Construction Environmental Management Plan (CEMP)

Site Name: Glenamuck District Road Scheme (GDRS)

Date: 10th July 2024

Revisions

Environmental Dept. Revision No: 15 January 2023			
Reason for Issue:			**Client Approval (if required)**
Originator	**Reviewer**	**Approver**	
S.Abbey	F.Page	E.Maloney	

Circulation

Copy	Circulation	Name	Company	Location
1	Construction Director	Alan Finn	BAM	Head Office, Kill
2	Project Manager	Fiachra Page	BAM	Site
3	Construction Manager	Mick Duffy	BAM	Site
4	General Foreman	Pat O' Sullivan	BAM	Site
5	Company Health, Safety & Environmental Officer	Kathy O' Leary	BAM	Head Office, Kill
6	Site Health, Safety & Environmental Officer	Martin Leonard	BAM	Site (Part time)
7	Company Environmental Coordinator	Elaine Maloney	BAM	HO/Site
8	Environmental Deputies	Mick Duffy & Stephen Abbey	BAM	Site

Document Control Sheet for Environmental Management Plan

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Site Name:	Document revised:	Env. Dept Rev No:	Site Rev. No:	Reviewed by:	Rev Date
GDRS	*EMP*	*EMP Rev 15*	*Site Rev 00*	*F.Page*	*22/04/2024*
GDRS	*EMP*	*EMP Rev 15*	*Site Rev 01*	*F.Page*	*20/06/2024*
GDRS	*EMP*	*EMP Rev 15*	*Site Rev 02*	*F.Page*	*9/07/2024*
GDRS	*EMP*	*EMP Rev 15*	*Site Rev 03*	*F.Page*	*10/07/2024*

Document:	*CEMP*
Site Rev No:	*01*
Changes Made:	*Updates based on RE team review 6th + 11th of June 2024*
Site Reviewer:	*F.Page*

Document:	*CEMP*
Site Rev No:	*02*
Changes Made:	*Updates based on RE team review 02/07/2024*
Site Reviewer:	*F.Page*

Document:	*CEMP*
Site Rev No:	*03*
Changes Made:	*Updates based on RE team review 10/07/2024*
Site Reviewer:	*F.Page*

Document:	
Site Rev No:	
Changes Made:	
Site Reviewer:	

Document:	
Site Rev No:	
Changes Made:	
Site Reviewer:	

TABLE OF CONTENTS

Tables

Figures

1. INTRODUCTION

This Construction Environmental Management Plan (CEMP) has been developed in accordance with BAM Contractors Environmental Procedures. The controlled copy of all environmental procedures is hosted on SharePoint.

This CEMP has been developed to satisfied the requirements of Volume A Part 3 Specification, Appendix 1/75 Environmental Operating Plan and Appendix 1/76 Construction Management Plan.

This Plan is a working document, clearly stating the arrangements in place to manage the significant environmental aspects and legal requirements of this Project. This Plan covers BAM activities and that of its subcontractors.

This Plan has been approved by the BAM Environmental Sustainability team at Kill and has the commitment of the Project Construction Director, Project Manager and Project Team to fulfil the requirements of the Plan.

1.1. Purpose of the Plan

It is a requirement of the Project (Volume A Part 3 Specification) to produce an Environmental Operating Plan (Appendix 1/75) and a Construction Management Plan (Appendix 1/76). This CEMP combines both the environmental operating plan and the construction management plan and satisfies the requirements of the Project specification.

EIAR chapter 20.2 Mitigation Measures	Relevant Section of the CEMP
Working hours and days and construction schedule	Section 1.4
Details of emergency plan - in the event of fire, chemical spillage, cement spillage, collapse of structures or failure of equipment or road traffic incident within an area of traffic management. The plan must include contact names and telephone numbers for: Local Authority (all sections/departments); Ambulance; Gardaí and Fire Services;	Appendix 7
Details of chemical/fuel storage areas (including location and bunding to contain runoff of spillages and leakages);	Appendix 9
Details of construction plant storage, chemical and fuel storage, temporary toilet	Appendix 9

Traffic management plan (to be developed in conjunction with the Local Authority Roads Section) including details of routing of network traffic; temporary road closures; temporary signal strategy; routing of construction traffic; programme of vehicular arrivals; on-site parking for vehicles and workers; road cleaning; other traffic management requirements;	A separate traffic management plan has been submitted under separate cover to the ER/RE.
Site Compound locations & layouts.	Appendix 9
Erosion and Sediment Control Plan for surface water runoff and in stream works	Appendix 10
Truck wheel wash details (including measures to reduce and treat runoff);	Section 8.3.1
Dust management to prevent nuisance (demolition & construction);	Section 8.3.1
Noise and vibration management to prevent nuisance (demolition & construction)	Section 8.2
Landscape management;	Section 8.8
Stockpile locations;	Appendix 11
Temporary hoarding & lighting plans;	Section 1.3
Method Statements for diversion of services;	Appendix 13
Method Statements for Construction of pipelines;	Appendix 13
Method Statements for Storage, Treatment and transport of soft soils;	Appendix 13

This CEMP describes how BAM will manage environmental performance for Glenamuck District Road Scheme (GDRS)

This CEMP has been developed within the framework of the BAM Contractors EMS. The BAM Contractors EMS is certified to ISO 14001:2015.

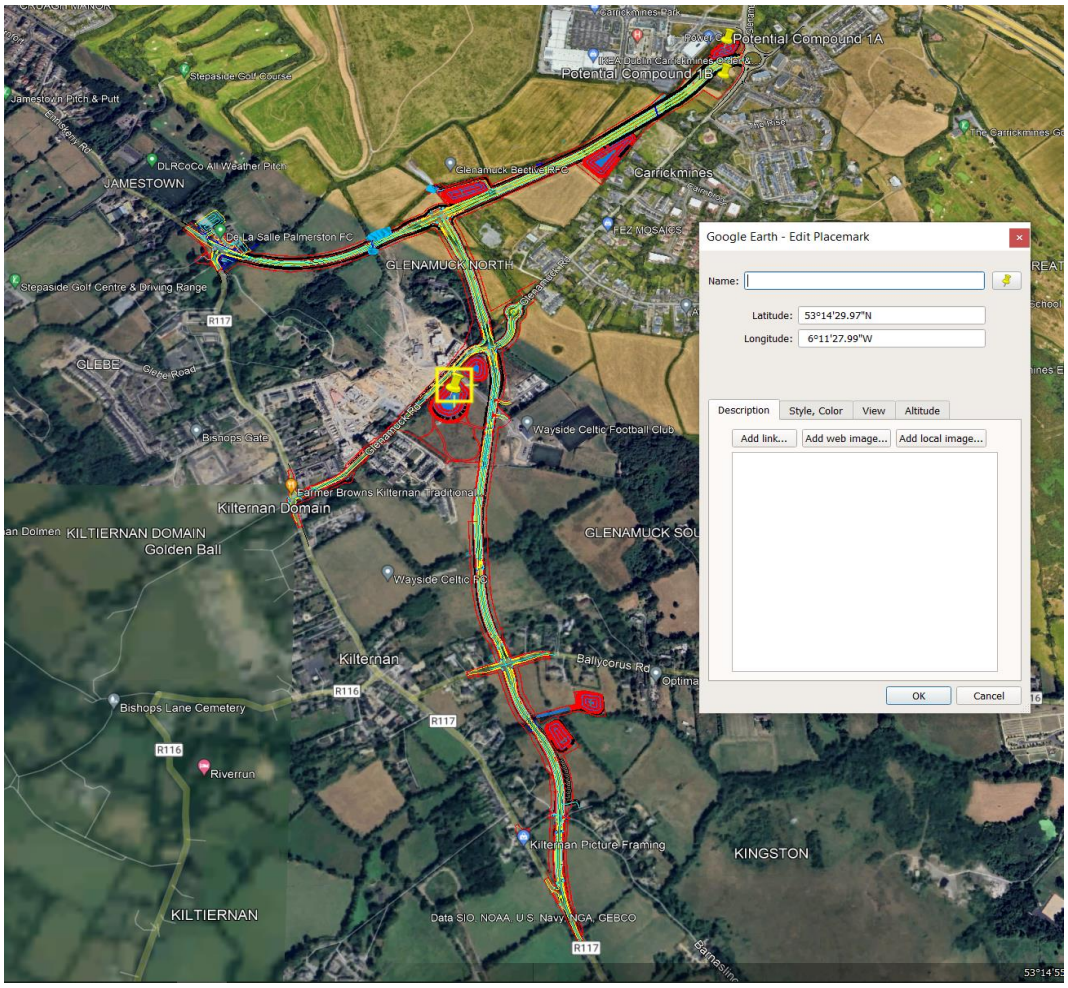
This Plan will:

- Identify the environmental obligations and the hazards and risks associated with GDRS construction activities
- Assist in the prevention of unauthorised environmental harm
- Fulfil the environmental requirements as defined in the Employers Requirements.
- Minimise potential impacts on the community that relate to the environmental aspects from BAM's construction activities.

1.2. Project description

The construction of approximately 3Km of a new road network and upgrading a portion of existing carriageway. This involves the construction of a bridge, box culverts and several retaining walls. In addition, there will be several utility diversions and accommodation works.

1.3. Site location



Please refer to Appendix 9 for details of site compound location and layout. This shows details of the temporary toilets and the bunded chemical/fuel stores.

The area to the rear of the main compound will be utilised for the storage of construction plant, equipment and materials. 24hr CCTV will be in operation at the site compound. As the project progresses other locations within the site may be utilised as small storage compounds and the plan will be updated as appropriate.

1.4. Working hours

Mon to Friday- 0800-1900hrs
Saturday 0800 – 1400hrs
Work outside these hours only permitted subject to the approval of Dún Laoghaire Rathdown County Council

1.5. Plan objectives

The objectives of this CEMP are to:

- Act as a continuous link and reference document for environmental issues between the design, construction, testing and commissioning stages of the Project
- Demonstrate how construction activities and supporting designs will properly integrate the requirements of environmental legislation, planning consent conditions, policy, good practice, and those of the environmental regulatory authorities and third parties
- Record environmental risks and identify how they will be managed during the construction period
- Record the objectives, commitments and mitigation measures to be implemented together with programme and date of achievement
- Identify key staff structures and responsibilities associated with the delivery of the Project and environmental control and communication and training requirements as necessary
- Describe the proposals for ensuring that the requirements of the environmental design are achieved, or are in the process of being achieved, during the contract period
- Act as a vehicle for transferring key environmental information at handover to the body responsible for operational management. This will include details of the asset, short and long-term management requirements, and any monitoring or other environmental commitments
- Provide a review, monitoring and audit mechanism to determine effectiveness of, and compliance with, environmental control measures and how any necessary corrective action will take place.

1.6. Review and update

This plan will be updated at a minimum of six-monthly intervals unless significant changes take place in works being undertaken on site.

2. ENVIRONMENTAL MANAGEMENT SYSTEM

2.1. Project organisation

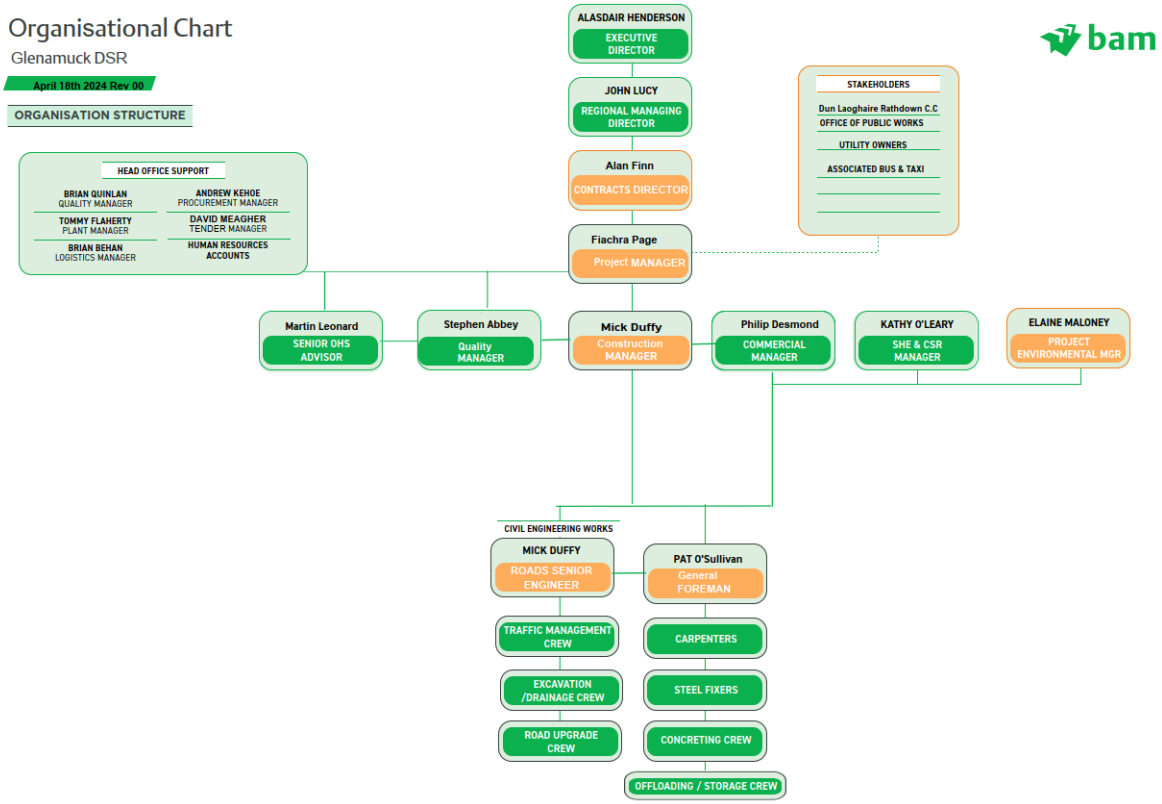


Figure 1: Organisation chart

2.2. Communication

The principal lines of internal communication in relation to the CEMP are shown above. Environmental issues are communicated to staff through the site induction, toolbox talks and HSE meetings.

