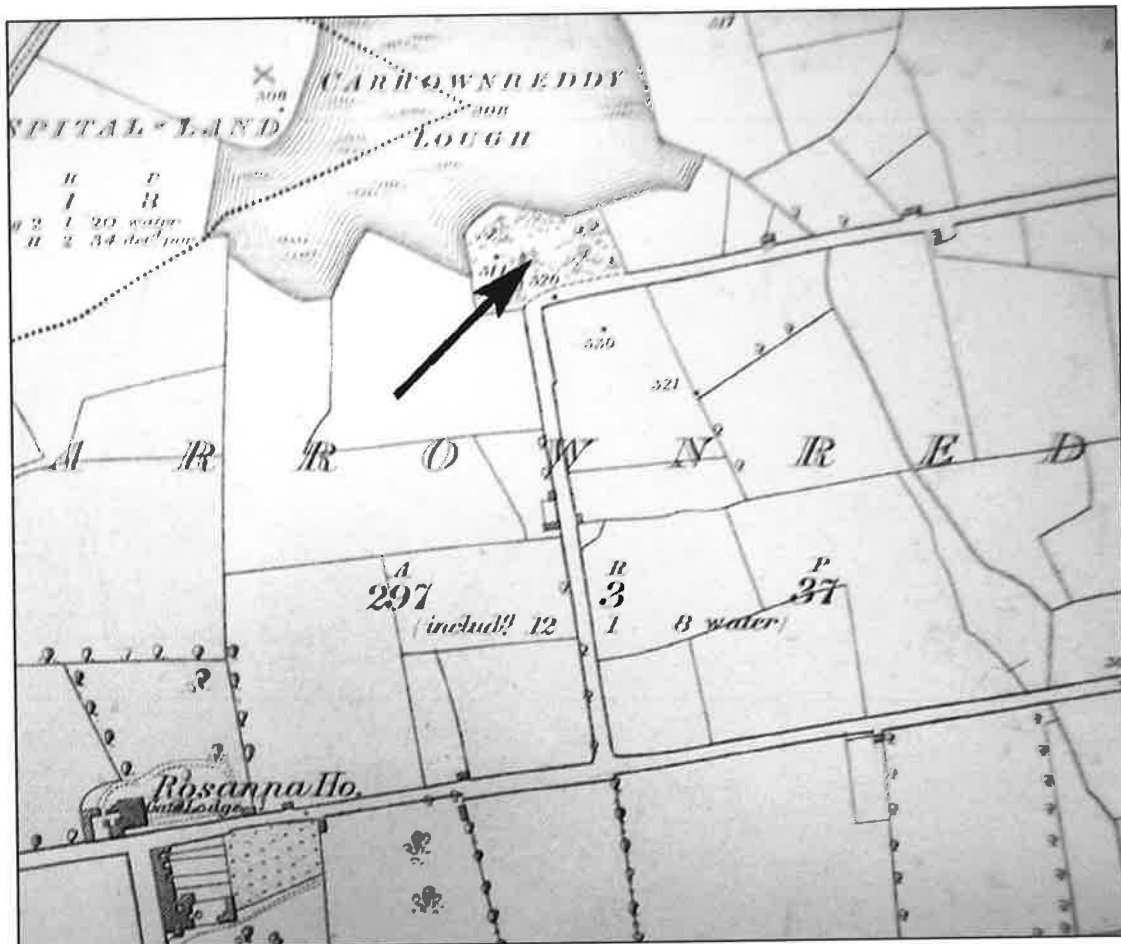


Figure 3. First Edition map, sheet 67, showing general site location, indicated (OS 1840)

1.5 Archaeology of the Vicinity (figs. 3 &4)

The site is inside the zone of archaeological potential for TI067-003—, a possible enclosure. On the First Edition Ordnance Survey map c. 1840, the area of the enclosure is marked as a large sub-rectangular field covered in trees. Carronreddy Lough is immediately to the north of the site, and indeed, forms the northern and western boundary of the site. No enclosure is marked on this edition of the map. On the 1901 (revised 1954) Second Edition of the map & RMP (figure 4), a possible enclosure is indicated, while Carronreddy Lough has substantially reduced in size, and the original area of the lough has now become an area of

marsh. It is possible that the possible enclosure is the result of embanking the area, although this is by no means definite.

