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KILLYCRONAGHAN CLOSED LANDFILL REMEDIATION PROJECT

CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN (CEMP) FOR THE PROPOSED REMEDIATION OF KILLYCRONAGHAN CLOSED LANDFILL

Prepared for: Monaghan County Council

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CONSTRUCTION AND ENVIRONMENTAL MANAGEMENT PLAN (CEMP) FOR THE PROPOSED REMEDIATION OF THE KILLYCRONAGHAN CLOSED LANDFILL

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Abstract: This document comprises the Construction and Environmental Management Plan (CEMP) for the Remediation of the Closed Landfill at Killycronaghan, Co. Monaghan, the purpose of which is to set out the key construction and environmental management issues associated with the proposed works. This plan will be developed further at the construction stage and on the appointment of the Contractor to the project.

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1. INTRODUCTION

This document is the Construction and Environmental Management Plan (CEMP) for the proposed Killycronaghan closed landfill remediation and has been prepared by Fehily Timoney and Company (FT) on behalf of Monaghan County Council (MCC) on a preliminary basis to accompany an application to An Bord Pleanála under Section 177AE of the Planning and Development Act, 2000 (as amended).

This document comprehensively sets out the construction and environmental management concerns associated with the proposed works, to ensure that during construction, the environment is protected and impacts on the environment are minimised. This CEMP will be adopted by the Contractor who will be responsible for the appropriate execution of the proposed works as set out in this document.

The Environmental Protection Agency (EPA) issued a Certificate of Authorisation (CoA) for the site on the 19th March 2021 (Licence number: H0366-01, See Appendix 1 of EIA Screening Assessment Report which accompanies this planning application). The proposed project is to implement the requirements of CoA to remediate the closed landfill site.

1.1 General Introduction and Purpose

This CEMP sets out the key environmental management issues associated with the proposed remediation works, to ensure that during the construction and operation of the development, the impacts on the environment are minimised.

Condition 3 of the CoA requires MCC to implement remediation works to this closed landfill in order to ensure

> *"..discharges and emissions from the closed landfill do not cause environmental pollution or deterioration in the status of the receiving surface water body or groundwater body.".*

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 Condition 3 of the CoA.

1.2 The Client

FT was commissioned by MCC was commissioned by Monaghan County Council to provide consultancy services in respect of the proposed Killycronaghan closed landfill remediation.

1.3 The Site

Killycronaghan Closed Landfill is located within the townland of Killycronaghan. This site is approximately 8km northeast of Clones town, 1.7km southwest of the village of Smithborough and 1km from the N54 national road.

The site is accessed from local road L2151 which partially adjoins the eastern boundary of the site. The proposed landfill capping boundary is 74m from the L2151.

It was previously reported by MCC that the closed landfill accepted waste throughout the 1970s, ceasing in 1984. Waste deposited at the site comprised of municipal solid waste (MSW) to a maximum depth of 4.8m below ground level (BGL). The closed landfill is currently covered with topsoil which supports improved agricultural grassland.

The site is located within a primarily rural setting in an area of rolling topography dominated by drumlins. The site is at an elevation of between 50m and 55m above Ordnance Datum (aOD).

The site is surrounded by agricultural land with poultry buildings located within the eastern area of the site, close to the site entrance. The land use in the area is primarily agricultural with the site currently used for pasture.

The site is partially bounded to the north, east and southeast by the Kilgormly River. The Magheramey River partially adjoins the site to the northwest. Surface water ditches bound the site to the southwest. The site is located within the catchment of the River Erne, with all local surface water entering the Lough Erne lake system approximately 18km to the west.

There are several small lakes located in the vicinity of the site. Coaghen Lough is located approximately 0.9km to the east of the site. Two smaller unnamed lakes are located approximately 0.5km and 0.7km east of the site, while Lough Oony is located approximately 1.2km northwest of the site.

There are no dwelling houses located within 100m of the site although there is poultry housing approximately 80m north of the east boundary.

A ring fort (MO012-022---) is located on top of a drumlin approximately 80m southwest of the site at an elevation of approximately 76m aOD.

A GIS Figure showing the Site Location is shown in Figure 1-1.

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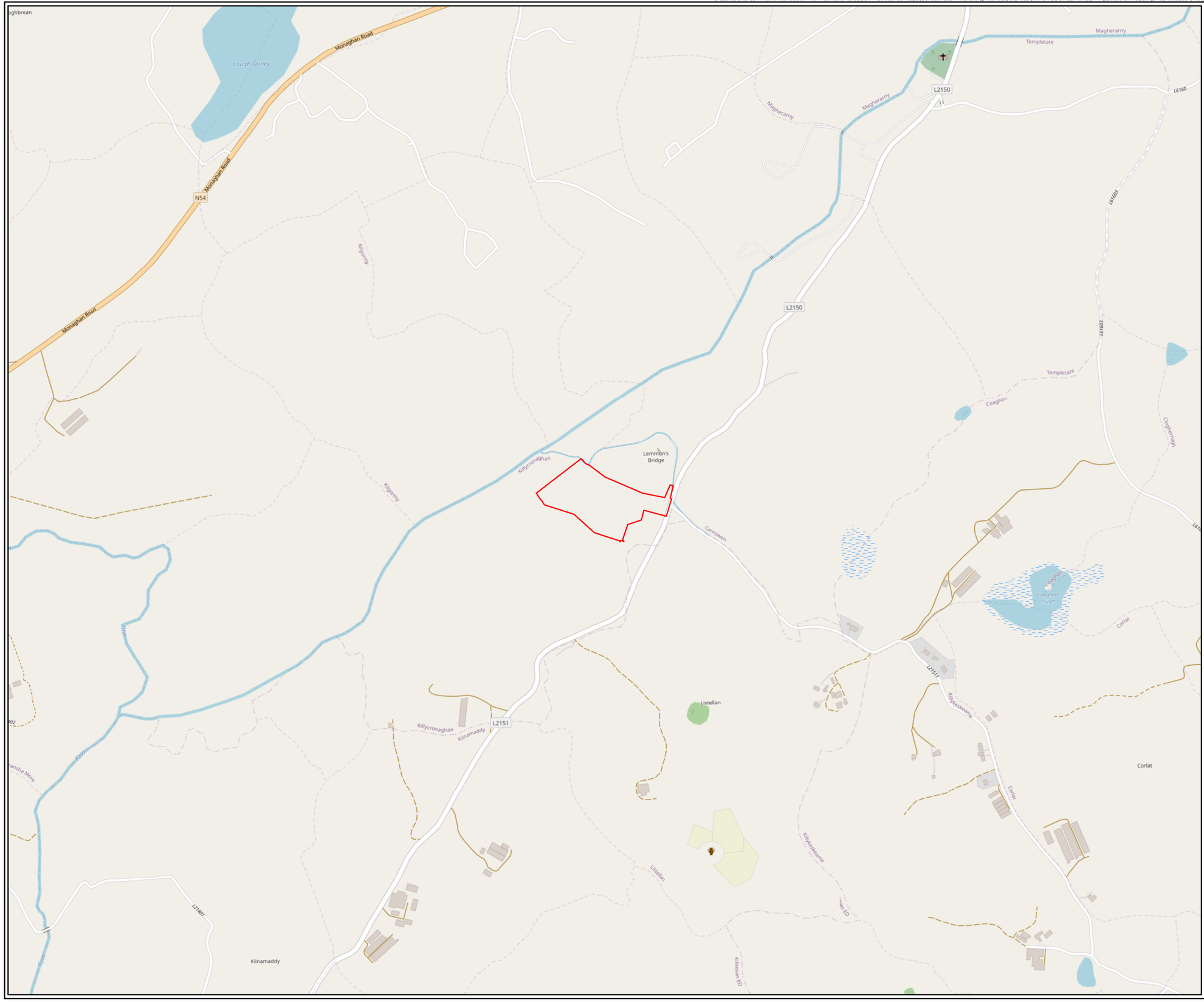

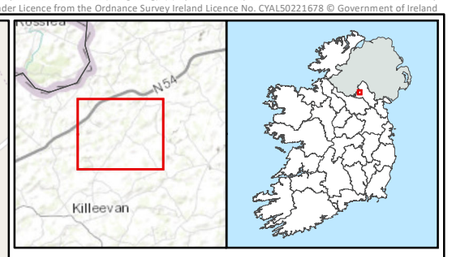

Legend

Site Boundary

N
W E
S

0 0.25 0.5 1 Kilometers

TITLE:	Site Location
PROJECT:	Killycronaghan Historic Landfill
FIGURE NO:	1-1
CLIENT:	Monaghan County Council
SCALE:	1:10000
REVISION:	0
DATE:	07/07/2023
PAGE SIZE:	A3

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1.4 Overview Description of the Project

Monaghan County Council proposes to seek the approval of An Bord Pleanála for the completion of Closed Landfill Remediation Works at a Closed Landfill site in Killycronaghan, New Bliss, County Monaghan.