Communication with other external parties will be as the table below and in accordance with the consultation requirements (Section 6) and in response to complaints (Section 3).

Method of Communication	Stakeholder										Frequency	Responsible
	BAM Project Team	Employer / Employers Rep	Statutory Bodies	Utility Providers	Adjacent Businesses	Adjacent Residents	Road Users	General Public	Elected Representatives	Emergency Services		
1. Co-ordination Meetings	◆	◆	◆		◆					◆	As required	PM/ USAC/GF
2. Statutory Notifications		◆	◆								As required	PM/ USAC
3. Communications Plan	◆	◆									Prior to starting	CR
4. Commencement meeting & Community drop-in events	◆	◆	◆	◆	◆	◆		◆	◆	◆	Prior to starting and as required	LO
5. Verbal Communications, Telecon, Email	◆	◆	◆	◆	◆	◆		◆	◆	◆	As required	All staff
6. Letter Drops				◆	◆	◆			◆		As required	LO
7. Project Specific Newsletters	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	Monthly / As required	LO
8. Progress Board				◆	◆	◆	◆	◆	◆	◆	Monthly	LO
9. Text / WhatsApp group updates				◆	◆	◆			◆	◆	As required	LO
10. 24/7 Information Line	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	As required	LO
11. Social Media							◆	◆	◆		As required	LO
12. Local Print Media							◆	◆		◆	As required	LO
13. VMS / Road signage							◆	◆		◆	As required	PM
CR = Contractor's Representative, PM = Project Manager, LO = Liaison Officer, USAC = Utilities and Statutory Authorities Co-Ordinator, GF = General Foreman												

2.3. Responsibilities

Table 1: Roles and responsibilities

Name	Initials	Company	Role (Job title)	Environmental management responsibilities
Elaine Maloney	EM	BAM	Company Environmental Coordinator	• Advises on environmental issues and controls, and conducts internal environmental audits.
Alan Finn	AF	BAM	Construction Director/Contracts Manager	• Approves and implements EMP.
Fiachra Page	FP	BAM	Project Manager/Site Agent	• Monitors implementation of control measures, ensures that activities, including subcontractor activities, comply with the requirements of the relevant performance requirements.
Martin Leonard	ML	BAM	Site Safety, Health Environmental Officer	• Conducts weekly environmental checks and raises any non conformances with site management. • Carries out toolbox talks on environmental issues. Coordinates emergency response, including spills. • Checks spill kits and orders spill control materials when required. • Ensures the Environmental documentation is kept up to date in line with current works and is circulated. • Ensures Safety Data Sheets are communicated with users. • Coordinates water/noise/dust monitoring and remedial actions
Mick Duffy	MD	BAM	Construction Manager	• Ensures that works are carried out in accordance with the EMP and with the approved works method statement.
(Various)		BAM	Foremen/Supervisors	• Carrys out toolbox talks • Ensures compliance with water/noise/dust monitoring and remedial actions • Ensures that works are carried out in accordance with the EMP and with the approved works method statement

				• Performs weekly environmental inspections.
Philip Desmond	PD	BAM	Quantity Surveyors	• Tracks the costs associated with the implementation of environmental matters and forwards to the Company Environmental Coordinator as required.

3. ENVIRONMENTAL MANAGEMENT ARRANGEMENTS

3.1. Environmental management

The environmental management system (EMS) complies with the ISO 14001:2015 standard. Those aspects of the EMS relevant to this Project are outlined in this document which also contains references to specific procedures.

3.2. Planning

The environmental planning for the project is based on information from:

- The clients project information and tender documentation
- Local Authority Planning Permission
- Appropriate Assessments

Such information has been used in the environmental assessment of the activities for this project.

3.2.1. Monitoring and checking

The significant environmental aspects of the project are monitored regularly by carrying out the following at the frequency stated below:

Table 2: Monitoring and checking

Monitoring and Checking	Frequency
Environmental Inspections by Project Managers	Monthly
Environmental Inspection by Foremen	Weekly
Environmental Audits by Env Co-ordinator	6monthly
Surface Water Inspections (recorded)	*Weekly*
Surface water inspection (visual)	*Daily*
Noise and Vibration Monitoring (where applicable)	*TBC*
Dust Monitoring (visual)	*Daily*
Dust Monitoring (Data Logger)	*TBC*

3.2.2. Action register

A record of environmental management actions is to be kept on site. The progress for all actions is reported regularly to the appropriate member of the Management Team. Such actions will include information taken from:-

- Environmental inspections
- Audit actions: non-Conformance and observations
- Progress of actions following environmental incidents

- Significant communications with stakeholders
- Project issues requiring management action
- Complaints

These actions will be added to the action register, closed out in the suitable timeframe by the appropriate person.

3.2.3. Performance

Environmental Performance of the project is monitored by:

- Environmental review meetings as a part of the Monthly HSE Meetings
- Site inspections
- Audits conducted by the HSE Department, by external organisations or by the Client
- A review of the quantities of waste created
- External communications and feedback
- Review of objectives and targets (targets table Section 7)
- Sustainability (CSR) reporting

3.3. Communications

3.3.1. Environmental complaints

All environmental complaints will be recorded in the project Complaints Register. The Register is maintained on site by a nominated member of the Management Team (Stephen Abbey) who also allocates responsibility for resolving any issues and follows up complaints to ensure they are resolved. Any issues that are deemed to be significant will be reported to the Site Management Team and the relevant authorities as appropriate. Complaints are reviewed during internal audits by the Environmental Coordinator, where any additional measures to improve performance are discussed. Complaints are reported to Head Office also. See EP-24 Complaints Procedures for more details. (All environmental procedures (EP) will be made available on the Project common data environment (ACC)).

All complaints received from external sources and incidents must be reported to the Project Manager and a representative of the Dún Laoghaire Rathdown County Council site team.

3.3.2. Environmental incidents

Environmental incidents are categorised in terms of major or minor.

Major environmental incident is any situation which has resulted in significant pollution requiring high levels of resources for response and remedy and must therefore be reported to Site/Company Management, the Client and or any relevant statutory authority.

Minor environmental incident is any situation which has resulted in environmental pollution which required minimal action to aid recovery from Site/Company

Management. Non reportable to the Client and/or any relevant statutory authority unless this requirement is stated elsewhere.

Refer to Environmental Procedures EP-06 and EP-24 for more details.

The Site Team will:

- Inform relevant person(s) on site
- Report the environmental incident immediately to the HSE Department
- Investigate and issue reports on environmental incidents (using the incident reporting system on BIM)
- Ensure corrective action is taken

Actions regarding specific incidents including water pollution and exceeding the limit levels for dust, noise and vibration, are detailed in Section 8.

Report all environmental Incidents immediately to the HSE Department.

3.4. Subcontractors and suppliers

3.4.1. Subcontractors

All subcontractors will be required to work in accordance with the BAM Environmental Management Plan. Work operations will be managed by the relevant Project Managers / Site Agents to ensure appropriate procedures are being followed. ISO 14001:2015 states consideration should be given to the aspects related to the organisations activities, products and services such as environmental performance, lifecycle perspectives and practices of contractors and suppliers. In order to achieve this, we ensure our subcontractors sign contracts which state they must comply with our Environmental Policy, our EMS and work within the Environmental Legal Framework while working for us on our projects.

During the recruitment stage, we would enquire as to whether they had been prosecuted with regard to breaching environmental legislation and this would also be considered. We would also enquire to the progress of their environmental management system (or equivalent) to ensure they were working in a responsible fashion and in a way which would be similar to BAM. Lines of communication would also be outlined during this recruitment stage to ensure they were aware of our environmental management system and how this will affect them and what they need to achieve in order to be suitable candidates for our Projects.

BAM have developed an online appraisal system which assesses the performance of current and previous subcontractors contracted by the company. The system requires project staff to assess and grade individual subcontractors on categories including Health, Safety and Environment, Quality, Programme and Commercial. Under our Commercial procedures, staff contracting and procuring from subcontractors and suppliers must review the appraisal system prior to any contractual agreement. Under the appraisal management system if subcontractors or suppliers fail to meet the minimum rating, a warning is issued and the subcontractor is removed from our approved subcontractors and suppliers list.

A list of subcontractors has been identified in the following table.

Table 3: Subcontractors

Contract	Company	Environmental contact	Commencement date	Duration
TBC	TBC	TBC	TBC	TBC

3.4.2. Suppliers

All suppliers and sub-contractors are made aware of the company's environmental and Corporate Social Responsibility (CSR) policies and the project specific environmental requirements. BAM aim to collaborate with supply chain partners so as implement circular economic business models and achieve a positive environmental and economic impact. Innovative thinking between suppliers and subcontractors are therefore encouraged to promote recycling of materials and the use of sustainable materials. Just-in-time' delivery will be used so far as is reasonably practicable to minimise material wastage.

An employee supervises all deliveries of environmental hazardous materials.

4. SUMMARY OF EMERGENCY PROCEDURES

Environmental emergency procedures relating to this Project include:

- Emergency Procedures for sediment release to water (EP-23)
- Containing and cleaning up spills (EP-15)
- Environmental Incident Procedure (EP-06)
- Environmental Complaints and Incidents Procedure (EP-24)
- BIM online incident tracking system.

For more detailed information please refer to the Environmental Emergency Plan in Appendix 7.

5. ENVIRONMENTAL PLANNING, ASPECTS AND CONTROLS

5.1. Environmental risk assessment

During the first visit to site, notes are produced which identifies any significant environmental aspects. These notes are compared with the environmental information supplied by the client (where applicable) and used as a basis for performing the environmental risk assessment.

5.2. Environmental risk assessment report

The significance of all the environmental aspects for each activity on the project have been assessed. The assessment followed the method defined in EP-02 Environmental Risk Assessment.

Refer to **Appendix 3** for the risk assessment report for this project.

5.3. Environmental assessment and management controls

The management controls, which have been put in place, are appropriate to the nature, duration and scale of the activity on this project and the particular sensitively of the local environment. They will be revised in the event of any significant changes to the scope of the activity during this Project, especially when there is additional works, or a change in the method of works.

Additional management controls will be adopted when there are changes to client requirements, stakeholder interests to a particular local environmental sensitivity.

The significant risks which are highlighted in the risk assessment and the management controls are communicated to the workforce by site inductions and toolbox talks.

5.4. Method statements

The significant environmental aspects and the actions to apply the required controls are described in the method statement.

Method statements are produced in accordance with the contract requirements by the Site Management Team and reviewed by the Project Managers/Site Agents prior to submission for approval. When developing method statements, the CEMP, Site Maps and any other relevant environmental management documents will be reviewed to assess the potential impacts of the particular activity.

All method statements will include a section entitled *Environmental and Waste Management*. For activities that have significant potential to cause adverse environmental impacts reference will be made in this section of the method statement to the control measures in Section 8 of the CEMP. Additional control measures may be included where those in Section 8 prove inadequate to suit the local conditions at the

site of the activity, and/or where specific measures are required by any of the authorities. The method statement must include:

- The proposed method of construction and how impacts will be mitigated
- Waste (storage, removal, end disposal sites where known)
- Hazardous substances (storage, removal and end disposal sites where known)
- Works close to waterways (sediment controls if needed)
- Dust
- Noise and vibrations
- Refuelling
- Fuel storage
- Drip trays/spill kits and other precautionary measures

Prior to the commencement of the works, all Method statements will be reviewed by a competent person by referring to Section 8 of the CEMP. Following the review, improvements will be made to the method statements as required.