Approximately half a kilometre to the northwest of the site is RMP TI067-001—, a motte and bailey, in the townland of Tipperary Mills, while approximately one kilometre to the east is RMP TI067-089—, a possible enclosure in the townland of Garranacanty.

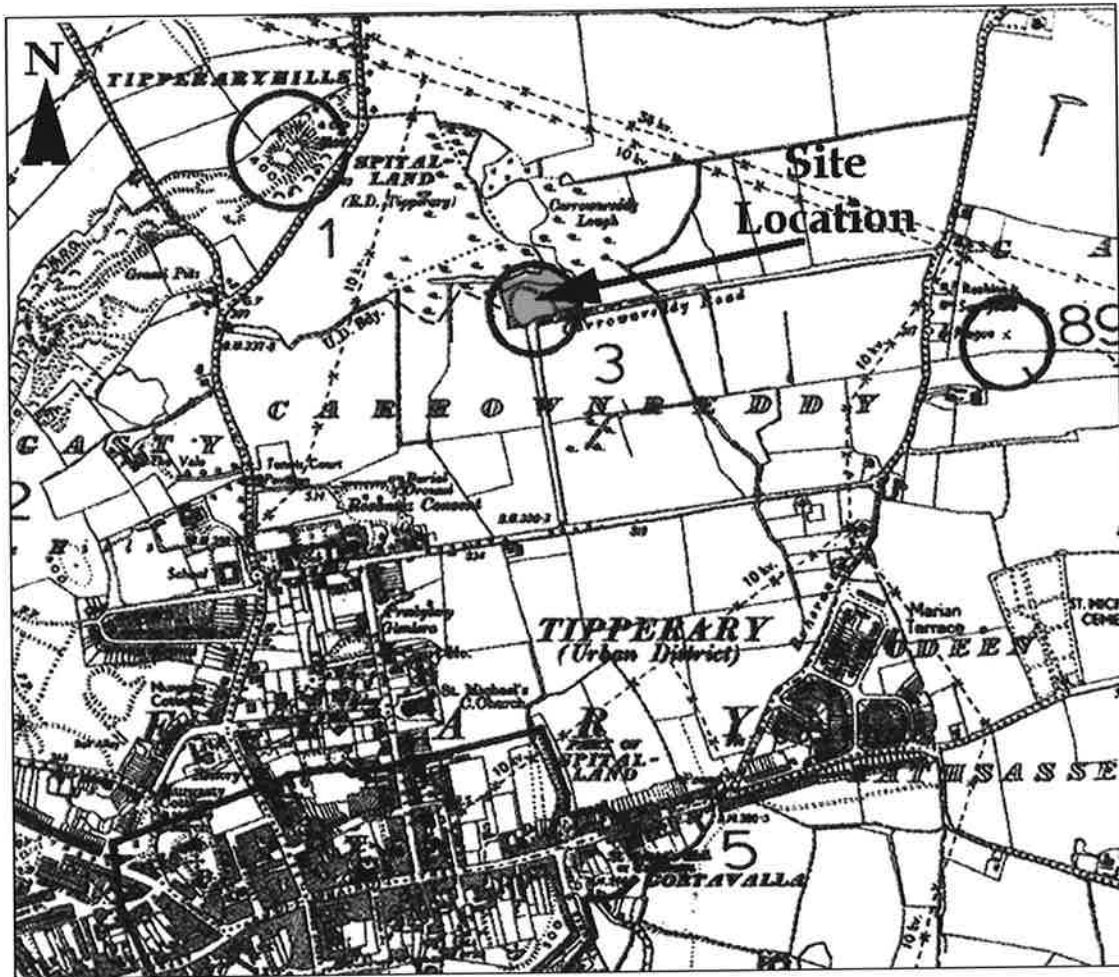


Figure 4. RMP map showing site location (sheets 67), north to top

1.6 Trenching Methodology

Four trenches were excavated at this site. Because of the presence of a concrete pad/slab, it was not possible to test trench the central area of the site. Recording was undertaken as per in-house procedures as set out in the AEGIS Quality Manual.