The application site, as defined by the red line boundary in the accompanying drawings, is 3.75ha in size. The proposed capping area within the application site is 2.6ha in size.

The proposed development will consist of the following:

- The development of a site access;
- The development of a temporary site compound and office area;
- Site clearance, including the removal of an existing gate, existing timber post and wire fencing and clearance of existing vegetation;
- Grading/profiling of the existing site area;
- Installation of an engineered landfill capping system covering an area of 2.6 hectares;
- Installation of surface and subsurface surface water drainage infrastructures;
- Installation of passive landfill gas management infrastructure;
- The installation of stock proof fencing, and a new access gate on-site;
- Landscaping of the final formation of the capping area using a proprietary grass cover mix suited for pasture.

Post completion of the remediation works ongoing environmental monitoring and maintenance of the engineered cap and onsite drainage system will be required.

The works will take place in accordance with a Construction Environmental Management Plan (CEMP).

The construction period for the proposed development will be 6-8 months.

2. EXISTING ENVIRONMENT

The closed landfill site is located in the townland of Killycronaghan approximately 8km northeast of Clones town and circa 1km off the N54 national road. The historic closed landfill is approximately 1.7km southwest of the village of Smithborough. It was previously reported by MCC that the historic closed landfill accepted waste throughout the 1970s and early 1980s, ceasing in 1984. The historical closed landfill is currently covered with topsoil.

The site is bounded to the southeast, east and north by the Kilgormly River. The Magheramey River bounds the site to the northwest. The site is surrounded by agricultural land with poultry buildings located to the northeast of the site. The land use in the area is primarily agricultural with the subject site is currently used for pasture.

The quaternary Map provided by GSI Online identifies the quaternary sediments at the site as tills derived from limestone, with the subsoils in the northern portion of the site mapped as sands and gravels derived from limestones. The GSI also identifies lenses of cut-over peat beyond the southern site boundary. Localised deposits of alluvium are noted along the channel of the Kilgormly River to the east and north of the site and also to the west along the channel of the Magheramey River. During the installation of boreholes during the site investigation, the presence of peat and sand & gravel tills was recorded to a depth of approximately 14.5m below ground level (BGL).

The GSI online 1:100,000 scale bedrock geology map, shows the bedrock beneath to be found on two primary formations. The northern and western sections of the site and surrounding area are underlain by the Cooldaragh formation (CH) which is generally made up of Dinantian 'Pale brown-grey flaggy, silty mudstone'. The southern and eastern sections of the site are underlain by the Feranaght formation (FT), which is generally made up of Dinantian 'Pale conglomerate & red sandstone'. Limestone bedrock was encountered at 4.5m BGL during the installation one borehole.

An examination of the national bedrock aquifer map on the GSI online mapping classifies the Cooldaragh formation as a Regionally Important Aquifer – Fissured Bedrock (Rf). The site lies within the Clones Groundwater Body (GWB No. IEGBNI_NW_G_063) which is defined as being at Good Status under the Water Framework Directive. There are no karst landforms within the site boundary.

According to the EPA map viewer, the site is located within the catchment of the River Erne which flows towards the west. Surface water ditches bound the site to the southwest and south. The site is bounded to the southeast, east and north by the Kilgormly River. The Magherarny River bounds the site to the northwest and flows into the River Finn. The River Finn is a tributary of Lough Erne. Upper Lough Erne NI SPA, Upper Lough Erne NI SAC and Lough Oughter and Associated Loughs SAC are located approximately 26 to 40km downstream.

There are several small lakes located in the vicinity of the site. Coaghen Lough is located approximately 0.9km to the east of the site. Two smaller unnamed lakes are located approximately 0.5km and 0.7km east of the site, while Lough Oony is located approximately 1.2km northwest of the site.

3. OVERVIEW OF THE CONSTRUCTION WORKS

3.1 Construction Period

The construction period for the proposed development has been estimated to be in the region of 6-8 months.

3.2 Construction Staffing and Machinery

It is estimated that approximately 8-10 construction staff will be tasked with implementing the works over the course of the construction phase, this will be downgraded to one during the operational phase to allow for the periodic maintenance and inspection of the site.

A 360-degree excavator(s), articulated dumper(s), roller compactor(s) will be utilized for the reprofiling of the closed landfill while HGV tippers will be required for the importations of subsoils on site.

3.3 Construction Phase

The remediation works will include:

- The development of a site access;
- The development of a temporary site compound and office area;
- Site clearance, including the removal of an existing gate, existing timber post and wire fencing and clearance of existing vegetation;
- Grading/profiling of the existing site area;
- Installation of an engineered landfill capping system covering an area of 2.6 hectares;
- Installation of surface and subsurface surface water drainage infrastructures;
- Installation of passive landfill gas management infrastructure;
- The installation of stock proof fencing, and a new access gate on-site;
- Landscaping of the final formation of the capping area using a proprietary grass cover mix suited for pasture.

Post completion of the remediation works ongoing environmental monitoring and maintenance of the engineered cap and onsite drainage system will be required.

The construction period for the proposed development will be 6-8 months.

3.3.1 Development of a Site Access

Existing access to the site off the L2151 will be extended to the proposed temporary site compound and will be re-surfaced with Clause 804.

3.3.2 Development of Temporary Site Compound and Office Area

The temporary site compound shall comprise a materials storage area, site offices and a parking area. Material storage compound, parking area and site offices in the form of portacabins and site canteen/welfare facilities (Contractor and Employers Representatives) will be provided to the next to the proposed access road. The temporary site compound shall be founded on a small area that will be levelled, compacted and overlaid with gravel surfacing overlying a geogrid and geotextile. These materials will be removed from site following completion of the works.

Waste from the welfare facilities (i.e., Portaloo(s)) will be stored temporarily prior to disposal at a licensed wastewater treatment plant.

Generators will be used on-site for power supply during the temporary works. Water will be provided via water tankers. Mobile on-demand fuelling will be utilised for refuelling plant. Mobile refuelling vehicles will be equipped with spill pads and spill kits.

Periodic road sweeping will be required where necessary.

3.3.3 Site Clearance

Overgrown vegetation on site will be cut back, mulched and re-spread on-site. Any vegetation left will be dispatched to an authorized waste facility for disposal.

A Site Clearance Plan enclosed with this application shows the areas of grass that will be cleared from the site (refer to Drawing Reference: P22-071-0100-0104).

3.3.4 Grading/Profiling of Existing Profile

The existing waste body was covered following cessation of waste filling with a soil cap.

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

- Surface and sub surface drainage;
- Safe execution of the site remediation works;
- Safe access for maintenance of the cap.

Re-profiling will principally involve the (shallow) cutting of material at local high spots. These “cut” materials will be used as “fill” in local depressions. All cut and fill works will be carried out within the site boundary. All excavated material will be reused on-site, no excavated material will leave the site.

Thereafter imported granular “dust” material 50mm to 100mm thick will be used to provide formation for the engineered cap. Across the proposed capping boundary (2.47ha or 24,700m², 1,235 – 2,470m³ of material will be required.

The re-profiled surface will provide the foundation for the engineered landfill cap (Drawing Reference: P22-071-1300-0001 and P22-071-1300-0002).

3.3.5 Installation of Engineered Landfill Capping System

The engineered landfill cap "barrier" system will:

- Cover an area of approximately 24,700m²;
- 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 of the following:

- Vertical standpipes;
- A passive below liner landfill gas venting system;
- A 1m LLDPE barrier to isolate the waste body from rainfall inputs and prevent uncontrolled fugitive gas emissions from the waste body;
- Over liner gas management system;
- A subsurface drainage system;
- A surface drainage system;
- A subsoil layer average thickness 800 mm;
- A topsoil layer average thickness 200 mm barrier.

The Proposed Landfill Capping Area is shown in a drawing enclosed with this planning application (Drawing Reference: P22-071-1300-0001).

Below Liner Landfill Gas System

Currently landfill gas as may be present vents gas to atmosphere via diffuse surface emissions and lateral migration. 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 a series of vertical standpipes venting to atmosphere at 2-3m above the final ground level via passive ventilation.
The below liner gas collection geocomposite is a cuspated synthetic product 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.

Gas collection pipework will be slotted and laid in gravel surround below the gas collection geocomposite and it will facilitate collection of landfill gas; and soakage, if required, of condensate or other as may collect in pipework.