6. ENVIRONMENTAL COMPLIANCE

In accordance with Environmental Procedure 01 (EP-01) Environmental Compliance Assessment, a review of all relevant literature and contractual requirements relevant to the contract will be completed.

- Planning Conditions
- Contract Documents
- Preliminary Health and Safety Plan
- All other contractual conditions and documents.

These requirements have been tabulated in Appendix 2 (table of contractual requirements) to demonstrate how each of the requirements is addressed in the CEMP.

Evaluation of compliance

As noted this CEMP is based on both the specific Project requirements (ie. Specification) and on relevant environmental legislation. Compliance with the CEMP will thus ensure compliance with both of these requirements. Compliance will be evaluated through inspections and audits and also reviewed at the regular site management meetings. These inspections and audits will be under taken by a combination of BAM site staff, BAM head office staff, external company auditors and with relevant statutory authorities. The audit frequency will be as section 3.2.1 above.

Consultation will be undertaken with the following authorities were appropriate;

- EPA
- Irish Water
- Eircom
- ESB – LV/MV
- ESB – HV
- Eirgrid
- Gas Networks Ireland
- Virgin Media
- DLRCC Traffic Signals
- DLRCC Roads & maintenance Department
- DLRCC Water Department
- DLRCC Drainage
- DBFL Consulting Engineers Limited – Employer's Representative
- Garda Síochána

6.1. Site Restrictions and hold points

The environmental restrictions as set out in the contract documents are collated in Appendix 2 and apply to the construction of the works.

6.2. Environmental licences, permits and permissions

6.2.1. Maintaining arrangements for environmental licence, permits and permissions

These are all legal documents associated with the work and may be from a contractor/supplier/client, or it may be an EPA or Local Authority Licences/Permit and will be maintained by the Management Team on site.

6.2.2. Licences and permits

The Client will be requested to supply information on the licences and permissions that are required for the project. The responsibility for licence applications will be established at the start of the project or when changes occur.

The relevant environmental regulator may be informed early in the project of the environmental aspects of the work. A meeting on site will be arranged where applicable.

N.B. a copy of all formal licences is to be sent to the HSE Department, Kill.

The following table identifies the licences that may be required:

Table 4: Licences and permits

Licence/Permission	Regulator	Operations
Discharge consent into watercourse or sewer	Local Authority/Irish Water	Any solid or liquid entering controlled waters (river, pond, stream, ditch) unless it is clean water
Consent for work near a watercourse	Inland Fisheries Ireland	Any work which include work over or under the water
Permissions / Licences	National Parks and Wildlife Services	Cutting of protected trees, derogation licences for protected species (bats, badgers, frogs etc), work in or near any SPA, SAC, NHA. Licences for managing invasive species
Permissions / Licences	Department of Environmental, Communities and Local Government	Excavation work in any site containing archaeological remains or natural habitat, protected Monument.
Planning Permissions	Bord Pleanala/LA	All planning permission constraints
Waste licences/permits	EPA/LA/NWCPO	Transport and removal of waste offsite

6.3. Company policy and procedures

A copy of the Company Environmental Policy is displayed at the project site offices. The policy determines the company's overall approach to environmental management, which is developed through the EMS. This CEMP has been developed taking into account the:

- Company Environmental Policy
- Objectives and targets as specified in the Yearly Environmental Plan

- Requirements of relevant specific procedures as contained in the Environmental Procedures Manual.

6.4. Relevant statutory provisions

A library of environmental legislation, relevant codes of practice, standards and best practice guidance documents is maintained at the BAM Head office in Kill, Co. Kildare. This library is updated by the Company Environmental Coordinator through regular reviews or as required by changes in legislation and standards and developments in industry best practice. A register of legal and compliance obligations is on SharePoint for general viewing.

6.5. Design and life cycle perspectives

The environmental and sustainability requirements for the project design are reviewed by project designers and construction management team and incorporated into the project as appropriate. The design and lifecycle perspectives are also reviewed by the Project Managers and Engineers to ensure that the environmental and sustainability considerations relevant to the construction works are incorporated into the works.

All environmental impacts and aspects of the project's lifecycle, from the raw materials used, procurement processes, the transportation and delivery to site, material use in the building product or service, to the end-of-life treatment and final disposal of the materials and products will be assessed, with the most favourable environmental option used where possible.

Input and consideration from relevant stakeholders will also be incorporated into both the design and construction processes. Communication with stakeholders may take place at various stages and means e.g. planning process, community newsletters, project website, Client meetings etc.

6.6. Control of documents

All documents relevant to the construction works will be kept and stored in accordance with the below table. Documents that are part of the site environmental management system, including inspection reports, monitoring records and meeting minutes will be kept for the duration of the project as per UKAS.

Table 5: Control of documents

No.	Document	Raised by	Retained by	Statute or UKAS	Currently held	Retention times (years)
1	Register of Environmental Aspects	Env Co-ordinator	Env Co-ordinator	UKAS	Head Office and Sites	3
2	Waste Transfer notes (where applicable)	External	Env Co-ordinator Site	Statute	Sites	3
3	Hazardous waste transfer notes	External	Env Co-ordinator Site	Statute	Sites	5
4	Waste Collection Permits	Local Authority	Env Co-ordinator	UKAS	Sites	Period of validity +1
5	Waste Facility Permits/Licences	Local Authority/EPA	Env Co-ordinator	UKAS	Sites	Period of validity +1
6	Energy Monitoring Records	Env Co-ordinator	Env Co-ordinator	UKAS	Head Office and Sites	3
7	Water Monitoring Records	Env Co-ordinator	Env Co-ordinator	UKAS	Sites	3
8	Local Authority / Environmental Protection Agency Licences	Local Authority / EPA	Env Co-ordinator Site	UKAS	Sites	Period of validity + 1
9	Environmental communication from external sources	External	Env Co-ordinator	UKAS	Sites	3
10	Audit Reports	Env Co-ordinator	Env Co-ordinator Head Office	UKAS	Head Office and Sites	3
11	Corrective Action Forms	Env Co-ordinator	Env Co-ordinator Head Office	UKAS	Head Office and Sites	3
12	Env N/C or Env Incident Report	Any member of staff	Env Co-ordinator Head Office	UKAS	Head Office	3
13	Water treatment log sheets	Site Staff	Site Staff	UKAS	Site	3
14	Calibration Certificates	External testers	Site Staff/ Env Co-ordinator	Statue	Site	3
15	Environmental Management Plans	Site Staff	Site Staff	UKAS	Sites	3

No.	Document	Raised by	Retained by	Statute or UKAS	Currently held	Retention times (years)
16	Waste Management Plans	Site Staff	Site Staff	UKAS	Sites	3
17	Environmental Risk Assessment	Env Co-ordinator	Env Co-ordinator and HSE Officer	Best Practice	Head Office Sites	3
18	Department of Arts Heritage and Gaeltacht	Env Co-ordinator	Env Co-ordinator Site	Best Practice	Sites	3

Controlled documents will be:

- Reviewed at least annually and updated as appropriate;
- Marked as superseded once obsolete or destroyed;
- Dated and marked with dates of revisions.

7. ENVIRONMENTAL AND SUSTAINABILITY OBJECTIVES AND TARGETS

The objectives and targets for the Glenamuck District Road Scheme are;

- The prevention of pollution, including missions to air and land
- The prevention of pollution to the Loughlinstown river and all associated water courses
- Nuisance impacts to surrounding lands including dust, noise and vibration
- Protection of habitat areas and individual species
- Correct storage and use of fuels and hazardous substances to prevent spills
- Waste management.

7.1. Environmental and Sustainability management targets

The environmental management targets for the project are as follows.

Table 6: Environmental management targets

Targets	Measurable	Methodology	Responsibility	Timescale
Achieve zero incidents of contamination to ground water from concrete works	Incidents, site inspections, quarterly audits, complaints	BAM procedures to be followed when working with concrete and washing out concrete chutes	Site Management Team	Start to completion
Ensure sediment on roads is cleared.	Raise needs for road cleaning duties during wet or busy periods	Ensure roads are swept and cleaned on a regular basis. Road conditions within the site should be kept clean at all times.	Site Management Team	Start to completion
Minimise fuel and oil spillages from site activities. Bunds to be used with all fuels and oils	Environmental Incidents, spills contained in bunds	Ensure that drip trays are used at all times under static plant, when refilling, & storing, ensure fuel storage areas are bunded.	Site Management Team	Start to completion
Ensure correct disposal of all hazardous wastes	Waste segregation, waste costs	All hazardous wastes to be disposed as per Irish Legislation and BAM requirements	Site Management Team	Start to completion
Ensure no incidents of pollution to water.	Water monitoring and sampling activities. Environmental Incident.	Sediment controls to be used, no waters to be discharged to any controlled waters or drainage systems without approval.	Site Management Team	Start to completion

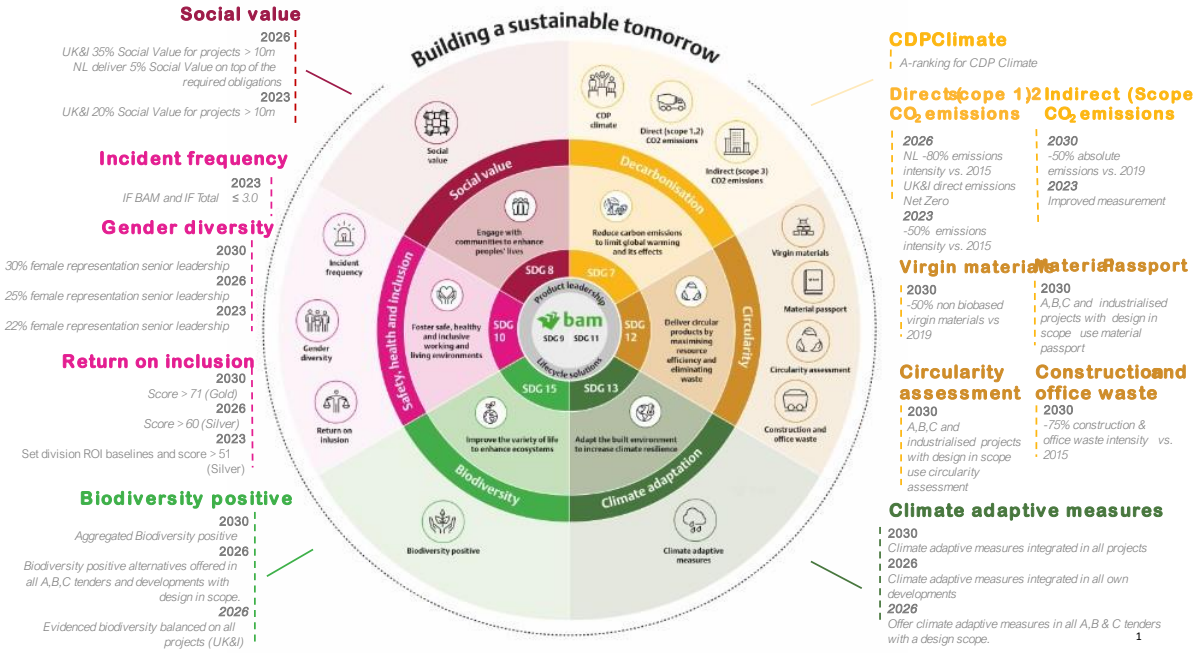
Targets	Measurable	Methodology	Responsibility	Timescale
		Work with CIRIA guidelines and apply BAM precautionary measures		
Lower consumption of materials and fuel on monthly basis (relative to project revenue)	Smart meters, energy bills, service costs	Ensure all energy using equipment is switched off when not in use. Select best value for money providers where possible	Site Management Team	Start to completion
Reduce site electricity on monthly basis (relative to project revenue)	Smart meters, energy bills, service costs	Ensure all energy using equipment is switched off when not in use. Select best value for money providers where possible	Site Management Team	Start to completion
Lower emissions of dust, smoke and fumes during works	Air quality, dust particle increase	Ensure all equipment is well serviced and maintained. Switch off equipment when not in use. Use dust suppression techniques when applicable	Site Management Team	Start to completion
Reduce amount of Public complaints	Complaints received to Site Management Team	Ensure when works which will impede public access are taking place, all residents are informed for the timescale (where applicable) and all restrictions are kept to a minimum	Site Management Team	Start to completion
Minimise risk of Aspergillus	Air quality, dust particle increase	National Guidelines for the Prevention of Nonocomial Invasive Aspergillus during Construction / Renovation activities on Aspergillus Control will be adhered to	Site Management Team	Start to completion
Minimise airborne & ground bourne noise	Noise triggers breached (where applicable)	All construction noise limits set out in the requirements will be adhered to.	Site Management Team	Start to completion

Targets	Measurable	Methodology	Responsibility	Timescale
Minimise vibration	Vibration triggers breached (where applicable)	All vibration limits set out in the works requirements will be adhered to.	Site Management Team	Start to completion
Ensure no vehicle movement and material placement does not cause damage to flora and fauna	Correct habitat protection used. Wildlife surveys where applicable	All fauna/animal species to be untouched where possible. Professional advice to be sought on removal procedures	Site Management Team	Start to completion

The standard environmental management goals for the Project are to:

- Conduct all activities in accordance with the:
  - Company environmental policy and procedures;
  - Relevant statutory regulations and provisions;
  - Contractual requirements with the client; and
  - Requirements of relevant authorities;
- Minimise adverse environmental impacts during construction;
- Enhance natural environments during the course of construction, where practical
- Reduce the significance of our aspects and impacts through our working methods
- Increase subcontractor awareness of our EMS
- Increase company awareness of sustainability issues

BAM Contractors has established company environmental and sustainability targets which are documented in the 2024 Environmental Year Plan. These targets include;



- 2 CSR activities to be completed per project per year
- Site SharePoint page to be updated in line with the SMS and QMS.
- BAM to continue platinum membership with the Irish Green Building Council
- All sites will take part in World Environment Day
- All sites to take part in invasive species week
- SC prestart meetings must be held prior to commencement on sites
- Structured approach to office/site waste recycling ie ensure food and recycling is made available.