2. Trench List

Trench number	Orientation	Length (in metres)	Width (in metres)
1	N-S	8	0.75
2	NW-SE	8	0.75
3	N-S	1	0.75
4	NW-SE	6	0.75

3. Trench Descriptions

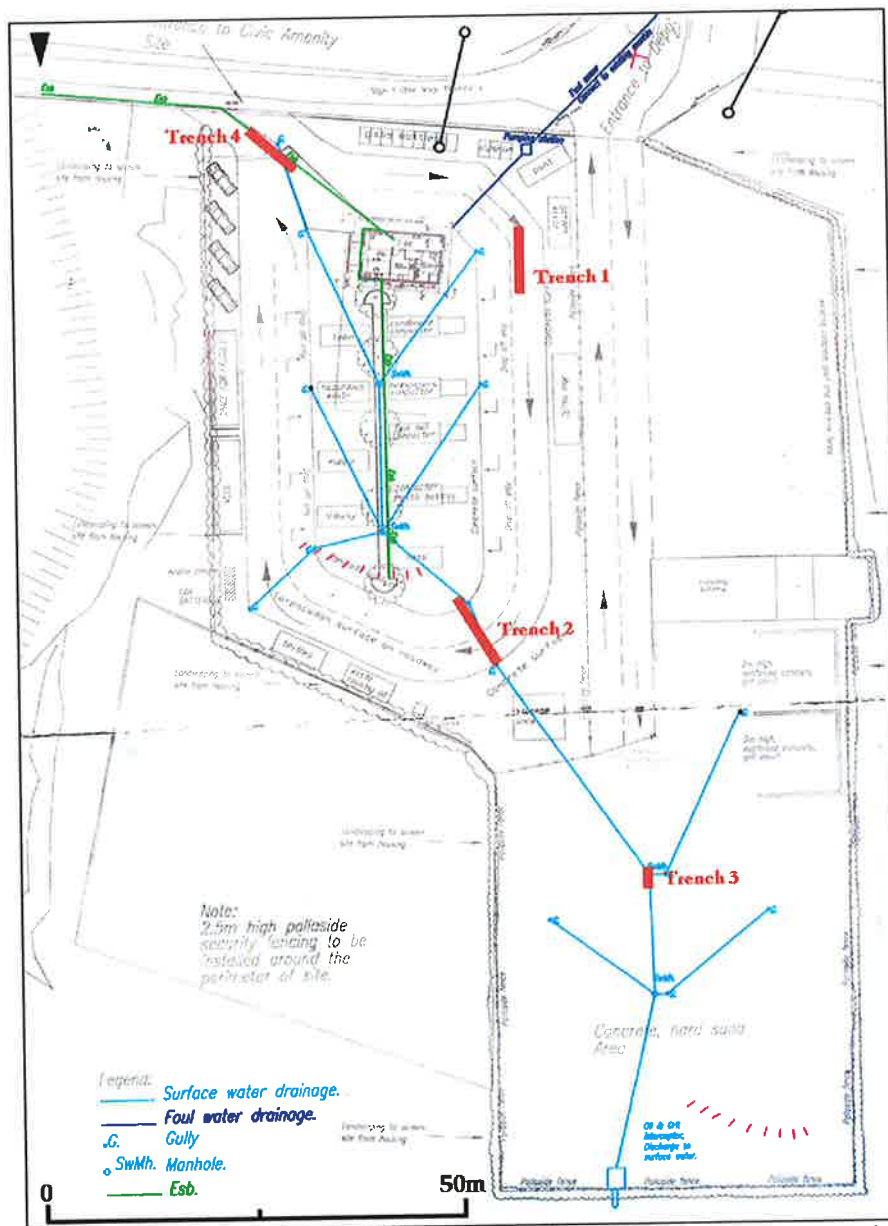


Figure 5. Layout of trenches on site in red (for indication only, trenches not to scale, north to bottom)

The site is situated on the northern side of a road leading to the land fill area from Tipperary town. To the north there is an area of trees and marshy ground, to the east is an area of marsh and open green fields, while to the west is an area of marsh and open green field, which has also been used for dumping.