Landfill gas collected in the under-liner gas system will be released to the atmosphere via solid HDPE pipes.

The Proposed Passive Gas Collection System has been enclosed with this planning application (Drawing Reference: P22-071-1500-0002).

LLDPE Barrier

The LLDPE barrier will be a 1.0 mm thick "plastic" sheet that is impermeable to both water and gas. It prevents gas escaping into the overlying soils and stops water from rainfall entering the underlying waste body.

The LLDPE sheets will be welded at joints and will terminate in a vertical cut-off trench about the perimeter of the site.

Subsurface Drainage

The over liner sub surface drainage collection geocomposite is a cuspated synthetic product that is rolled out above the LLDPE barrier. It forms a "cavity" to intercept rainfall inputs into the cap. Subsurface drainage flows from the drainage geocomposite are transferred via a supporting pipework system to a surface drainage system at the toe of the cap and ultimately to the downstream watercourse via a precast or cast insitu concrete headwall. Only uncontaminated surface water will be discharged from the site.

A drawing showing the proposed surface and subsurface drainage system is enclosed with this planning application (Drawing Reference: P22-071-1500-0001, P22-071-1500-0002 and P22-071-1500-0003).

Surface Drainage

French drains around the capping perimeter will collect and direct surface water runoff to the receiving watercourses. Proposed French drains will be provided with 300 mm diameter HDPE SDR 17 slotted pipes.

A drawing showing the proposed surface and subsurface drainage system is enclosed with this planning application (Drawing Reference: P22-071-1500-0001, P22-071-1500-0002 and P22-071-1500-0003).

Subsoil Layer

Suitably sourced subsoils will then be imported to the site and placed atop of the sub surface drainage geocomposite and /or geogrid on side slopes. The subsoil layer will generally be 800mm deep.

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

Topsoil Layer

Suitable sourced topsoil will be placed atop the subsoil. The topsoil will have no stones greater than 50 mm diameter. Stones greater than 50 mm will be removed by a proprietary stone picker or similar prior to seeding.

The topsoil layer will be 200 mm deep.

Recovered stones will be reused on site in site roads or as fill to sub surface drains.

3.3.6 Temporary Works

Leachate Management

Storage tanks will be provided for the safe storage of any leachate arisings during the construction works. Leachate arising during construction works will be disposed at a licensed wastewater treatment plant.

Daily Cover of Exposed Waste

In the unlikely event that waste is exposed it will be covered with soil or similar approved at the close of each working day.

Suspended Solid Management

Suspended solids will be prevented from entering watercourses by installing silt fences around the site perimeter and around stockpiles.

Odour Management

Odour management is not expected to be an issue as the waste is older than 25 years and the works have been designed to reduce the risk of exposing waste.

In the event that it is exposed, waste will be covered up at the end of each working day.

Traffic Management

The Contractor will be required to implement a traffic management plan to manage safe access and egress of construction vehicles from the site.

The Contractor will be required to implement a traffic management plan to manage safe access and egress of construction vehicles from the site. The Draft Planning Stage Traffic Management Plan is shown in a drawing enclosed with this planning application. See Drawing Reference: P22-071-1100-0009.

Stock Proof Fencing

Following placement of the cap a perimeter stock proof fence 1.3 m high will be installed around the landfill footprint.

The access gate to the site will be installed. Redundant fences and gates will be transported and disposed of offsite in a licenced facility.

3.3.7 Permanent Works: Management and Monitoring Infrastructure

Vertical Standpipes

Vertical standpipes shall be installed within the waste body prior to reprofiling works. The arisings will be placed in dedicated low spots on site prior to re-profiling and covered at the end of each working day to minimise odour nuisance. The vertical standpipes will provide a preferential pathway for LFG to escape to atmosphere mitigation risks associated with migration to offsite receptors.

Standpipes diameter will comprise a slotted HDPE pipe with a gravel surround.

Installed ventilation standpipes will include a carbon filtration packs to "scrub" any odour and low concentrations of methane from the landfill gas prior to venting. Wind driven rotating cowls will also be used to induce a negative pressure within the standpipe improving potential LFG flow.

Installation of Landfill Gas/Leachate Management Infrastructure

New monitoring wells (3 no. groundwater and landfill gas monitoring and 3 no. leachate monitoring wells) will be installed to monitor landfill gas, leachate, and groundwater. Arisings from boreholes will be managed on site below the LLDPE barrier and gas collection geocomposite.

Monitoring wells will have a chamber and a cover atop the wells at the same elevation as the surrounding ground. The wells will have monitoring ports to support monitoring of landfill gas quality and or groundwater quality as may be required by the Environmental Protection Agency (EPA).

The construction works will make provision for additional wells within the waste body and ports will be installed at wells heads or manifolds to support monitoring of gas quality and pressure.

Existing wells (3 no. groundwater and landfill gas monitoring wells) as are present outside of the waste footprint will be retained to support future environmental monitoring as may be required by the EPA.

A drawing showing the existing and proposed monitoring wells is enclosed with this planning application (Drawing Reference: P22-071-1100-0007).

Grass Cover/Landscaping for Pasture

Post capping and placement of the subsoils and topsoil layers it is proposed to landscape the site using a proprietary grass cover mix suited for pasture. Grass cover in addition to providing fodder for stock will prevent erosion of the soils and will provide a final appearance similar to surrounding land use.

3.4 Construction Working Hours

The hours of construction activity will avoid unsociable hours and will be agreed with the planning authority in advance of site start. It is anticipated that this will restrict working hours at the site during the construction phase to between to 07:00 to 19:00 Monday to Saturday inclusive. Work on Sundays or public holidays will only be conducted in exceptional circumstances and subject to prior notification insofar as possible with the local community.

4. ENVIRONMENTAL MANAGEMENT PLAN

4.1 Introduction

This Environmental Management Plan (EMP) defines the project obligations, Environmental Management System (EMS) and environment mitigation measures relating primarily to the construction phase of the proposed works.

This EMP describes how the Contractor for the construction works will implement a site Environmental Management System (EMS) on this project to meet the specified contractual, regulatory and statutory requirements and mitigation measures. This plan will be further developed and expanded following the grant of planning permission and appointment of the Contractor for the construction works. Please note that some items in this plan can only be finalised with appropriate input from the Contractor who will carry out the construction works and once the planning conditions attached to any grant of planning are known. It will be the Contractor's contractual responsibility to implement an effective environmental management system to ensure that the Boards **environmental** requirements for the construction of this project are achieved.

All site personnel will be required to be familiar with the environmental management plan's requirements as related to their role on site. The plan describes the project, sets out the environmental procedures that will be adopted on site and outlines the key performance indicators for the site.

- The EMP is a controlled document and will be reviewed and revised as necessary;
- A copy of the EMP will be located at the proposed temporary Contractor's compound;
- All employees, suppliers and Contractors whose work activities cause/could cause impacts on the environment will be made aware of the EMP and its contents.

4.2 Project Obligations

During the remediation phase of the proposed development several environmental management obligations must be implemented and achieved by Monaghan County Council and the Contractor. In addition to statutory obligations, there are several specific obligations set out in the accompanying Natura Impact Statement (NIS). When development consent is granted, there is also likely to be planning conditions, with which Monaghan County Council must comply. At the outset however, this CEMP has been prepared for the purpose of ensuring no adverse environmental impacts occur as a consequence of the proposed development. The Contractor and all of its sub-Contractors will be made fully aware of and be contractually required to adhere to all environmental obligations.

4.2.1 NIS Obligations

The accompanying NIS, which is provided under a separate cover, identifies measures that will be put in place to mitigate the potential environmental impacts arising from the construction phase of the proposed project.

4.2.2 Planning Permission Obligations

Should the remediation works be consented by An Bord Pleanála, the planning conditions will be complied with and should be read in conjunction with the project CEMP and other related reports prepared by and on behalf of Monaghan County Council.

4.2.3 Other Obligations

The Contractor will liaise directly with Monaghan County Council and An Garda Síochána in relation to securing any necessary permits to allow the works to take place including for example (non-exhaustive list):

1. Commencement notice;
2. Special Permits in relation to oversized vehicles on public roads, if required.

Monaghan County Council will continue to liaise closely with the local residents, especially near neighbours and landowners in relation to works and all reasonable steps will be taken to minimise the impact of the development.

4.3 Environmental Management System

The Environmental Management System (EMS) is outlined in the sections below.

4.3.1 Environmental Policy

The Contractor is responsible for preparing and maintaining an Environmental Policy for the site. The policy should be appropriate to the project, commit to continuous improvement and compliance with legal requirements and provide a framework for objectives and targets. This will be communicated to all site personnel and will be available on-site notice boards.