In order to help achive these targets, the below table highlights compliance tools.

7.2. Initiatives to achieve targets

Table 7: Initiatives to achieve targets

Sites	Area	Objectives and targets	Method for achieving	Assistance by HSE Dept. (method)	Responsibility
All sites and offices	**Waste**	Eliminate waste sent to landfill	Adhere to the waste hierarchy. Lean construction techniques	EA-30 Excavated materials on site (*Article 27 Notification Forms*). CIRIA documents on Lean Construction	Site Teams and HSE Dept.

Sites	Area	Objectives and targets	Method for achieving	Assistance by HSE Dept. (method)	Responsibility
		Increase site segregation of construction waste by 10%	Additional recycling skips on site Increase staff knowledge and participation	EP-16 waste definitions and classifications, TBT-03 Managing Waste, TBT-02 Environmental Awareness, EB-11 Site Set up	Site Teams and HSE dept.
		Increase recycling rates	Increase site awareness of improved waste management practices	Waste posters, environmental information to be issued focusing on new waste strategies	Site Teams and HSE Dept.
All sites and offices	**Energy**	SMART Meters for all sites	SMART meters installed in cabins	Advice on installation and data collected	Site Teams and HSE Dept
		Reduce CO_2 emissions	Implement an energy reduction initiative in sites and offices	Environmental information to be issued focusing on new waste strategies	Site Teams and HSE Dept
All sites and offices	**Auditing And performance**	Early close out of issues raised in audits	Quarterly/6monthly audits	Regular environmental information and directions to be issued to the sites	Sites Teams and HSE Dept.
		Appraisal system for environmental performance	Subcontractor appraisal system (COINS)	Detailed information of the systems.	Sites Teams and HSE Dept.

8. ENVIRONMENTAL CONTROL MEASURES

Control measures will be implemented both on an activity specific basis for the area of works, and independently of any specific activities as part of the general site management. Throughout this section reference may be made to standard procedures contained in the Environmental Procedures Manual that will be adopted on site. The Environmental Procedures are available on SharePoint.

The project will be developed in accordance with the control measures and with reference to the following guidance documents:

- BRE (2003) Control of dust from construction and demolition activities
- BS 5228-1: 2009+A1:2014 CoP for Noise and vibration control on construction and open sites: Part 1: Noise
- BS 5228-2: 2009+A1:2014 CoP for Noise and vibration control on construction and open sites: Part 2: Vibration
- BS 5837: 2012 Trees in relation to design, demolition and construction works
- BS8895-1:2013 Designing material efficiency in building projects Part 1: CoP for strategic definition
- CIRIA 741 (2015) Environmental Good Practice On Site (Fourth Edition)
- CIRIA 532 (2001) Control of Water Pollution from Construction Sites – Guidance for consultants and contractors
- IFI (2016) Guidelines on Protection of Fisheries during Construction Works in adjacent to Waters
- Fisheries Guidelines for Local Authority Works (Department of Marine and Natural Resources, 1998)
- NRA (2007) Guidelines for the Creation, Implementation and Maintenance of an Environmental Operating Plan or Invasive Species Ireland, (2008) Best Practice Management Guidelines for Japanese knotweed.
- NRA 2008 Guidelines for the crossing of watercourses

Other guidance documents may be referenced for specific issues throughout this section. Copies of these documents are held by the Company Environmental Coordinator and on SharePoint.

The control measures and monitoring requirements listed in this section must be implemented throughout the project.

8.1. Water Pollution Control

All watercourses that are potentially impacted by the works are identified on the site maps included in Appendix 4.

8.1.1. Water Pollution Control Measures

The potential for the construction works to have an impact on the quality of the local watercourses will be minimised through the implementation of the following control measures, which have been developed with reference to the guidance contained in EP-10 Surface Water Control, EP-13 Bulk Fuel & Oil Storage, EP-14 Storage & Handling of Hazardous Substances and EP-15 Containing & Cleaning Up Spills and the IFI (2016) Guidelines on Protection of Fisheries during Construction Works in adjacent to Waters.

Control measures to be implemented include:

- Special attention will be paid to minimising the opportunities for wash-off of inert solids (usually from exposed soil mounds, embankments or excavated trenches etc.) from entering watercourses. Silt traps and interceptors will be used where necessary. Vegetation will be established as soon as possible on all exposed soils.
  - Care will be taken to avoid interference with the supply or quality of any groundwater resource.
  - Waste products associated with the works will not be permitted to enter watercourses adjacent to the works through the use of French drains, petrol interceptors or other agreed methods.
  - Water that is high in solids or contaminated with cement or oil, will not be pumped from excavations directly to watercourses without pre-treatment (e.g. sedimentation/ filtration and oil separation).
  - All site run-off associated with the construction will be directed to storm control areas or tanks to prevent direct discharge into the river.
  - All operational machinery used in-stream will be kept to an absolute minimum.
  - Spill kits will be provided at all river locations identified.
  - Fuels, oils, greases and hydraulic fluids will be stored in bunded compounds well away from watercourses. Refueling of machinery, etc. must be carried out in bunded areas. Fuels will be stored during the construction phase in bunded fuel storage tanks with a 110% holding capacity. Where it is necessary to dispense fuels on site, this will be undertaken in areas covered with an impermeable surface to protect surface water and ground water;
  - Construction works, especially ones involving the pouring of concrete, will be conducted in the dry where possible. Precast concrete will be used in preference to uncured concrete, which kills aquatic fauna through alteration of stream pH. When cast-in-place concrete is required, all work will be done in the dry where possible and allowed cure for 48 hours before re-flooding.
  - To help prevent the contamination of the ground and groundwater, contaminated materials (oils, fuels, chemicals etc.) will be used and stored in an appropriate manner as outlined in the relevant guidance, i.e. CIRIA (2001) and DMRB Volume 11 (1994).
  - Any surface water abstracted from a river for use during construction will have an applicable licence agreement in place and will be fitted with a filter to prevent the intake of fish.
  - Hydrophilic grout / quick setting mixes / rapid hardener additives may be used to promote the early set of any wet concrete required. Other materials such as biodegradable shutter oils will be considered.

- There shall be no use of persistent pesticides, herbicides or artificial fertilisers in any landscaping or subsequent maintenance within a 10m buffer of a watercourse. Construction of watercourse crossings and stream works shall be programmed to coincide with periods predicted low flow in the affected channel, and shall take notice of other working period restrictions imposed.
- Suitable excavated bed material and riparian vegetation shall be stockpiled for use in the reformed/new channel
- *Groundwater pumping is not anticipated on this project. N*o groundwater shall be pumped without appropriate permits

8.1.2. 8.1.2 Water Quality Monitoring

- N/A

8.1.3. 8.1.3 Water Pollution Incidents

Should any monitoring or inspection indicate that pollution of the *Glenamuck District Road Scheme* or adjacent watercourses has occurred then the Site Management Team will immediately inspect the all work activities to ascertain whether they are operating effectively. All works will be stopped and/or additional control measures installed to prevent further pollution or discharge to the watercourse. Appropriate action will be taken in consultation with the Project Manager. Water samples will be taken at the watercourse if required. The incident will be logged on the incident reporting system on BIM.

8.2. Noise & Vibration Control

The primary sources of noise and vibration associated with the contract have been identified as follows:

- The location of noise sensitive areas will be discussed and agreed ESR. At these locations noise monitoring will be undertaken and the noise levels shall be measured 1 metre from the window of the occupied building at these locations.

Noise criteria used for assessing the significance of construction impacts are as follows: *`BS 5228-1:2009+A1:2014)*

Period	Hours	Ambient Noise Level, Leq measured on site (dB(A))	Period of hours over which Leq, is applicable	Maximum allowable sound level on site (dB(A))
Mondays – Firdays inclusive	10:00-16:00	70	1 hour	80
Mondays – Saturdays inclusive	08-00 – 10:00 & 16:00 – 18:00	60	1 hour	65
Saturdays	10:00-16:00	65	1 hour	75
Sunday and Bank Holidays	08:00 – 12:00	60	1 hour	65

Operating limits for vibration are as follows:

Freqency	Vibration Limit	Intervention Value
<10 Hz	8mm/s	6mm/s
10 to 50 Hz	12.5mm/s	10mm/s
50 to 100 Hz	20mm/s	16mm/s

Maximum Measured ground vibrations within the site or as measured at the building closest to the operation
5mm/s at any location within 100 metres of buildings or freshly poured concrete
12mm/s at recently completed structures.

All works are scheduled to be completed within the *working hours* as specified in the contract.

Best practicable means should be employed to minimise noise levels, in accordance with the British Standard BS 5228: 2009+A1:2014. Noise and vibration control on construction and open sites (Parts 1 and 2) for basic information and procedures for noise and vibration control. A copy of this standard is available at the site or from SharePoint.

8.2.1. 8.2.1 Noise & Vibration Control Measures

Noise reduction measures will be undertaken in accordance with the Procedure EP-09 Noise and Vibration Control, which has been developed taking into account the

requirements of BS 5528, particularly Section 10, and include: Appendix 1/9 of contract specification.

8.2.2. Noise and vibration monitoring

Sound Level meter complying with BS 5969 being operated with the methods prescribed by BS 5228

8.2.3. Noise and vibration incidents

Should any monitoring indicate that noise or vibration levels have exceeded the intervention values then the plant or equipment causing the noise / vibration will be powered down immediately. Appropriate action will be taken in consultation with the Project Manager to reduce the noise and/or vibration levels. Actions may include:

- Servicing and or modifying the plant / equipment
- Replacing the plant / equipment
- Moving the operation away from sensitive receptors
- Rescheduling the activity
- Erecting noise barriers where other measures are not practical

When noise and vibration monitoring is taking place, all monitors should take into account the background noise and situation when monitoring. External noise and vibration reports to reference to this fact also.

The incident will be logged in the Incident Register if levels have been breached and background noise was deemed not a factor at the time of the occurrence.

8.3. Air pollution control

The main types of air pollution that will result from the works are dust and exhaust emissions from combustion engines, and plant machinery and vehicles. Activities with the potential to produce to dust are:

- *Plant and vehicle movement*
- *Bulk materials handling*
- *Stockpiles*
- *Vehicle movement off site*
- *Side Roads (Particularly unpaved)*

8.3.1. Dust minimisation

Dust will be minimised on site through the implementation of the following control measures developed in accordance with the Procedure EP-08 Air Pollution Control:

This shall include measures such as:

- Wetting of haul road and storage areas;
- Covering or dousing of any dry, imported or excavated material;
- Reducing the duration for stockpiling in fill materials;

- Introduction of 1 or more wheel wash facilities for construction traffic (Similar to below detail). At present a wheel wash will be located at De La Salle rugby club boundary of the site and at the rear of the main compound location. These will be altered and moved to suite the programme of the works as and when appropriate.

- Providing a Road Sweeper to ensure that public roads are kept free of debris
- A speed restriction of 30kph will be applied as an effective control for dust for onsite vehicles on unpaved road;
- Bowsers will be deployed during periods of dry and windy weather.
- Stockpiles will be located as per drawing 170172-DBFL-0600-SP-DR-C-1201which is included in Appendix 11.
- An incident will be logged in the Incident Register if excessively high dust levels are recorded by the dust monitors or complaints from the public received.