The site is currently used as a landfill, and it appears that there are several metres of dumped material on the site. Proposed structures to be built as part of the development are to be located in an area currently occupied by a large concrete slab area, currently used for the storage of gravel chippings. It was not possible to remove this slab at the time of the test trenching. Trenches were therefore opened at the site of this slab, to ascertain the depth of the the modern dump material in the vicinity of this slag. Similarly, the area to the north of the site is currently covered by piles of rubble, which were not possible to move during the test trenching. A short trench was opened in this area, again to ascertain the depth of fill at this location.

A total of four trenches was excavated across the site (figures 5 & 6). The trenches are described below under the relevant headings.

Trench 1 (plates 1 & 2)

Trench 1 was aligned north to south. It was 8m in length and 0.75m wide. The trench was located in the southwest corner of the concrete slab area. It ran parallel to and was 3m west of the slab. The general stratigraphy encountered in this trench consisted of:

- Tarmac - 0.10m deep
- Gravel - 0.30m deep
- Rubbish/Dump Material - 2.00m
- Soil with tree roots - 0.30m

Nothing of an archaeological nature was detected in this trench. It was not bottomed to the natural parent material, although the presence of tree roots may indicate that the original ground level is at least below 2.60m from present ground level.

Trench 2 (plates 12 & 13)

Trench 2 was aligned northwest to southeast. It was 8m in length and 0.75m wide. The trench was located at the northwest corner of the concrete slab area. The general stratigraphy encountered in this trench consisted of:

- Gravel - 0.30m deep
- Rubbish/Dump Material - 1.50m

Nothing of an archaeological nature was detected in this trench. Water was encountered at a depth of 1.80m. The rubbish/dump material continued below this level.

Trench 3 (plate 14)

Trench 3 was aligned northwest to southeast. It was 1m in length and 0.75m wide. The trench was located to the north of the site, at the proposed location of a storm drain. It was not possible to extend the trench due to the presence of mounds of dumped rubble. The general stratigraphy encountered in this trench consisted of:

- Gravel - 0.20m deep
- Rubbish/Dump Material - 1.40m

Nothing of an archaeological nature was detected in this trench. The rubbish/dump material continued below the excavated level.

Trench 4 (plate 15 & 16)

Trench 4 was aligned northwest to southeast. It was 6m in length and 0.75m wide. The trench was located to the southeast of the concrete slab area, at the proposed location of a drain. The general stratigraphy encountered in this trench consisted of:

- Gravel - 0.10m deep
- Rubbish/Dump Material - 1.60m

Nothing of an archaeological nature was detected in this trench. The rubbish/dump material continued below the excavated level.



Plate 1. Trench 1, from N



Plate 2. Trench 1, from S



Plate 3. Concrete slab area with gravel

Plate 4. Centre of site, from S





**Plate 5. Modern dumped material, at
SE of site, from SE**



Plate 6. Site, from E



Plate 7. Marsh to E of site, from SE



Plate 8. Marsh to W of site, from W



**Plate 9. Rubble at NW of site,
from S**



**Plate 10. Trees and marsh to N of site,
from S**



Plate 11. Site, from N



Plate 12. Trench 2, from NW



Plate 13. Trench 2, from NW



Plate 14. Trench 3, from N



Plate 15. Trench 4, from SE



**Plate 16. Rubbish and spoil from
Trench 4, from SE**

4. Interpretation of Findings

Nothing of an archaeological nature was detected in the test trenching. No artefacts were recovered from the test trenches. It appears that the possible enclosure has been completely enveloped by the depth of rubbish dumped in the area over the years.

The test trenches show that a depth in excess of 2.50m of fill covers the central area of the site, in the area of the proposed buildings. The perimeter of the site is also covered in a depth of fill, several metres in depth. No trace of the enclosure is visible above ground, and no trace of it was uncovered in the test trenches (Figure 6).

5. Impact of Proposed Development

This section might more aptly be described as the “predicted” impact of the proposed development as by definition those impacts have not yet occurred (EPA Guidelines 2002).