4.3.2 Training, Awareness and Competency

All site personnel will receive environmental awareness information as part of their initial site induction and briefing. The detail of the information should be tailored to the scope of their work on site. The Contractor for the construction works may decide to conduct the environmental awareness training at the same time as health and safety training (often referred to as Site Inductions).

This will ensure that personnel are familiar with the environmental aspects and impacts associated with their activities, the procedures in place to control these impacts and the consequences of departure from these procedures.

The CEMP will be retained in the site management office during the project. The environmental performance at the site will be on the agenda of the monthly project management meetings for the project.

Elements of the CEMP will be discussed at these meetings including objectives and targets, the effectiveness of environmental procedures, etc. Two-way communication will be encouraged by inviting all personnel to offer their comments on environmental performance at the site.

4.3.3 Register of Environmental Aspects

The Contractor is responsible for preparing and maintaining a *Register of Environmental Aspects* pertaining to the site. This register will identify the environmental aspects associated with activities onsite and determine which aspects have or can have a significant impact on the environment. Risks and Opportunities associated with environmental aspects will be identified. Life-cycle impacts (i.e. upstream and downstream impacts) will be identified if present.

4.3.4 Register of Legislation

The Contractor is responsible for preparing and maintaining a register of key environmental legislation pertaining to the site. This register will reference all current environmental legislation and will be inspected, reviewed and updated regularly to ensure compliance.

4.3.5 Objectives and Targets

Objectives and targets are required to be set to ensure that the project can be constructed and operated in full accordance with the NIS, planning conditions and legislative requirements, with minimal impact on the environment.

Environmental objectives are the broad goals that the Contractor must set in order to improve environmental performance. Environmental targets are set performance measurements (key performance indicators or KPI's) that must be met in order to realise a given objective.

The Contractor will set objectives based on each significant environmental impact. Key objectives are likely to include the following:

- To ensure that nearby rivers and streams are not negatively impacted by construction works;
- To ensure that humans are not negatively impacted by dust generated by construction works;
- To ensure that humans are not negatively impacted by noise generated by construction works;
- To ensure that impacts to habitats and wildlife are minimised during works;
- To ensure that a waste management plan for this site will be fully implemented;
- To ensure that the visual impact during the construction work is minimised;
- To ensure that the proposed development is constructed in compliance with the EIA Screening Report;
- To prevent adverse environmental impacts due to noise, vibration or dust.

Performance in relation to each of these objectives will be reviewed on a regular basis by means of inspections, audits, monitoring programmes, etc.

4.3.6 Non-Conformance, Corrective and Preventative Actions

Non-conformance notices will be issued in the following cases:

- Where site activities do not conform with the requirements of the EMS;
- Where environmental monitoring shows that there is a breach of an emission limit value or Environmental Quality Standard on-site;
- Where there is a breach of an EPA condition imposed under the EPA's CoA for the site;
- Where there is a complaint relating to site activities.

Non-conformance is the situation where essential components of the EMS are absent or dysfunctional, or where there is insufficient control of the activities and processes to the extent that the functionality of the EMS in terms of the policy, objectives and management programmes, is compromised. A non-conformance register should be controlled by the Contractor.

In the event of non-conformance with any of the above, the following must be undertaken:

- Investigate cause of the non-compliance;
- Develop a plan for correction of the non-compliance;
- Determine preventive measures and ensure they are effective;
- Verify the effectiveness of the correction of the non-compliance;
- Ensure that any procedures affected by the corrective action taken are revised accordingly.

Responsibility must be designated for the investigation, correction, mitigation and prevention of non-conformance.

Internal Audits

Periodic internal audits will be carried out under the EMS to ensure that all site activities conform to the requirements of the EMS. Non-conformances identified during Internal Audits will be addressed by way of the Non-conformance management process detailed above. Opportunities for Improvement identified during internal audits will be communicated to the relevant responsible personnel.

4.3.7 EMS Documentation

The Contractor is required to keep the following documentation in relation to the environmental management of the project (as a minimum):

- Construction Environmental Management Plan for the proposed development;
- Register of Environmental Aspects/Impacts;
- Register of Planning Conditions;
- Monitoring Records;

- Minutes of Meetings;
- Training Records;
- Audit and Review Records.

All of these documents and records are to be available for inspection in the site office. The documentation shall be up to date and shall be reviewed on a regular basis with revisions controlled in accordance with the site quality plan.

It will be a requirement to develop and maintain a Management and Monitoring programme in accordance with Condition 3 of the CoA for the site.

4.3.8 Control of Documents

The Contractor will establish, implement and maintain a procedure to control CEMP documents and records so they are clearly identifiable, organised, current, easily located and revised when necessary.

4.4 Ecological Management Plan

FT was commissioned on behalf of Monaghan County Council to undertake an Appropriate Assessment Screening and Natura Impact Statement which accompany the application for the proposed landfill remediation.

The ecology appraisal involved a field assessment and a desktop review of relevant data available for the study site and locality.

4.4.1 Designated Sites

Potential impacts on European sites are considered in the Natura Impact Statement accompanying the Planning Application.

4.4.2 Habitats

The habitat types (according to the Fossitt, 2000 classification system) identified during the ecological surveys conducted at the site on the 14th May 2022 are outlined below.

There is one habitat within the remediation works area, improved agricultural grassland (GA1). This is dominated by rye grass and is heavily fertilised. Other species present include dandelion *Taraxacum vulgaria,* white clover *Trifolium repens, d*oc *Rumex obtusifolius,* and greater plantain *Plantago major*. Within 50m of the remediation works area, improved agricultural grassland is dominant with a small grove of broadleaved woodland (WD1) and a short treeline (WL2).

4.4.3 Invasive Species

As previously noted, no invasive species have been identified on site.

4.4.4 Construction/Operational Stage Mitigation Measures

Mitigation by Avoidance and Design

The following measures are incorporated into the proposed remediation plan to reduce impacts on designated sites, flora and fauna through avoidance and design:

- Installation of a surface drainage system to prevent leachate entry to watercourses;
- Capping the landfill to isolate the waste from rainfall, preventing leachate entry to watercourses.

Further mitigation measures prescribed to avoid or reduce potential for the proposed project and remediated site to have an adverse effect on the integrity/conservation objectives of the Upper Lough Erne NI SPA, Upper Lough Erne NI SAC and Lough Oughter and Associated Loughs SAC are outlined in Section 4.4.5 below. These mitigation measures also mitigate against cumulative impacts.

4.4.5 General Mitigation Measures

The following general mitigation measures will be adopted and implemented on-site to minimize potential impact on ecological receptors.

A suitably qualified person will be appointed to ensure the effective operation and maintenance of mitigation measures during the construction process.

- Compact surface of stored/stockpiled soils during the reprofiling and capping works;
- In the event of exposure of uncovered waste, waste will be relocated to a low-lying location on site and soil will be compacted on top of the waste before the end of the working day;
- Weather forecasts will be reviewed daily, and earthworks will not be undertaken during periods of heavy rainfall;
- Mobile storage tanks will be provided to store leachate arising during construction works. This leachate will be disposed of to a licensed wastewater treatment plant;
- Temporary silt fences will be installed along the site perimeter and around soil stockpiles;
- The access track will be resurfaced with Clause 804 with minimal fines;
- Refuelling of plant during construction will only be carried out at a designated refuelling area;
- Appropriate spill control equipment, such as oil soakage pads, will be kept within the construction area and in each item of plant to deal with any accidental spillage;
- Portaloos and/or containerised toilets and welfare units will be used to provide toilet facilities for site personnel. Sanitary waste will be removed from site by a licensed waste disposal contractor;
- The Contractor carrying out the works will be required to provide temporary works to prevent soil being carried out onto the L2150. In addition, the Contractor will be required to provide backup provision by way of a road sweeper to clean up fines as may be present.

- The capped surface will be vegetated post-construction to prevent the generation of silted runoff;
- Post construction the LLDPE barrier will provide an engineered barrier that will isolate the waste body from rainfall inputs and prevent leachate production that might otherwise contaminate groundwater;
- The constructed surface drainage system will filter surface water before it enters the receiving watercourses.

4.5 Noise, Vibration, Dust and Air Quality Management Plan

4.5.1 Potential Impacts During the Construction Phase

Noise from the construction phase would arise from deliveries and/or removal of material to and from site, top-soil excavation, preparation of access roads & drainage and concrete pouring of foundations/footings where necessary.

Dust emissions arise when particulate matter becomes airborne making it available to be carried downwind from the source. Dust emissions can lead to elevated PM_{10} and $PM_{2.5}$ concentrations and may also cause dust soiling.