8.3.2. Other air quality control measures

- Exhaust emissions where practical will be minimised by ensuring that all plant, equipment and vehicles are in good working order and regularly serviced to ensure efficient running, by using the smallest engine-sized plant and equipment suitable for the task and by ensuring that engines are not left idling unnecessarily.
- Burning of materials on site will not be permitted.

8.3.3. Dust monitoring

The Employer shall provide 2 No. Dust Monitors for the duration of the Works to facilitate the monitoring of the effectiveness of the dust management control measures (Osiris by Turnkey Instruments or similar approved).

The Monitors shall be capable of continuous measurements for PM10 and PM2.5.

The Monitors shall be able to provide real time online monitoring of dust levels. Access to online monitoring shall be made available to the Employer's Representative, Resident Engineer and adjacent landowners. The Contractor shall provide all power supply and maintenance requirements for the monitor throughout the works including any temporary ESB connections that may be required for its operation.

1 No. Monitor shall be permanently located as per Drawing series 170172-0300 series drawing 1010 to the agreement of the Employer's Representative.

1 No. monitor shall be provided at a location approved by the Employer's Representative and be relocated to other locations if required, depending on the works in progress and with the approval of the Employer's Representative.

8.4. Habitat (Flora & Fauna) Protection

Generally ecological mitigation measures are incorporated into the project design and the requirement during the construction stage is to ensure that all mitigations are fully implemented. Additional measures may be implemented during construction to limit additional habitat and fauna disturbance outside the area of works as listed below.

All work activities will comply with the Environmental Protection Agency Act 1992 and Wildlife Act 1976 and amendments 2000 to 2010 and the European Communities (Birds and Natural Habitats) Regulations 2011.

8.4.1. Construction mitigation measures

Control measures will be implemented in accordance with EP-12 Habitat, Flora and Fauna Protection.

8.4.2. Fish and Fisheries Habitat Mitigation Measures

Refer to the mitigation measures in section 8.1 for water pollution.

8.5. Resource and Waste management (including hazardous waste)

A Resource and Waste Management Plan will be established and the measures for the Project are detailed in a separate document, which includes:

- Waste management targets
- The potential waste materials produced during the project
- Waste handling procedures
- Waste Permits required
- Waste reuse, recycling and disposal techniques
- A map showing designated waste handling areas.

The Waste Management Plan also covers the handling and disposal of hazardous wastes such as asbestos, fuels and used absorbent materials.

With regard to potential nuisance from temporary site offices and canteen, the following measures will be observed:

- Site offices will be maintained in a tidy condition.

- Foul Drainage from all site offices and facilities will be contained and disposed of in an appropriate matter to prevent pollution in accordance with the relevant statutory bodies.Litter will be cleaned up daily, particularly around skip bins, in accordance with EP-19 Litter Management.

8.6. Hazardous materials handling & storage

During the works there will be a requirement for the use of hazardous substances, including but not limited to:

- Fuel oil
- Diesel
- Hydraulic oil
- Shuttering oil
- Liquid cement
- Concrete curing agent
- Concrete waterproofing materials
- Joint sealants
- Sewage
- Cement
- Solvents
- Lubricating oils
- Bituminous road construction materials
- Fertilizers, herbicides & pesticides
- Paint
- Any dust in substantial concentrations
- Excavated contaminants
- Working adjacent to live foul sewers
- Cut back bitumen

The management of such substances will be carried out in accordance with the procedures for:

- Bulk Fuel and Oil Storage (EP-13)
- Storage and Handling of Hazardous Substances (EP-14)
- Containing and Cleaning Up Spills (EP-15).

All chemicals not covered by EP13, EP14 and EP15 will be managed in accordance with the requirements of the relevant safety data sheet (SDS) and the Health and Safety Plan.

- Hazardous materials are kept in lockable stores. Spill kits are also kept at these locations. Any hazardous materials must be returned to the stores at the end of each day and not left on site
- Oil and fuel will be stored in bunded areas and will be stored well away from any water discharge point or, where not possible, the discharge point will be adequately protected to prevent spills from entering

- Diesel pumps, generators or similar will be placed on impervious drip trays to capture minor spills and leaks and located at least 10m from any water discharge point
- Tools and equipment will not be washed in or near any watercourses and if undertaken on site wash water will be directed to appropriate retention controls and not allowed to directly enter any watercourse.

Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access and provided with spill containment. Fuelling and lubrication of equipment will not be carried out in the vicinity of water discharge points. Waste oils and hydraulic fluids will be collected in leak-proof containers and transported off-site for disposal or recycling at appropriately licensed facilities.

8.7. Vermin control

N/A

8.8. Landscape

The Project will be Landscaped as per Landscape and Ecology Specification (Tender Stage) which is included in Appendix 12. Once a Landscape Subcontractor is appointed. This specification will be updated as appropriate.

8.9. Archaeology

Clause 179AR

An Archaeologist has been engaged by the Employer to monitor the works for the duration of topsoil stripping and all relevant earthworks. The Contractor shall liaise and coordinate with the Archaeologist and provide at least 4 weeks' notice to the Employer before topsoil stripping takes place to organise the Archaeologist to be on site. The areas of site requiring archaeological supervision during topsoil strip are outlined in Information Pack Part 11

In the event of archaeological features of material being uncovered during the construction phase, the machine work shall cease in this immediate area, the Employer shall be notified immediately of any decision in works due to uncovering of archaeological features, to allow the archaeologist to investigate any such material, and the area shall be surrounded by Netlon fencing or similar approved. Once established that archaeologically significant material is present, full archaeological excavation and recording of such may be required.

8.10. Temporary Lighting and Hoarding

Temporary hoarding will be erected at the locations specified on the site clearance drawings for the duration of works at those locations. If the works require removal of any existing permeant lighting on the public highway these will be replaced by temporary tower lights. Details of same will be included in specific traffic management plans as the project progress.

9. MANAGEMENT REVIEW

The implementation of the CEMP is reviewed monthly on site at the internal site meetings. These meetings are attended by site management and by personnel responsible for the implementation of the CEMP. During the meeting all aspects of the environmental management are considered, including:

- Upcoming work
- Environments risks foreseen
- Control measures for the protection of the environment
- Internal and external audit results
- Inspection and monitoring results;
- Environmental alerts and bulletins
- Any issues raised by site staff or in relation to environmental management
- Site goals and targets
- Control measures for protection of the environment
- Any other significant issues.

Changes are made to the on-site management as required to achieve a continual improvement in environmental performance.

Environmental issues will be brought to the attention of the workforce through toolbox talks and through the Monthly HSE Meeting.

The CEMP itself shall be reviewed at least every six months by the Site Management Team to ensure that it continues to be adequate and effective and changes made as required. Any changes shall be made by the Site HSE Officer and a new revision of the CEMP issued to all personnel on the circulation list on page 1 of this document.

10. TRAINING AND COMPETENCE

The environmental management requirements shall be communicated to all staff and contractors at the HSE induction. All employees and contractors are required to undertake an online induction and a site specific induction prior to conducting any work on site (for further details refer to the Health and Safety Plan) and employees shall be made aware of their responsibilities in accordance with this management plan. A record of inductions shall be kept by the Safety, Health & Environmental Officer.

Toolbox talks will be conducted with relevant employees on various aspects of the environmental management plan, activity control measures and environmental procedures. Three toolbox talks on environmental, sustainability or waste issues must be conducted per quarter.

Toolbox talks shall be conducted by the Site Management Team. The schedule for toolbox talks shall be at the discretion of the Site Management Team and additional toolbox talks will be given in response to complaints, or where the particular environmental risks have been identified. Toolbox talks will be available on the common data environment (ACC) in due course.

Table 8:Recommended toolbox talks

Toolbox talk topic	Reference material	When*	Recipients
Environmental Management	Environmental Policy, EMP, Environmental Procedures Manual	Commencement of site activities	All site crews
TBT 1	Spill Control	Once a month	All site crews
TBT 2	Waste Pollution Prevention (Fuel & Oil)	Once a month	All site crews
TBT 3	Dust and Air Quality	Once a month	All site crews
TBT 4	Noise and Vibration	Once a month	All site crews
TBT 5	Water pollution - Silt	Once a month	All site crews
TBT 6	Water pollution - cement and concrete	Once a month	All site crews
TBT 7	Tree Protection	Once a month	All site crews
TBT 8	Waste Management Reduce Reuse recycle	Once a month	All site crews
TBT 9	Storage of waste	Once a month	All site crews
TBT 10	Japanese knotweed	Once a month	All site crews
TBT 11	Himalan Balasm	Once a month	All site crews
TBT 12	Giant Hogweed	Once a month	All site crews
TBT 13	Storage and use of Petrol Diesel and Oils	Once a month	All site crews
TBT 14	Materials Handling and storage	Once a month	All site crews
TBT 15	Archaeology	Once a month	All site crews
TBT 16	Bentonite	Once a month	All site crews

Toolbox talk topic	Reference material	When*	Recipients
TBT 17	Pumping and over pumping	Once a month	All site crews
TBT 18	Washing down plant and machinery	Once a month	All site crews
TBT 19	Bats	Once a month	All site crews
TBT 20	Badgers	Once a month	All site crews
TBT 21	Be a good Neighbour	Once a month	All site crews
TBT 23	Working on previously developed land	Once a month	All site crews
TBT 24	Segregation of waste	Once a month	All site crews

11. LAND USE AND PROPERTY MITIGATION MEASURES

Access will be maintained to all affected property

Prior to construction and subject to written agreement of the relevant property owners, property condition surveys will be undertaken in relation to all buildings/ structures in the direct vicinity of proposed works

Any Services that are interfered with as a result of the road development will be repaired/replaced without unreasonable delay.

During the construction phase, site management measures including the provision of high quality hoarding and proactive communication with residents, business and public regarding phasing, extent and duration if works will be carried out.

12. MATERIAL ASSETS:UTILITIES MITIGATION MEASURES

During the construction phase there shall be minimum interruptions to existing services. All services and utilities shall be maintained unless this has been agreed in advance with the relevant service provider and local authority.

All works in the vicinity of utilities infrastructure will be carried out in ongoing consultation with the relevant utility company and/or local authority and will be in compliance with any requirements or guidelines they may have.

Where new services are required, the contractor will apply to the relevant utility company for a connection permit where appropriate and will adhere to their requirements.