The results of the archaeological test trenching on the site were negative in that no archaeological features or artefacts were found during the site investigations. Although the site is located within the zone of potential, and in fact is on top of the archaeological site TI067-003---, a possible enclosure, the testing results suggest that the possible enclosure is no longer extant (if indeed one existed on the site), and is now covered in a substantial depth of fill. Because of this, the proposed development may not impact directly on any known archaeology.

The proposed development is within the present area of the landfill, and as such no negative visual impact is predicted.

While the testing of the site has reduced the risk of discovering archaeological layers and/or artefacts, it has not completely eliminated that risk (in any case this is not the aim of archaeological testing). Therefore there remains a possibility of isolated archaeological features or artefacts (though a significantly reduced one) being revealed during construction at this site, due to its location within the zone of archaeological potential for, and in fact on top of RMP TI067-003---, a possible enclosure.

6. Conclusions & Suggested Mitigation

Despite the fact that the proposed development site is within the zone of archaeological potential for TI067-003— a possible enclosure, nothing of an archaeological nature (features or artefacts) were uncovered during the trenching. As stated above the proposed development would not impact directly on any known archaeological remains. The development's visual impact would be minimal. As such the following mitigation is suggested:

- That all the ground works associated with the development be archaeologically monitored in case isolated subsurface unrecorded archaeological features or artefacts relating to the possible enclosure are revealed.

It is important to note that it is the National Monuments Section of the DoE, H, L G (formerly *Dúchas*) will formulate and ratify any archaeological mitigation, should it be required and this report can only make suggestions and report on the archaeological evidence found during this assessment.

7. Project References

1992 *General Alphabetical Index to the Townlands and towns, parishes and baronies of Ireland*. Baltimore: Genealogical Publishing Co.

Aegis Archaeology Limited 2001 Quality Manual. Unpublished manual.

Archaeological Survey of Ireland 1997 *RMP Constraint Map and Inventory for County Tipperary south Riding*. Dublin: Government of Ireland.

Bennett, I. (ed.) various dates *Excavations*. Bray: Wordwell.

Bradley, J. 1985 'The Medieval towns of Co. Tipperary' in Nolan, W. (ed.) *Tipperary: History and Society*. Dublin: Geography Publications.

Cummins, T. 1999 'Bohercrow Road, Murgasty, Tipperary Town', in Bennet, I. (ed.) *Excavations 1998*. Dublin: Wordwell, 203.

Dúchas 1999 *Guidelines on Archaeological Excavation*. Dublin: Stationery Office.

Environmental Protection Agency 1995a *Draft Guidelines on the information to be contained in Environmental Impact Statements*. Dublin: Environmental Publications.

Environmental Protection Agency 1995b *Advice Notes on Current Practice*. Dublin: Environmental Publications.

Environmental Protection Agency 2002 *Guidelines on the information to be contained in Environmental Impact Statements*. Dublin: Environmental Publications.

Farrelly, J. and O'Brien, C. 2002 *Archaeological Inventory of County Tipperary: Volume 1 – North Tipperary*. Dublin: The Stationery Office.

Hodkinson, B.J. 1998 'Bohercrow Road, Murgasty, Tipperary Town' in Bennet, I. (ed.) *Excavations 1997*. Dublin: Wordwell, 180.

Lewis, S. 1837 *A Topographical Dictionary of Ireland*, London: Lewis & Sons.

MacCarthaigh, T. 1996 'The Famine in Ballylooby, Co. Tipperary', *Tipperary Historical Journal* 1996, 43-6.

Murnane, D. G. 1996 'The Famine in South Tipperary: Part 1', *Tipperary Historical Journal* 1996, 1-42.

O'Donovan, J. 1840a *OS Letters for County Tipperary*. Bray

O'Donovan, J. 1840b *OS Name Books County Tipperary*. Bray.

Thomas, A. 1992 *The Walled Towns of Ireland Vol. II*, Dublin: Irish Academic Press.

Tipperary Town Council 2001 *Tipperary Town Council Urban Renewal Scheme*. Tipperary: Town Council.

8. Signing-Off Statement

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For ÆGIS ARCHAEOLOGY LIMITED

Dated: May 2005



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