The amount of dust generated and emitted from a working site and the potential impact on surrounding areas varies according to:

- The type and quantity of material and working methods;
- Distance between site activities and sensitive receptors;
- Climate/local meteorology and topography.

The principal sources of potential air emissions during the construction of the proposed development include:

- Dust arising from earthworks;
- Dust arising from the movement of construction vehicles over land as well as the transporting of materials to the site of the proposed development;
- Dust arising from the temporary storage of any excavated materials and wind blowing over unprotected, unconsolidated soils;
- Dust arising from uncovered truckloads, the movement of material around the site and the loading and unloading of aggregates and of materials within the site;
- Pollutants arising from temporary diesel generators.

4.5.2 Construction Stage Mitigation Measures

During the construction phase there is potential for increased ambient noise levels and potential temporary impacts on residential dwellings in the surrounding area of the site during the proposed earthworks and installation of site infrastructure using plant and machinery. If noise emissions from these activities are an issue, the scheduling of construction activity will be addressed such that durations of construction activity likely to exceed the 65 dB $L_{Aeq,1hr}$ noise limit do not occur simultaneously with other construction activity.

Generally, construction works will be carried out in accordance with best practice and in line with recommendations contained within BS 5228-1:2009+A1:2014.

To mitigate against the impacts of noise on the local community during construction, the following specific measures are proposed:

- A pre-construction commitment to managing noise levels will be agreed through notification and consultation with affected parties, if deemed necessary;
- Working hours at the site during the installation phase will be limited to 07:00 to 19:00 Monday to Saturday inclusive. Work on Sundays or public holidays will only be conducted in exceptional circumstances and subject to prior notification insofar as possible with the local community;
- Construction contractors will be required to comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 as amended in 1990 and 1996 (S.I. No. 320 of 1988, S.I. No. 297 of 1990 and S.I. No. 359 of 1996), and the Safety, Health and Welfare at Work (Control of Noise at Work) Regulations, 2006 (S.I. No. 371 of 2006).

The main control measures will involve control of noise at source measures using the following methods in line with Clause 8 'Control of noise' of BS 5228-1:2009+A1:2014:

- Operators of all mobile equipment will be instructed to avoid unnecessary revving of machinery (Clause 8.2.1 General);
- Use of appropriate plant and equipment where possible with low noise level generation where possible (Clause 8.2.2 Specification and substitution);
- All construction plant to be used on site should have effective well-maintained silencers (Clause 8.2.3 Modification of existing plant and equipment);
- Noise generating equipment will be located as far as possible away from local noise sensitive areas identified (Clause 8.2.5 Use and siting of equipment); and
- Regular and effective maintenance of site machinery including a full maintenance schedule to ensure that all pieces of equipment are in good working order. With efficient use of well-maintained mobile equipment, considerably lower noise levels than those predicted can be attained (clause 8.2.6 Maintenance).

In addition, the following best practice measures are proposed:

- Training of site staff in the proper use and maintenance of tools and equipment;
- Avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment;
- Machines that could be in intermittent use will be shut down between work periods or will be throttled down to a minimum;
- Plant start-up will be sequential rather than all together;
- Internal access tracks to be well maintained;
- Plant known to emit noise strongly in one direction will, when possible, be orientated so that the noise is directed away from noise-sensitive locations.

Mitigation measures to reduce dust nuisance and to minimise impact on air quality will be employed during the construction phase of the project. These mitigation measures will include the following:

- The Contractor or equivalent must monitor the Contractors' performance to ensure that the proposed mitigation measures are implemented, and that dust impacts and nuisance are minimised.
- The drop height of materials will be minimised to a practicable level, to limit fugitive dust generation;
- Gravel will be used at site exit points to remove possible caked on dirt from tyres and tracks before travelling along public roads. Periodic road sweeping, as necessary, shall be put in place at the site entry/exit points.
- The site supervisor will undertake daily visual inspections to examine dust generation.
- The working area will be kept as small as possible so as to minimise potential dust generation.
- To suppress the migration of dust from site, a water bowser will be available to spray work areas and access roads, especially during periods where excavation works coincide with dry periods of weather or existing activities.
- All loads with potential to cause dust nuisance will be covered using strong, waterproof sheets such as tarpaulin sheets and will not be overloaded. This will minimise the potential for fugitive emissions during transport.
- All other stockpiles will be kept damp and covered to prevent windblown dust emissions.
- Construction vehicles and plant will be routinely serviced to minimise the exhaust emissions during construction. Vehicles will not be left running unnecessarily and low emission fuels will be used where possible.

4.6 Surface Water Management Plan

4.6.1 Adjacent Watercourses

According to the EPA map viewer, the site is located within the catchment of the River Erne which flows towards the west. Surface water ditches bound the site to the southwest and south. The site is bounded to the southeast, east and north by the Kilgormly River. The Magherarny River bounds the site to the northwest and flows into the River Finn. The River Finn is a tributary of Lough Erne. Upper Lough Erne NI SPA, Upper Lough Erne NI SAC and Lough Oughter and Associated Loughs SAC are located approximately 26 to 40km downstream.

4.6.2 Proposed Drainage

French drains around the capping perimeter will collect and direct surface water runoff to the receiving watercourses. Proposed French drains will be provided with 300 mm diameter HDPE SDR 17 slotted pipes.

A drawing showing the proposed surface and subsurface drainage system is enclosed with this planning application (Drawing Reference: P22-071-1500-0001, P22-071-1500-0002 and P22-071-1500-0003).

4.6.3 Construction Stage Impact and Mitigation

The impact of the remediation works during the construction phase is not significant for hydrology and water quality. However, the following mitigation measures to reduce potential impacts during the construction stage are outlined below:

- Weather forecasts will be reviewed on a daily basis and earthworks will not be undertaken during periods of heavy rainfall.
- The Contractor will be responsible to ensure the effective operation and maintenance of drainage and other mitigation measures during the construction process. The operations management of the subject development will include regular monitoring of the drainage system and maintenance as required.
- Silt fencing shall be located adjacent to all water courses.
- A series of silt fences shall be securely placed around the site perimeter and around stockpiles. These shall be installed prior to any works.
- Dewatering flows from excavations will be managed to prevent elevated suspended solids entering the watercourse by use of silt fencing.
- Temporary storage tanks in the form of IBC's will be provided for the safe storage of any leachate arisings during the construction works. Leachate arising during construction works will be disposed at a licensed wastewater treatment plant.
- Emergency drip trays and spill kits will be kept available on site, to ensure that any spills from vehicles are contained and removed off site.
- Portaloos and/or containerised toilets and welfare units will be used to provide toilet facilities for site personnel. Sanitary waste will be removed from site via a licenced waste disposal contractor.
- Access track construction methodology to reduce suspended solids generation.

4.7 Soil Management Plan

It is intended to maintain an earthworks balance on site, with all excavated material re-used within the site where possible, thereby minimising the need for removal of any materials for off-site disposal. This will in turn lead to the reduction of noise and dust associated with construction traffic.

Excavation and backfilling will take place over short lengths. There will be no permanent spoil heaps at the site of the proposed development.

Excavation/capping works will be monitored by suitably qualified and experienced personnel.

The programming of the works will be such that earthworks are not scheduled to be carried out during severe weather conditions. Where such weather is forecast, suitable measures will be taken to secure the works. Due to the possibility of soil-borne diseases, all topsoil/peat recovered from the site will remain on the site. Topsoil will be used for landscaping berms alongside existing and new access tracks where suitable and will also be used for reinstatement and landscaping purposes.

No off-site disposal of soil will be required from the site and no spoil stockpiles will be left on site after construction is completed.

In addition to the above, lubricants and hydraulic fluids for equipment will be stored within an appropriately bunded storage unit in the proposed temporary Contractor's compound. Refuelling will be carried out directly from delivery vehicles at designated refuelling areas. Specific mitigation measures relating to the management of hydrocarbons spills are outlined below:

- Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage.
- Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the site and properly disposed of.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or re-cycling.
- Appropriate spill control equipment, such as oil soakage pads, will be kept within the proposed temporary Contractors compound and in each item of plant to deal with any accidental spillage.
- Drip trays and spill kits will be kept available on site, to ensure that any spills from vehicles are contained and removed off site.

4.8 Waste Management Plan

It will be the objective of Monaghan County Council in conjunction with the appointed Contractor to prevent, reduce, reuse and recover as much of the waste generated on site as practicable (in accordance with Waste Hierarchy Principles) and to ensure the appropriate transport and disposal of residual waste off site. This is in line with the relevant National Waste Management Guidelines and the European Waste Management Hierarchy, as enshrined in the Waste Management Act 1996, as amended.