Appendix 1: Table of requirements for ISO14001:2015

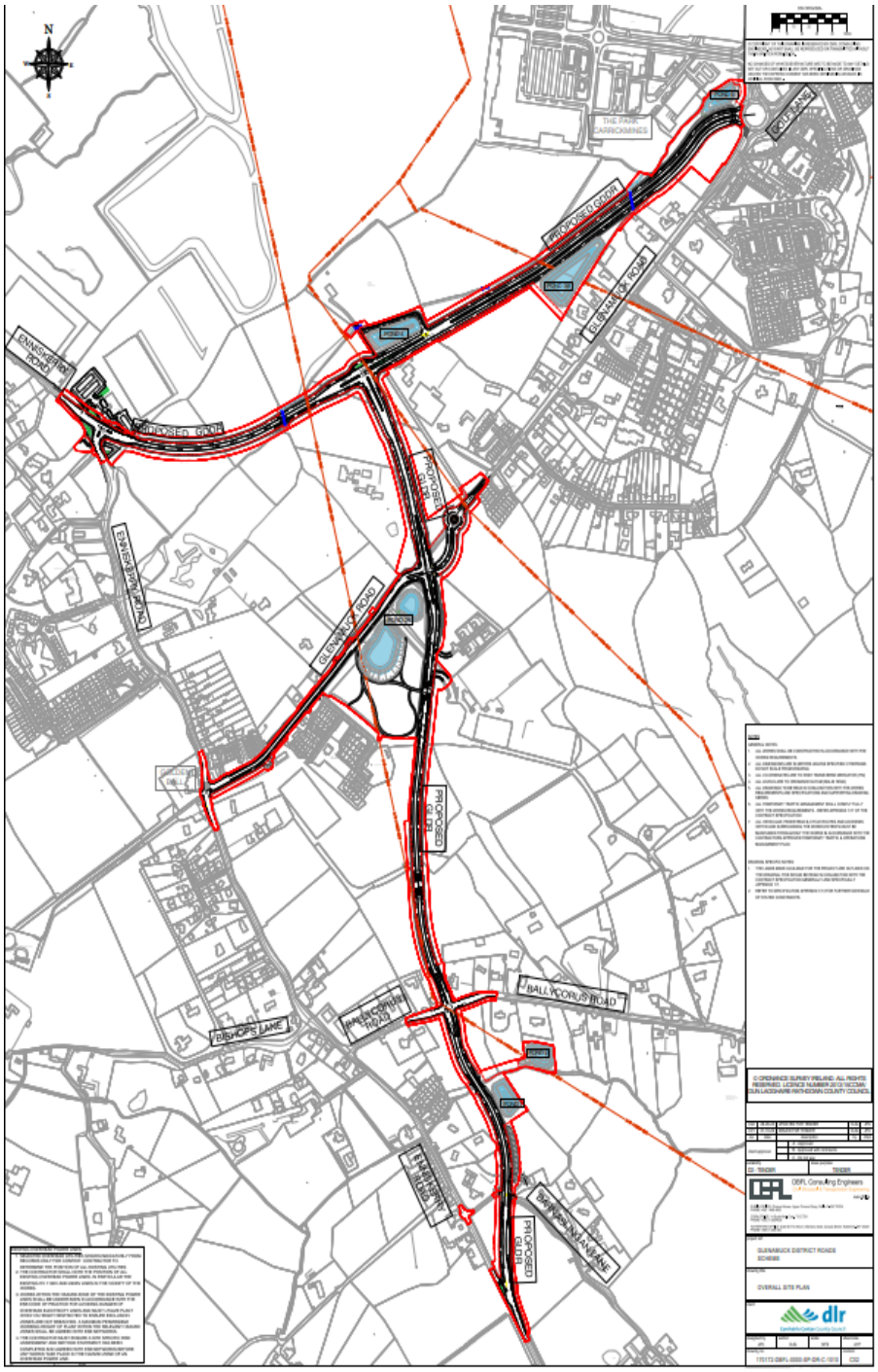
Ref	ISO14001:2015	CEMP	Section
5.2	Environmental Policy	Company Environmental Policy	Appendix 5
6.1.2	Environmental aspects	Environmental planning, aspects and control Site Environmental Risk Assessment	5 5.1
6.1.3	Compliance obligations	Relevant Statutory Provisions	6.5
		Contract Requirements/ ERA	Appendix 2 & 3
6.2 6.2.1 6.2.2	Environmental objectives and planning to achieve them	Environmental objectives and targets	7
5.3	Organizational roles, responsibilities and authorities	Organisation & Responsibilities	2.1 2.3
7.2 7.3	Competence and awareness	Training and competence	10
7.4	Communication	Environmental Management Arrangements Communication	3 2.2
7.5.3	Control of documented information	Control of Documents	6.7
8.1	Operational planning and control	Environmental Control Measures	8
8.2	Emergency preparedness and response	Summary of emergency procedure	4
9.1	Monitoring, measurement, analysis and evaluation	Environmental management	3.1
9.1.2	Evaluation of compliance	Environmental compliance requirements	6
10.2	Nonconformity and corrective action	Environmental incidents	3.2.2
9.2	Internal audit	Environmental management	3.1
9.3	Management review	Management Review	9

Appendix 2: Table of contractual requirements for environmental management

CEMP Section	Section/ Clause
3.3.1 EP14a	124.01 AR - **Substances Hazardous to Health** For specific requirements or restrictions and measures to be taken and monitoring refer to Appendix 1/23.
1.4	174AR **- Hours of Working** For the purposes of this contract the maximum working hours shall be as follows: 08:00 to 19:00 Monday to Friday (excluding bank holidays). 08:00 to 14:00 Saturday Working hours are subject to the restrictions imposed by the local authority. No works are permitted on Sundays or public holidays unless agreed in advance with the Employer's Representative. The above is subject to the limitations of Specification Appendix 1/13 and 1/17 unless otherwise agreed with the Employer's Representative.
1.3	Appendix 1/7.1 Site Extent and Limitations on use point 7 - The Contractor shall comply with the restrictions on lands outlined on Drawing 170172-DBFL-0000-SP-DR-C-1020. Within Area B, The contractor shall not have access to enter or complete any works within the highlighted area for a period of 1 year from contract date. Within Area C, the contractor shall have access to lands for use as temporary compound and storage area however shall not complete any permanent works within the highlighted area for a period of 1 year from contract date.
1.3	Appendix 1/7.2 Site Extent and Limitations on use point 12 – The Contractor shall comply with the restrictions on lands outlined on Drawing 170172-DBFL-0000-SP-DR-C-1020. Within Area B, The contractor shall not have access to enter or complete any works within the highlighted area for a period of 1 year from contract date. Within Area C, the contractor shall have access to lands for use as temporary compound and storage area however shall not complete any permanent works within the highlighted area for a period of 1 year from contract date.
8.5 & 8.6	Appendix 1/23.2 - MEASURES TO BE TAKEN TO PROTECT MEMBERS OF THE PUBLIC The Contractor shall advise the Employer's Representative of the measures he proposes to take to safeguard the general public and the owners and occupiers of property adjacent to the Works, from the effects of hazardous materials.

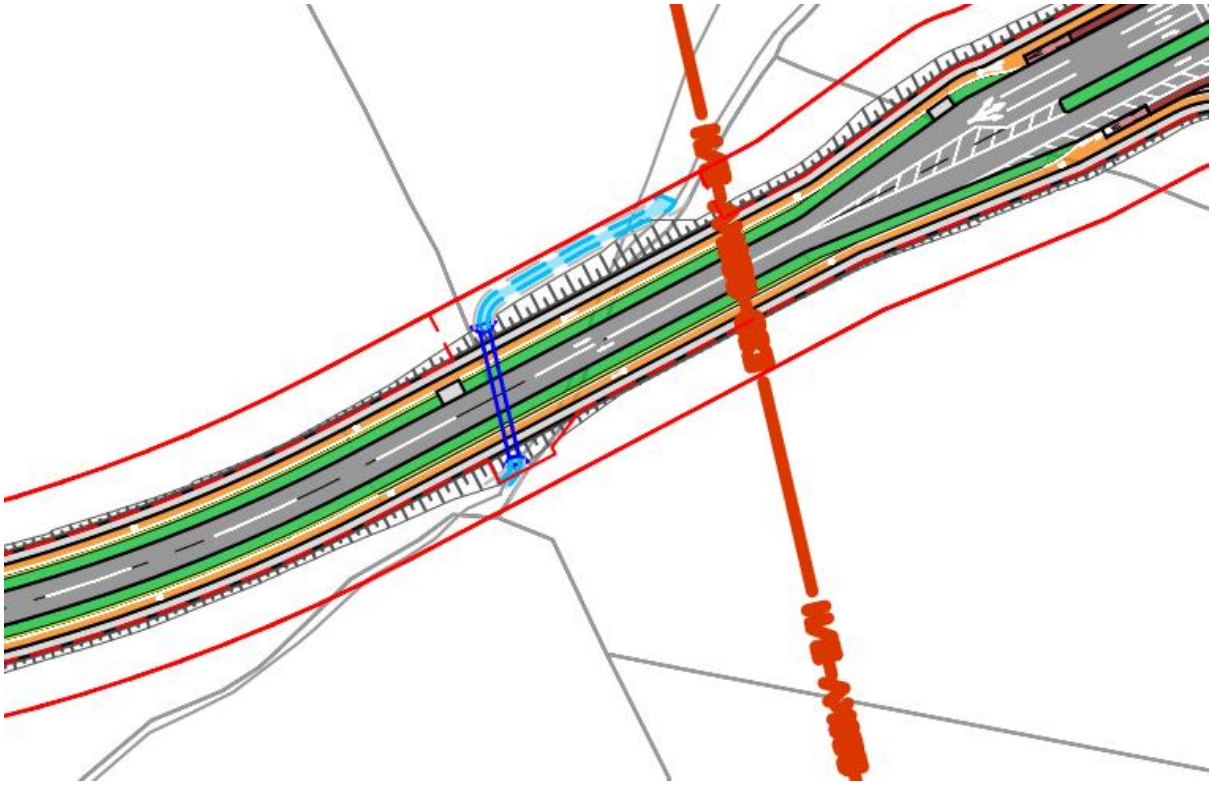
Appendix 3: Environmental risk assessment report

Appendix 4: Site map/s



Overall site layout showing watercourse locations

WX01



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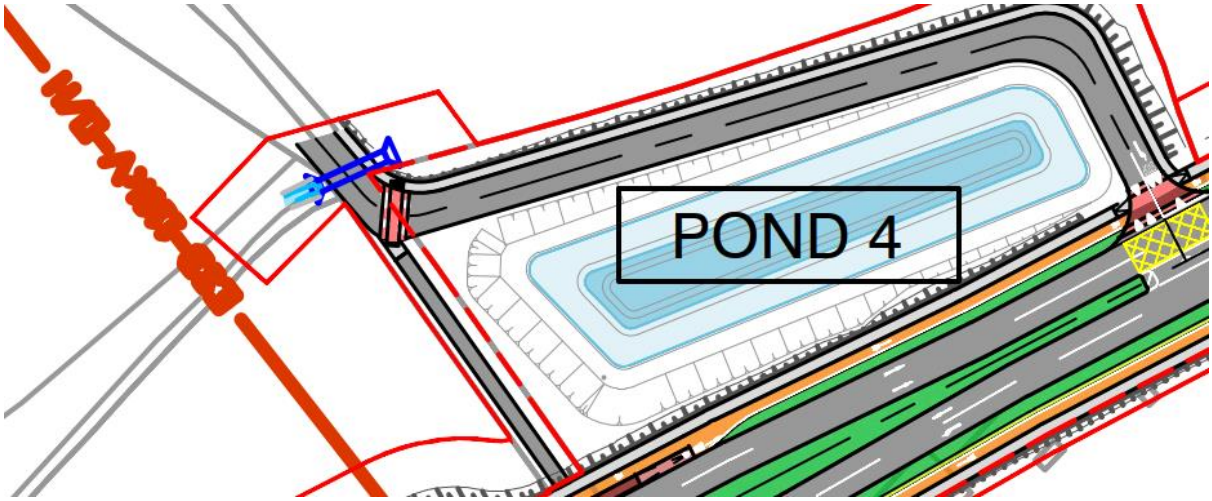

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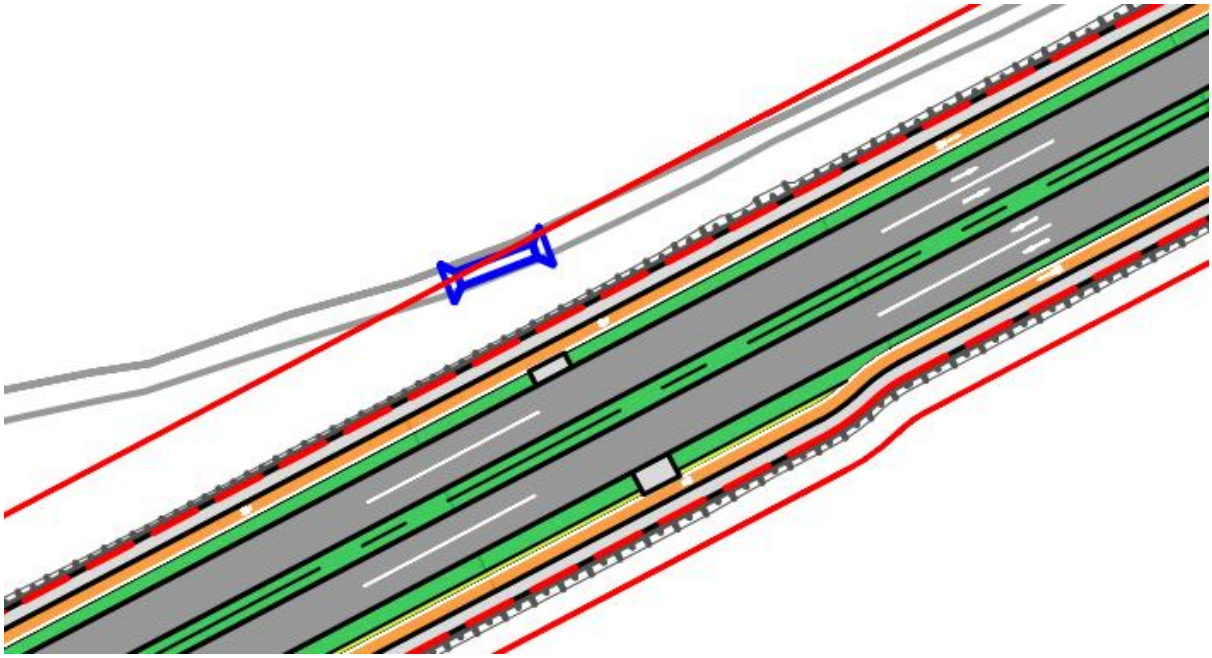

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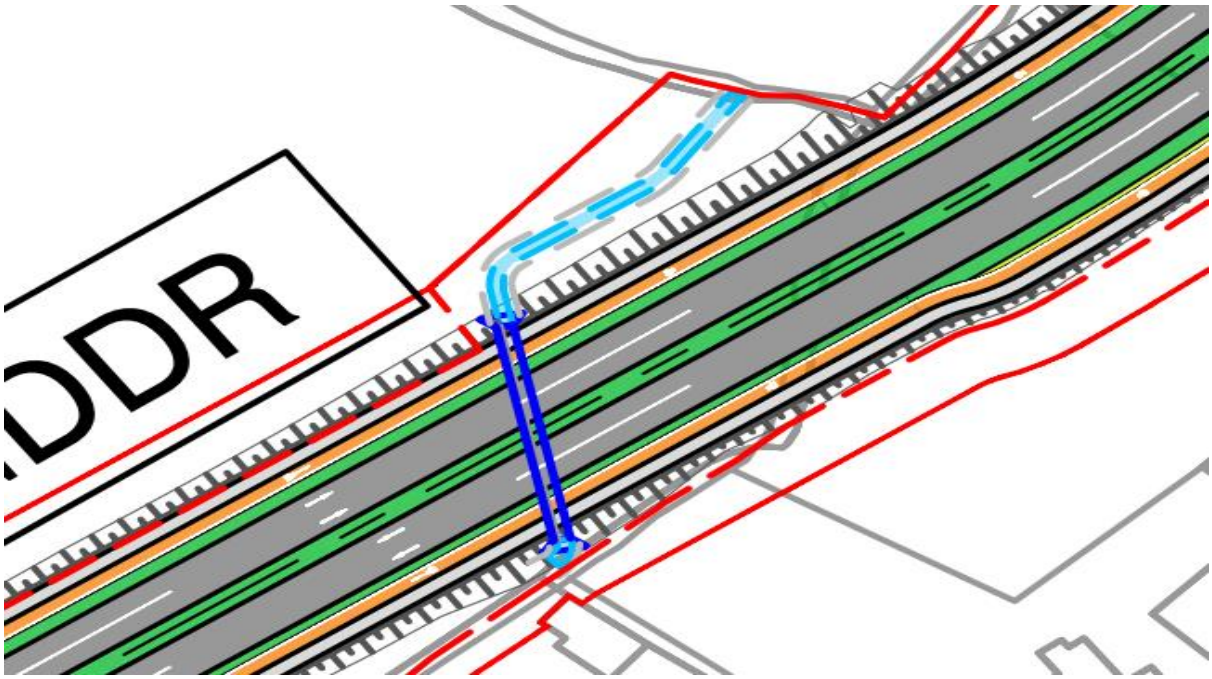
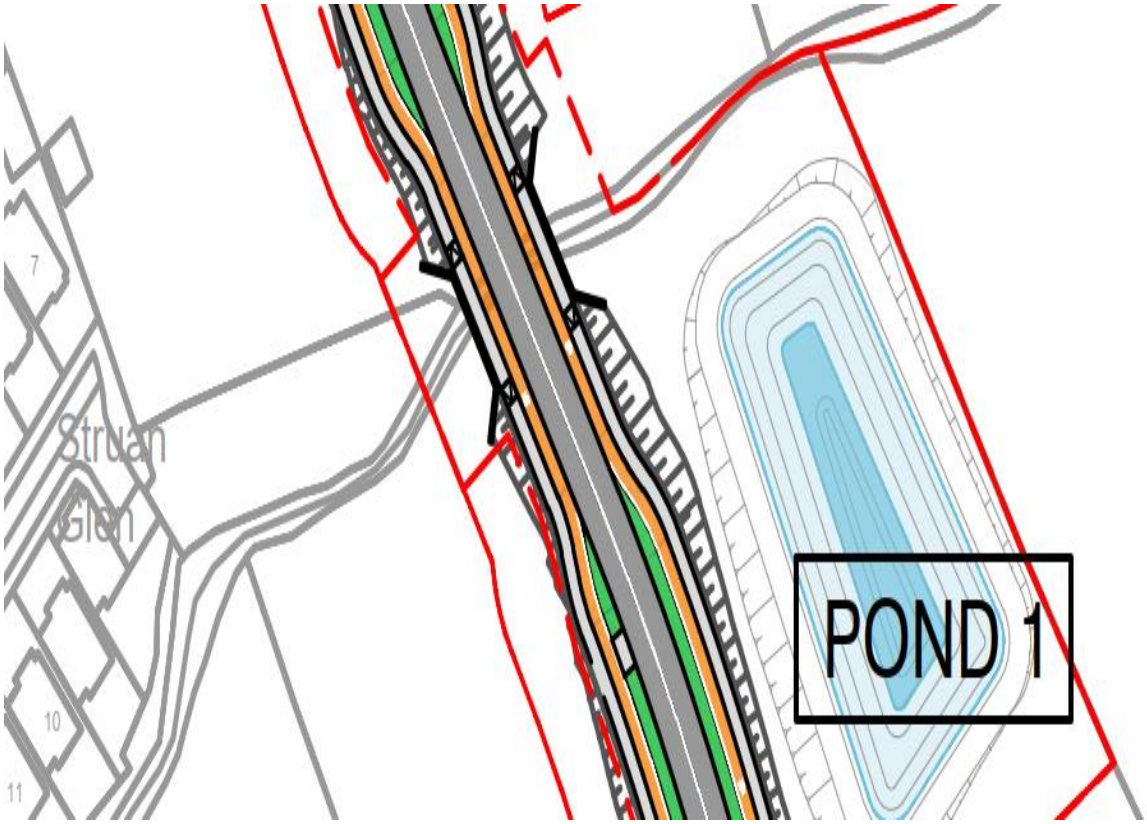


Loughlinstown River Bridge



Appendix 5: Environmental policy

Policy Statement

BAM UK & Ireland

Environmental Policy Statement

BAM UK & Ireland is an operating division of Royal BAM Group n.v. and consists of four business segments: BAM Construction, BAM Nuttall, BAM Ventures and BAM Ireland.

This policy is applicable to all BAM UK & Ireland activities. It sets out our approach to environmental sustainability and sustainable development.

In particular we are committed to protecting the environment and delivering positive impacts from our operations by:

- complying with, and striving to exceed, the requirements of all compliance obligations
- identifying and enhancing the positive impacts from our operations
- delivering our business aims in an environmentally considerate way
- implementing our management system processes and procedures to assess and minimise negative environmental impacts
- promoting environmental awareness to all of our employees and our supply chain
- monitoring performance against clear and specific environmental objectives and targets.
- embracing and implementing industry best practice
- undertaking regular audits and reviews of the effectiveness of the management system

This policy is achieved by effective operation of our integrated management systems together with the active leadership, participation, professionalism and commitment of all personnel. The management systems aim to meet the requirements of the division, our clients and other interested parties.

The Divisional Leadership Team regards the responsibility of management in implementing this policy statement to be fundamental to BAM UK & Ireland Division meeting its standards and commitments.

Executive Directors are responsible for ensuring the implementation of this policy within their area of control.

We have prepared and published an environmental sustainability strategy taking ownership of our environmental impact until 2030.

Our approach provides the framework to set and monitor objectives with key focus on:

Decarbonisation

- responding to climate change through continual reduction in energy use and carbon emissions and supporting our clients and supply chains in transitioning to lower energy and carbon solutions
- aligning our decarbonisation targets with the Science Based Targets initiative (SBTi)

Circularity

- promoting the use of renewable and sustainable materials through adoption of responsible sourcing practices and Environmental Product Declarations.
- striving to eradicate toxins and pollutants from our operations and supply chains
- reducing waste production and diverting waste away from landfill through careful selection of our waste supply chain partners
- promoting the use of recycled and recyclable materials in our operations

Climate adaptation

- taking a pro-active approach to our business operations in relation to risks from climate change

Biodiversity

- responding to biodiversity loss by protecting natural habitats, flora and fauna and striving to enhance biodiversity

The COO for UK & Ireland has appointed a Director of Environmental Sustainability to ensure awareness of this policy is promoted throughout the Division, the effectiveness is monitored and areas for continual improvement identified and implemented.

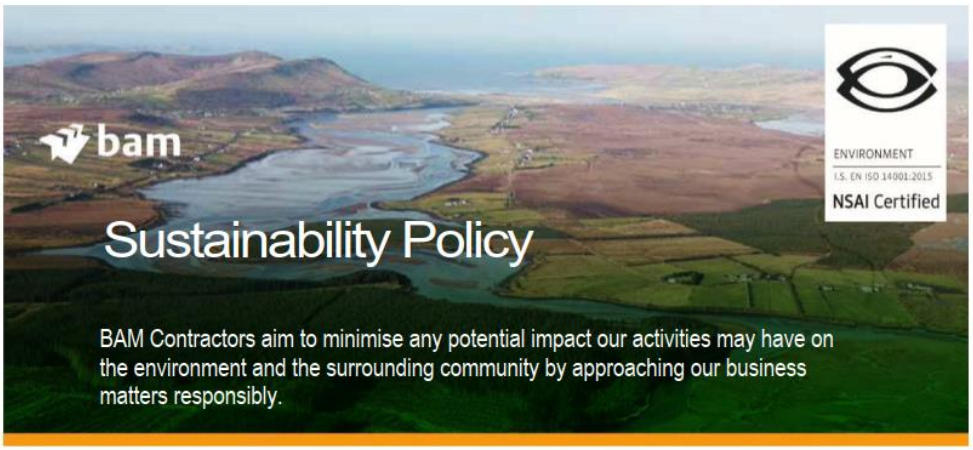
This policy statement has been approved electronically. Proof of approval can be seen upon request

John Wilkinson
Chief Operating Officer
BAM UK and Ireland

Revised date: 09 Jan 2024

Last review date: Dec 2023

Appendix 6: Sustainability policy



This policy provides the framework for our commitment to Sustainability by focusing on the following assurances to:

Our People: We treat our Customers, Employees and Communities with Respect.

Health & Safety: We are focused and committed to maintaining the highest levels of safety and occupational health throughout our business while protecting our workforce, subcontractors, suppliers and surrounding neighbors.

Equality and Diversity: We are committed to providing an inclusive working environment where people feel valued and respected regardless of gender, marital status, race, colour, ethnic or national origin, religion, sexuality, disability, age or whether they are members of the travelling community.

Learning & Development: We provide a positive learning culture and deliver opportunities to ensure our employees are equipped with the skills and knowledge to maximize business effectiveness and their personal development.

Client: We strive to satisfy our clients in terms of delivering socially, ethically and environmentally responsible projects safely and on time.

Community: We will proactively minimize the impact our works have on the environment while seeking to make positive contributions to the local community including employment.

Supply chain: We work with our subcontractors and suppliers to ensure they operate in a safe and environmentally responsible way. Together with our preferred partners we promote and develop sustainable solutions and best practice across the sector

Our Planet: We acknowledge our responsibility towards future generations.

Environment: We strive to improve our environmental performance by taking all reasonable steps to ensure our potential impacts on the environment are reduced and minimized. We promote good environmental practices and seek opportunities to enhance biodiversity on our construction sites.

Energy: We will improve our energy efficiency and reduce the CO_2 emissions from our works by working in a progressive and innovative way to provide low carbon solutions.

Resources: We believe in reducing the supply of natural resources used in our products. We collaborate with our clients and supply chain to use alternative materials and methods to optimize the use of natural resources, raw materials, energy, transport and water. We also promote measures to recycle and minimize waste. In order to enable Ireland to fully decarbonise the construction sector, BAM commit to encouraging the use of EPD's.

Our Profit: We strive to create economic value.

Business Integrity: We stand for fair competition and operate as a responsible business by conducting our activities according to ethical, professional and legal standards.

Innovation: We strive to create sustainable solutions that balance economic, environmental and social issues.

Prosperity: We aim to create value for our shareholders and society by operating both profitably and sustainably.

Alasdair Henderson, Executive Director
Date: 3rd January 2024

2021 CDP DISCLOSURE INSIGHT ACTION NEN ISO 26000

Appendix 7: Environmental Emergency Plan

Environmental Emergency Plan

Site Name: Glenamuck District Road Scheme

Date: 20/06/2024

Revision Number: 01

Revisions

Environmental Dept. Revision No: 08 May 2023			
Reason for Issue:	First submission		**Client Approval (if required)**
Originator	**Reviewer**	**Approver**	
S,Abbey	F.Page	E.Maloney	

Circulation

Copy	Circulation	Name	Company	Location
1	Construction Director	Alan Finn	BAM	Head Office, Kill
2	Project Manager	Fiachra Page	BAM	Site
3	Construction Manager	Mick Duffy	BAM	Site
4	Quality Manager	Stephen Abbey		Site
4	General Foreman	Pat O' Sullivan	BAM	Site
5	Site Health, Safety & Environmental Officer	Martin Leonard	BAM	Site (Part time)
6	Co. Environmental Coordinator	Elaine Maloney	BAM	Head Office, Kill

TABLE OF CONTENTS

Tables

1. INTRODUCTION

This Environmental Emergency Plan (EEP) has been developed in accordance with BAM Contractors Environmental Procedures. The controlled copy of all environmental procedures is hosted on SharePoint.