4.8.1 Assignment of Responsible Personnel

It will be the responsibility of the Contractor for the construction works (when appointed) to nominate a suitable site representative such as a Project Manager, Site Manager or Site Engineer as Waste Manager who will have overall responsibility for the management of waste. The Waste Manager will have responsibility to instruct all site personnel including sub-contractors to comply with on-site requirements.

4.8.2 Waste Generated

It is envisaged that all excavated materials on-site will be reutilized on-site during reprofiling of the site.

Any waste materials generated on-site during the construction of the proposed development will be handled and managed in accordance with the requirements of the Waste Management Act 1996, as amended, and associated Regulations. All waste will be stored in segregated waste containers at the temporary construction compound and collected separately by appropriately licensed waste contractors. All waste materials transferred off-site for disposal or recovery will be taken only to suitably permitted/licensed waste facilities.

4.8.3 Waste Management During the Construction Phase

Any waste generated during the development construction phase will be collected, source separated and stored in dedicated receptacles at the temporary compounds during construction.

Typical categories of waste generated during the construction of this type of project:

- Municipal solid waste from the office and canteen;
- Construction and demolition waste;
- Waste oil/hydrocarbons;
- Paper/cardboard/plastic wrapping;
- Timber;
- Steel.

As above-noted, it will be the responsibility of the Contractor for the main construction works (when appointed) to nominate a suitable site representative such as a Project Manager, Site Manager or Site Engineer as Waste Manager who will have overall responsibility for the management of waste. The Waste Manager will have responsibility to instruct all site personnel including sub-contractors to comply with on-site requirements.

Where waste is generated, every effort will be made to separate and segregate the different waste streams.

Table 4-1: Principal Wastes Generated during the Construction Phase

Waste	Source
Timber	Temporary supports and packaging waste
Miscellaneous materials	Surplus materials from installation works
Lubricating oils, diesel	Unused quantities at end of installation period
Plastics	Packaging waste
Paper/cardboard	Packaging waste
Non-hazardous Office and Canteen Waste	Temporary welfare facilities unit
Food waste	Temporary welfare facilities unit
Sanitary waste	Temporary welfare facilities unit

4.8.4 Installation Stage Waste Reduction

The appointed Contractor will make all reasonable effort to minimise the creation of waste throughout the installation stage. This will be achieved through the following measures:

- The ordering of material will be optimised to ensure that only the necessary levels are delivered to site;
- All plant will be serviced before arriving on site. This will reduce the risk of breakdown and the possible generation of water oil on site.

- All operators will be instructed in measures to cut back on the amount of wastage for trimming of materials etc.;
- Prefabrication of design elements will be used where suitable to eliminate waste generation on site, and;
- Where materials such as concrete are being ordered, care will be taken when calculating required quantities to reduce wastage.

4.8.5 Construction Material Re-use

Where possible, materials will be re-used onsite for other suitable purposes.

4.8.6 Construction Waste Recycling

Where waste is generated, every effort will be made to recycle it. In order to optimally recycle, waste source segregation of recyclable materials will be undertaken.

Suitable containers will be provided for the storage and collection of source segregated materials. These containers will be clearly labelled and signposted.

The following sourced segregated materials containers will be made available on site at a suitable location:

- Timber;
- Ferrous metals;
- Aluminium;
- Dry mixed recyclables; and
- Packaging waste.

4.8.7 Construction Waste Disposal

Where waste disposal is unavoidable, waste will be disposed of in a manner not likely to cause environmental damage:

- All waste materials will be stored in suitable locations and enclosed containers where suitable to avoid pollution and generation of wind-blown debris.
- All waste will be collected by a suitably competent and permitted waste collection contractor.
- All waste will be dispatched to an appropriate authorized waste facility.
- Dispatch to a waste recovery/recycling facility will be preferred over dispatch to a waste facility involved in waste disposal or energy recovery.
- No material will be burned on site under any circumstances.

4.8.8 Training

Copies of the Waste Management Plan will be made available to all relevant personnel on site. All site personnel and sub-contractors will be instructed about the objectives of the Project Waste Management Plan and informed of the responsibilities that fall upon them as a consequence of its provisions.

It will be the responsibility of the Contractors' appointed Waste Manager to ensure that all personnel are made aware of their responsibilities under the plan via a toolbox talk or otherwise.

4.9 Traffic Management

As with any construction development project, the transport of materials onto the site will give rise to increased traffic and associated impacts. However, due to the very nature of construction these impacts will be temporary.

Materials arising on-site will be reused on-site where possible to minimize traffic movements off-site.

Public perception of the construction phase will be influenced primarily from the impact of traffic movements. The degree of traffic disturbance caused by the construction phase depends on the volume of material imported/exported, the associated civil engineering requirements and the length of the construction period.

Construction traffic will require regular access to the site at varying times throughout the construction phase. Traffic management procedures to manage traffic effectively on site and in the immediate vicinity of the development, to ensure the continued movement of traffic on the public roads and to minimise disturbance during the transportation of materials.

The site is accessed from the southeast via the L2150. The surrounding routes are considered to be acceptable for the level of traffic generated during construction with some mitigation proposed. Similar traffic is currently using these roads to service the farmland and agriculture practices in the area. There should be ample capacity to carry the deliveries associated with the temporary short-term construction activities of the landfill.

The construction phase for the proposed works will result in additional traffic on the roads in the vicinity of the development, in particular the N54 which is approximately 1.8km northeast of the site. The L2150 connects the N54 to the site.

This additional traffic will include:

- Construction worker vehicles;
- Delivery vehicles carrying conventional construction materials e.g. aggregate;
- Delivery vehicles carrying machinery and equipment.

It should be noted however that final selection of construction plant and vehicles may vary depending on suitability, availability, Contractor's choice, etc. Plant operators will be responsible for the upkeep and maintenance of construction plant and vehicles, ensuring good working order prior to use. Should emergency maintenance need to be carried out on site, this will be carried out at a designated area away from sensitive receptors and it will be ensured that a spill kit is nearby.

Parking for all site staff vehicles during the Construction phase will be provided adjacent to the construction compound. Parking of construction related vehicles (or queuing) will not be permitted outside the facility gate. This will be achieved using a combination of signage, suitable bollards (if required) and enforcement by site management.

HGVs entering the site shall do so via the proposed access, which will be developed to allow adequate visibility sightlines in accordance with TII Standard DN-GEO-03031: Road Link Design, 2012, and in accordance with Monaghan County Development Plan.

Public roads shall be kept free of mud, dust, spillages and debris from the construction site, construction plant or haulage vehicles. Periodic road sweeping, as necessary, shall be put in place at the site entry/exit points.

The roadway on site from the public road entrance, shall be kept free of dust, spillages and debris. Regular watering of the access road will take place and Monaghan County Council will liaise with adjacent residences to avoid undue or unnecessary truck movements during unsocial hours.

4.9.1 Consultation and Notification

Traffic Management Co-ordinator

The Contractor will appoint a dedicated competent Traffic Management Coordinator for the duration of this project and this person will be the main point of contact for all matters relating to traffic management on the project.

Induction

Prior to the works commencing, the Traffic Management Coordinator will carry out an induction for the materials haulage contractor staff to inform them of the traffic requirements in relation to vehicle movements. Traffic consideration shall form part of the induction process for all site staff also.

An Garda Síochána

Following the appointment of the successful Contractor for the main construction works for this project, the CTMP shall be finalised. The Traffic Management Coordinator will liaise directly with An Garda Síochána in relation to the plan and any concerns/requirements they have will be incorporated into the plan. The necessary permits (including approved route permits) will be applied for and obtained from An Garda Síochána, if required.

Monaghan County Council

The Contractor will liaise directly with Monaghan County Council Roads Department in relation to the plan and any necessary permits (including standard permits) will be applied for and obtained from the Roads Department.

5. SAFETY & HEALTH MANAGEMENT PLAN

5.1 Induction

This Safety and Health Management Plan (SHMP) defines the work practices, procedures and management responsibilities relating to the management of health and safety during the design, construction and operation of the proposed development and shall be read in conjunction with the Preliminary Safety & Health Plan prepared for the project by the Project Supervisor for the Design Process. The Safety and Health Management Plan shall be finalised in accordance with this plan following the appointment of the Contractor for the construction works.

The SHMP describes how the Contractor for the construction works will implement a site safety management system (SMS) on this project to meet the specified contractual, regulatory and statutory requirements, environmental control and mitigation measures, and planning conditions. It is the Contractor's responsibility to implement an effective safety management system to ensure that MCC's safety requirements for the construction of this project are met. Any SMS will incorporate and develop upon any preliminary plans prepared for the project by the Project Supervisor for the Design Process.

All site personnel will be required to be familiar with the requirements of the safety management plan as related to their role on site. The plan describes the project organisation and sets out the health and safety procedures that will be adopted on site:

- The Safety and Health Plan is a controlled document and will be reviewed and revised as necessary;
- A copy of the Safety and Health Plan will be located on/near the site H&S notice board;
- All employees, suppliers and contractors whose work activities cause/could cause impacts on the environment will be made aware of the SHMP and its contents.

The selection criteria for the Contractor for the works will be based on the ability to construct the works in a manner that will not endanger the safety, health and welfare of any parties and competence to fulfil the role of PSCS.

All site personnel will be required to be familiar with the requirements of the Safety and Health Management Plan for the construction phase of the project as related to their role on site. The plan will describe the project organisation and sets out the health and safety procedures that will be adopted on site.

Solas Safe Pass registration cards are required for all construction, delivery and security staff. Construction operatives will hold a valid Construction Skills Certificate Scheme card where required. Public safety will be addressed by restricting site access during construction. Appropriate warning signs will be posted, directing all visitors to the site office.

All personnel on site will wear adequate personal protective equipment (PPE), appropriate for their activity while on site.

In relation to working near overhead electric lines, the contractor will comply with ESB Networks Code of Practice for Avoiding Danger from Overhead Electricity Lines, 2008. Prior to site start, hazard exclusion zones will be established by the main contractor and overhead goalposts will be set up at designated crossing points where plant must pass directly under overhead electricity lines in accordance with ESBN requirements. A minimum 3m exclusion zone for 10kV, 20kV and 38kV overhead lines will be maintained at all times.

5.2 Project Obligations with Respect to Health and Safety

The construction of the proposed development will impose numerous safety management obligations on MCC, designer and Contractor. These obligations are set out below. The Contractor for the construction works and all of its sub-contractors are to ensure that they are fully aware of and in compliance with these safety obligations.

5.2.1 Statutory Obligations

The Safety, Health and Welfare at Work Act 2005 and the Safety, Health and Welfare at Work (Construction) Regulations 2013 place a responsibility on Monaghan County Council as the "Client", the Designer, the Project Supervisors and the Contractor.

The Council must:

- Appoint a competent and adequately resourced Project Supervisor for the Construction Stage (PSCS);
- Be satisfied that the Contractor appointed has adequate training, knowledge, experience and resources for the work to be performed;
- Co-operate with the project supervisor and supply necessary information;
- Keep and make available the safety file for the completed structure;
- Provide a copy of the safety and health plan prepared by the PSDP to every person tendering for the project.

The Designers must:

- Identify any hazards that their design may present during construction and subsequent maintenance;
- Eliminate the hazards or reduce the risk;
- Communicate necessary control measures, design assumptions or remaining risks to the PSDP so they can be dealt with in the safety and health plan;
- Co-operate with other designers and the PSDP or PSCP;
- Take account of any existing safety and health plan or safety file;
- Comply with directions issued by the PSDP or PSCS.

The PSDP must:

- Identify hazards arising from the design or from the technical, organisational, planning or time related aspects of the project;
- Where possible, eliminate the hazards or reduce the risks;
- Communicate necessary control measure, design assumptions or remaining risks to the PSCS so they can be dealt with in the safety and health plan;
- Ensure that the work of designers is coordinated to ensure safety;
- Organise co-operation between designers;

- Prepare a written safety and health plan for any project and deliver it to the client prior to tender;
- Prepare a safety file for the completed structure and give it to the client.

The PSCS must:

- Co-ordinate the identification of hazards, the elimination of the hazards or the reduction of risks during construction;
- Develop the Safety and Health Plan initially prepared by the PSDP before construction commences;
- Co-ordinate the implementation of the construction regulations by contractors;
- Organise cooperation between contractors and the provision of information;
- Co-ordinate the reporting of accidents to the Authority;
- Notify the Authority before construction commences;
- Provide information to the site safety representative;
- Co-ordinate the checking of stage working procedures;
- Co-ordinate measures to restrict entry on to the site;
- Co-ordinate the provision and maintenance of welfare facilities;
- Co-ordinate arrangements to ensure that craft, general construction workers and security workers have a Safety Awareness card, e.g. Safe Pass and a Construction Skills card where required;
- Co-ordinate the appointment of a site safety representative where there are more than 20 persons on site;
- Appoint a safety adviser where there are more than 100 on site;
- Provide all necessary safety file information to the PSDP;
- Monitor the compliance of contractors and others and take corrective action where necessary;
- Notify the Authority and the client of non-compliance with any written directions issued.

The Contractor must:

- Co-operate with the PSCS;
- Promptly provide the PSCS with information required for the safety file;
- Comply with directions of the project supervisors;
- Report accidents to the Authority and to the PSCS where an employee cannot perform their normal work for more than 3 days;
- Comply with site rules and the safety and health plan and ensure that your employees comply;
- Identify hazards, eliminate the hazards or reduce risks during construction;
- Facilitate the site safety representative;
- Ensure that relevant workers have a safety awareness card and a construction skills card where required;
- Provide workers with site specific induction;

- Appoint a safety officer where there are more than 20 on site or 30 employed;
- Consult workers with site specific induction;
- Monitor compliance and take corrective action.

Consequently, at all stages of the project there are statutory requirements for the management of safety, health and welfare of all involved in or affected by the development. As previously outlined, this CEMP and specifically the Safety and Health Management Plan addresses key construction management issues associated with the proposed development. This plan will be developed further at the construction stage, on the appointment of the Contractor for the main construction works.

5.2.2 The Preliminary Safety and Health Plan

In accordance with the requirements of the Safety, Health & Welfare at Work (Construction) Regulations 2013, a Preliminary Safety & Health Plan will be required as part of the design process. This plan will be further developed by the PSCS on appointment and maintained as a live document during construction and commissioning of the proposed development.

The safety and health plan is required to include the following information:

- A general description of the project;
- Details of other work activities taking place on site;
- Works involving particular risks;
- The timescale for the project and the basis on which the time frame was established; and
- Conclusions drawn by designers and the PSDP having taken into account the General Principles of Prevention and any relevant Safety and Health Plan or Safety File.

In accordance with the PSDP's procedures, the Preliminary Safety & Health Plan for the proposed development should include the following sections and subsections to ensure that the PSCS is aware of the health and safety issues at tender stage and enable them to price accordingly:

Preamble:

1 General Project Information:

1.1 Title
1.2 Description of Project
1.3 Employer
1.4 Designers/Other Consultants
1.5 Project Supervisor Design Process
1.6 Drawings, Specifications and Other Documents
1.7 Intended Contract Commencement Date
1.8 Intended Contract Completion Date
1.9 Basis for Contract Duration

5 Additional Information:

5.1 Existing Documents
5.2 Site Possession
5.3 Site Rules
5.4 Site Specific Safety Objectives
5.5 Phasing of Works
5.6 Permits/Authorisation Required
5.7 Maintenance
5.8 Continuing Liaison
5.9 Specific Recommendations

6 Information Required for Safety File:

6.1 Information Required for Safety File from PSCS

5.2.3 The Management of Health and Safety during the Construction Phase

The selection criteria for the Contractor for the works will be based on the ability to construct the works in a manner that will not endanger the safety, health and welfare of any parties and competence to fulfil the role of PSCS.

The contract will be awarded on the basis of assessment of the candidates against relevant health and safety criteria including experience of similar projects, knowledge of the construction processes involved and training of their management and staff who will be involved in carrying out the works.

5.2.4 The Construction Stage Safety and Health Plan

In accordance with the requirements of the Safety, Health & Welfare at Work (Construction) Regulations 2013, the preliminary Safety & Health Plan prepared by the PSDP will be further developed by the PSCS before the commencement of the construction work and updated on a regular basis during the construction phase of the project.

The document will include the following sections and subsections to ensure the management of health and safety during the construction phase of the project:

1. Description of Project:

- project description and programme details;
- details of client, PSDP and PSCS, designers;
- contractor and other consultants;
- extent and location of existing records and plans;
- arrangements for communicating with Contractors, PSDP and others as appropriate.

2. Communication and Management of the Work:

- management structure and responsibilities;
- safety and health goals for the project and arrangements for monitoring and review of safety and health performance;
- arrangements for:
    - regular liaison between parties on site;
    - consultation with the workforce;
    - the exchange of design information between the Client, Designers, Project Supervisor for the Design Process, Project Supervisor Construction Stage and Contractors on site;
    - handling design changes during the project;
    - the selection and control of contractors;
    - the exchange of safety and health information between contractors;
    - security, site induction, and on-site training;
    - welfare facilities and first aid;
    - the production and approval of risk assessments and method statements;
    - the reporting and investigation of accidents and other incidents (including near misses);
- site rules;
- fire and emergency procedures.

3. Arrangements for Controlling Significant Site Risks:

- Safety risks:
    - services, including temporary electrical installations;
    - preventing falls;
    - work with or near fragile materials;
    - control of lifting operations;
    - dealing with services (water, electricity and gas);
    - the maintenance of plant and equipment;
    - poor ground conditions;
    - traffic routes and segregation of vehicles and pedestrians;
    - storage of hazardous materials;
    - accommodating adjacent land use;
    - other significant safety risks.
- Health risks:
    - dealing with contaminated land;
    - manual handling;
    - use of hazardous substances;
    - reducing noise and vibration;
    - other significant health risks.

The construction stage safety and health plan will be maintained on site by the PSCS and will be communicated to all relevant parties on an ongoing basis through inductions, site safety meetings and toolbox talks etc. as required.

5.3 Control of Documents

The Contractor will establish, implement and maintain a procedure to control project documents and records so they are clearly identifiable, organised, current, easily located and revised when necessary.

6. EMERGENCY RESPONSE

6.1 Introduction

This chapter of the CEMP presents an Emergency Response Plan for the proposed development. The Emergency Response Plan shall be finalised in accordance with this outline plan following the appointment of the Contractor for the construction works and following detailed design development.

This Emergency Response Plan contains predetermined guidelines and procedures to ensure the safety, health and welfare of everybody involved in the project and to protect the environment during the construction phase of the proposed development. This plan outlines the immediate response to an emergency or disaster situation and will be developed by the construction works contractor and PSCS as part of their construction stage Safety and Health Plan.

An emergency is any disruptive or harmful event that endangers people, environment, property or assets. Emergencies can be small, as in a fire contained by employees using firefighting equipment or large, as in a disaster resulting from a storm.

In the context of the proposed development, examples of Emergency Response Plan emergency events are:

- Medical emergency;
- Explosion;
- Overheated equipment;
- Chemical and fuel spill;
- Fire;
- Loss of power;
- Vehicle incidents.

Example sources of emergency or disaster events are:

- Unstable/inappropriate stockpiles on site;
- Faulty or incorrect use of equipment;
- Falls from height;
- Smoking;
- Storm/adverse weather;
- Power failure;
- Fuel spill;
- Road failure;
- Serious vehicle collisions or overturning.

6.2 Emergency Response Plan

An emergency response plan deals with the immediate physical effects of a disaster and outlines the initial response.

6.2.1 Emergency Response Liaison

The Contractor/PSCS will designate an individual to serve as the Emergency Response Liaison for this project. The Emergency Response Liaison will coordinate the emergency response for the duration of any emergency at or nearby the project site.

Monaghan County Council, An Garda Síochána and the HSE Ambulance Co-ordinator will be provided with the construction programme and the onsite contact information from the Emergency Response Liaison prior to construction.

The Emergency Response Liaison will be immediately reachable at all times during project construction. The Liaison will coordinate with the above agencies to establish emergency procedures for access to and within the site in the event of an emergency.

6.2.2 Reporting Emergencies

In the event of fire, storm, flood, serious injury or other emergency, contact:

ALL ON SITE EMERGENCIES DIAL 112 or 999

6.2.3 Designated Responder

A map depicting the location with the emergency meeting point will be furnished to Monaghan County Council Fire Department and HSE ambulance co-ordinators.

Upon arrival on the scene, the senior EMS Officer will set up the incident command structure. The Emergency Response Liaison and all contractor's personnel will cooperate with directions of the incident commander and assist as directed.

The nearest emergency services, ambulance and Accident & Emergency (A&E) facilities are:

Service:	Contact Details:	
Accident & Emergency (A&E)	Monaghan General Hospital	(047) 81811
Ambulance Service	Dial 112 or 999	
Fire Services	Dial 112 or 999	
Garda Station	Killycronaghan Garda Station	(094) 937 2080

Each member of the Contractor's site team who are First-Aid and Cardiopulmonary Resuscitation (CPR) trained personnel will be identifiable with a hard hat sticker indicating their training.

6.2.4 Emergency Alarm

The emergency alarm will be raised on site as soon as an emergency situation is detected, the alarm will be identified (contractor to check those that apply):

Air Horn		**Radio**		**Voice**		**Hand Signals**		**Siren**	

6.2.5 Emergency Reporting

In the event of an emergency, the nearest supervisor with radio equipment/mobile phone will be notified. The degree of emergency will be reported to the Emergency Response Liaison who will contact the Emergency Services and request the appropriate emergency service.

6.2.6 Medical Protocol

In the event of a major medical emergency, the emergency centre (112 or 999) will be notified, and an ambulance and emergency medical team will respond to the scene. All major medical cases require professional (ambulance) transportation. In the event of a minor medical case, the affected employee can be transported via company vehicle in the escort of a foreman or site engineer (with first aid training).

6.2.7 Emergency Response

Upon notification, the Emergency Response Liaison will respond to the emergency scene and manage emergency operations:

1. Assess hazards and make the area safe – If you cannot enter the area without risking your safety, don't do it, call the Emergency Services immediately and wait for them. If you think you can safely enter the area, look around the emergency scene for anything that can be dangerous or hazardous to you, the casualty, or anyone else at the scene. Bystanders can help with making the area safe. First aid kits will be available on site. Operators that have been first aid/CPR/AED trained will be listed on site and easily identifiable by a hard hat sticker.

2. Take charge of the situation – if you are the first-aid provider on the scene act fast. If someone is already in charge, briefly introduce yourself and see if that person needs any help. If there is any chance the casualty could have a head or spinal injury, tell them not to move.

3. Get Consent – always identify yourself as a first-aid provider and offer to help. Always ask for consent before touching a conscious adult casualty and always ask for consent from a parent or guardian before touching an unconscious or conscious child or infant. With an unconscious adult casualty consent is implied as it is generally accepted that most people want to live. Remember to protect yourself first by wearing gloves and eye protection.

4. Assess Responsiveness – is the casualty conscious or unconscious? Note their response while you are asking them for their consent. If they respond, continue with the primary survey, and if they don't respond, be aware that an unconscious casualty is or has the potential of being a breathing emergency.

5. Call out for help – this will attract bystanders. Help is always useful in an emergency situation. Someone can be called over the phone for medical help. Others can bring blankets if needed, get water, etc. A bystander can help with any of the following:

- Make the area safe;
- Find all the casualties;
- Find the first aid kit, or any useful medical supplies;
- Control the crowd;
- Call for medical help;
- Help give first aid, under your direction;
- Gather and protect the casualty's belongings;
- Take notes, gather information, be a witness;
- Reassure the casualty's relatives;
- Lead the ambulance attendants to the scene of the emergency;
- Notify Emergency Services as soon as you can. Either send a bystander or call yourself.

In the event of a major medical emergency, the Emergency Response Liaison, as the person-in-charge of the emergency scene, will dispatch someone to the site access point nearest the emergency scene to direct and lead arriving outside responders to the emergency scene. The designated meeting point will be agreed prior to the commencement of construction. Emergency personnel will be met at this meeting point which has been communicated by management during the 112/999 call. The emergency personnel escort will use the hazard lights on their vehicle, so they are easily identified.

6.2.8 Escape and Evacuation Procedure

Dependent upon the degree of the emergency and if safe to do so, employees will evacuate to the designated assembly area where the designated wardens shall account for all employees and determine if anyone still remains within the emergency scene.

Should a wild land fire or peat slippage occur, and the designated assembly area is compromised, other locations will be designated as secondary assembly areas.

6.2.9 Prevention of Illness/Injury due to Weather/Elements

1. All employees will have access to shelter and heat in the event of inclement weather;
2. Employees will have access to at least a litre of water at all times;
3. Weather forecast will be discussed every morning with the crews. Weather conditions and forecast will be monitored regularly by management;

4. No Employee will work alone. A buddy system will be used so employees can contact a supervisor in case of an emergency.

6.2.10 Environmental Emergency Procedure

An emergency preparedness and response procedure is required to prevent environmental pollution incidents. Emergency Silt Control and Spillage Response Procedures are included in Section 4.4.5 of this CEMP.

Suitable spill kits and absorbent material for dealing with oil spills will be maintained on site. In the event of pollution or potential risk of pollution, the Local Authority should be informed immediately.

6.2.11 Emergency Response Plan – Haul Routes

Emergency Response Procedure relating to transportation of plant, equipment and materials to the site will be developed by the Contractor during the construction phase of the development.

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