This Plan is a working document, clearly stating the arrangements in place to manage the significant environmental aspects and legal requirements of this project. This Plan covers BAM activities and that of its subcontractors.

This Plan has been approved by BAM HSE Department at Kill and has the commitment of the Project Director, Project Manager and Site Teams to fulfil the requirements of the Plan.

1.1. Purpose of the plan

This EEP describes how BAM will manage environmental emergencies for Glenamuck District Road Scheme.

This EEP has been developed within the framework of the BAM Contractors EMS. The BAM Contractors EMS is certified to ISO 14001:2015.

This Plan will:

- Identify the emergency processes required to take control of an emergency situation
- Maintain a state of preparedness to prevent or reduce injury to personnel or the environmental as a result of an emergency situation that may occur on site or in an office
- Minimise property loss or damage to the environment.

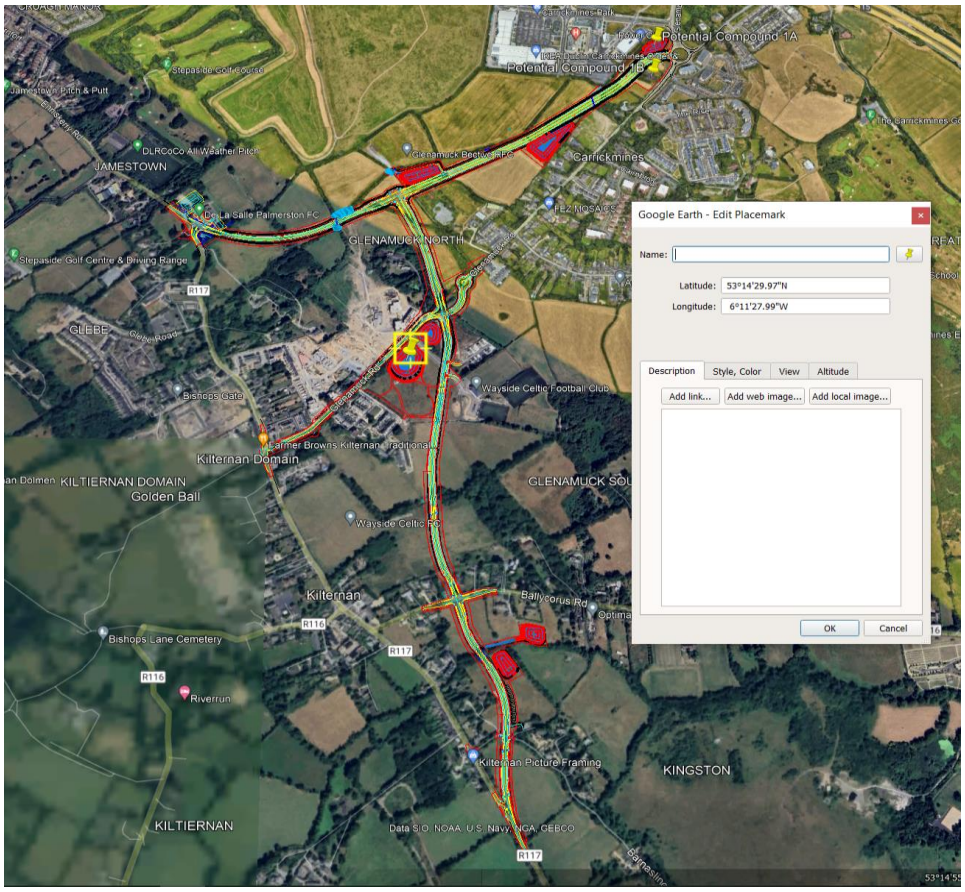
This procedure will be updated when additional hazards are identified and controls of the same are required

This plan will be sent to all subcontractors prior to commencing on site.

1.2. Project description

The construction of approximately 3Km of a new road network and upgrading a portion of existing carriageway. This involves the construction of a bridge, box culverts and several retaining walls. In addition, there will be several utility diversions and accommodation work.

1.3. Site location



1.4. Working hours

Mon to Friday- 0800-1900hrs
Saturday 0800 – 1400hrs
Work outside these hours only permitted subject to the approval of Dún Laoghaire Rathdown County Council

1.5. Plan objectives

The objective of this EEP is to seek to enhance the protection of the environment and human health in environmental emergency situations by promoting prevention and ensuring preparedness, response and recovery.

1.6. Update and review

This plan will be updated at a minimum of six-monthly intervals unless significant changes take place in works being undertaken on site.

2. ENVIRONMENTAL ASPECTS (WATER/CHEMICALS/FIRE)

2.1. Water (surface and groundwater) controls

Water pollution or sediment release will be treated as follows:

- Measures described in *EP-23 Emergency Procedure for Sediment Release* will be implemented
- *EP-10 Surface Water Control* and *EP-15 Containing & Cleaning Up Spills* will be adhered to
- All leaks or flows will be contained immediately
- Where the risk of flooding may arise, additional steps will be taken to ensure all filtration methods or silt ponds are checked regularly to ensure no build-up of water / materials increases the risk of flooding and possible contamination
- Environmental Incidents must be reported to the HSE Department and all incidents must be submitted on the BIM Incident Tracking system within seven days.

2.2. Chemical/Hazardous substance controls

Chemical / hazardous substance (including Cement)spills should be treated with great care:

- Person discovering the spill must raise the alarm immediately
- Main environmental controller must be informed and will then decide if the spill/leak can be dealt with internally or whether the emergency services must be called (**112 or 999**)
- Only minor spills will be dealt with using absorbent material available
- The area must be evacuated and this procedure carried out promptly
- If a chemical or hazardous substance has come in contact with a person you can contact the NATIONAL POISON CENTRE ON (01) 8092166 for advice on first aid treatment
- Environmental Incident reported to HSE Department and all incidents must be submitted on the BIM Incident Tracking system within seven days.

2.3. Fire

In the event of a fire, the following emergency steps must be followed:

- Persons discovering a fire must raise the alarm immediately. Immediately contact a member of the BAM Management Team
- The offices or area effected must be evacuated
- Only minor fires will be dealt with, if safe to do so, using fire extinguishers or fire blankets
- In cases of major fires or chemical fires, the emergency services must be contacted (***112 or 999***)

- If tackling a minor fire, ensure there is enough suitable fire fighting equipment in place
- Employees must be trained to use fire fighting equipment
- Redundant fire water must not be allowed to enter surface water areas (*connected sewerage systems must be protected from our construction site run off as per environmental procedures*)
- Fire drills must be carried out on site and in offices every six months.

Please see below for the following types of extinguishers and their uses:

Table 1: Extinguishers

Type	Use
Water fire extinguishers	Cloth, paper and wood fires only
Dry powder	Most fires including electrical fires
CO_2	Electrical fires and flammable liquids
Foam	Class A fires such as paper, wood and cloth

Please note site office fire plan will be produced and included inside the health and safety plan for the project once the office layout is agreed and constructed.

3. SAFETY AND SPILL CONTROL PROCESSES

3.1. Personnel safety

Personnel safety measures with regards to spills includes:

- Immediately alerting area occupants to evacuate area if necessary
- If a volatile, flammable material has been spilled, switch off or remove any sources of ignition close to the spill. Ventilate the area if indoors
- Put on personnel protective equipment, as appropriate to the substance spilled. As a minimum, gloves and goggles must be worn. Gloves and goggles will be available in the spill kit (*replenish spill kits when required*)
- Consider the need for respiratory protection. Never enter a contaminated atmosphere without training or use a respirator without training.

3.2. Spill control and clean up

Spill control and clean up measures include:

- Identify the source of the pollutant (i.e. Cement) and, if possible and safe to do so, stop the flow
- Get a spill kit(s) and apply absorbent materials appropriate to the spill type. Ensure that waste containers are available in which to place used absorbents
- Prevent the spill from spreading and contain it in as small an area as possible, using absorbent sausages, sand, earth or polythene to damn the flow. Divert any flow away from drains, sewers or watercourses or prevent pollutants from entering drains by placing sausages and/or polythene around or over the opening
- If any pollutant has entered water system, absorbent booms must be positioned on the water. If there is not enough flow in the water to push the pollutant into the boom you may need to apply absorbent pads to the surface to soak up the pollutant
- If an oil interceptor is located nearby, any oil or oil/water mixture may be pumped into this, as long as the capacity of the interceptor is not exceeded and we have permissions
- Place used absorbent pads and shovel contaminated sand/earth/absorbent granules into sacks or containers. Store large volumes of contaminated soil/material in a contained impervious area, such as a plastic-lined bund
- Used absorbent pads / sausages / booms that are not fully laden with pollutant (*i.e. not dripping when they are held up*) may be stored in appropriate containers for reuse. Any such containers must be sealed and clearly labelled as to their contents and stored in a bunded area.

4. ENVIRONMENTAL INCIDENTS/DEFINITIONS

4.1. Environmental incident definitions

Major environmental incident: any situation which has resulted in significant pollution requiring high level of resources for response and remedy and must therefore be reported to Site/Company Management, the Client and/or any relevant statutory authority.

Minor environmental incident: any situation which has resulted in environmental pollution which requires minimal action to aid recovery from Site/Company Management. Non-reportable to any relevant statutory authority.

Main environmental incident controller: takes responsibility for control of the emergency, contacting emergency services and maintains a continuous review of possible developments (*has received fire extinguisher training and spill control advice as a minimum*).

An environmental incident may include but it not limited to:

- Spillage of hazardous materials (as defined by the Waste Management Acts,)
- A breach of any specified environmental limits as detailed in contractual documents or EIS documents (noise, vibration, air)
- Uncovering contaminated land
- Any spillage which cannot be rapidly contained and controlled, these include diesel, oil spills etc
- Inappropriate disposal of waste
- Runoff of sediment-laden or otherwise polluted water to a waterway
- Spills of fuel, oil or hazardous substances into water or a waterway
- Hazardous waste mixed with non-hazardous waste or stored in an inappropriate manner
- Mixing of hazardous wastes
- Concrete waste/washings disposed in a non-designated area
- Working within a protected area.

4.2. Emergency response procedure process

In the event of a **major** *or* **minor** environmental incident occurring, BAM will immediately:

- Clean up spill as per Section 3.2 of this Plan (*if applicable*)
- Isolate the source of any such emission / pollution
- Identify and execute measures to prevent / minimise the emissions / malfunction and the effects thereof
- Evaluate the environmental pollution, if any, caused by the incident
- Corrective actions taken to remedy the situation

- Carry out an investigation to identify the nature, source and cause of the incident and any emission arising there from
- All related information will be gathered concerning the environmental incident and photographs will be taken
- All relevant parties will be spoken with regarding this matter
- When all the information has been gathered, it will be added to the BIM Incident Tracking system. If any further actions have to be taken, these will be agreed, and timescales set.
- All incidents must be submitted on the BIM Incident Tracking system within 7 days.
- All environmental incidents that are added to the Incident Tracking System are reviewed by the HSE department prior to final approval and are included on the monthly 'Loss Events Report'.
- Refer to emergency plans included in Appendix 1

This EEP will be communicated to all BAM Personnel and will be reviewed and updated (*where necessary*) on a 6-monthly basis (unless significant change) in conjunction with the EMP and WMP. A spill response drill will also be completed on each site by relevant personnel.

4.3. Emergency Contact numbers

Table 2: Contact numbers *(Update with names of the emergency response team and those trained in fire extinguisher use)*

Name	Title	Number
Pat o Sullivan	Site Foreman/ Emergency Co Ordinator	086 8584861
Mick Duffy	Project Manager	087 7698417
Fiachra Page	Site Manager	087 9030489

5. REFERENCES

EP-23 Emergency Response for sediment release to water

EP-24 Complaints and Incidents Procedure

EP-15 Containing and Cleaning Up Spills

SP-13 Fire Safety

6. APPENDIX 1 – EMERGENCY PLANS

EMERGENCY PLAN				
ROAD TRAFFIC ACCIDENT / TRAFFIC EMERGENCY	EMP 11	REV: 1	DATE: July 2019	PAGE: 1 of 1

1. The emergency team consists of the Site Foreman (Pat O Sullivan) & the Project Manager (Mick Duffy).
2. When the alarm is raised a member of BAM staff is to notify the Emergency Team and call the emergency services.
3. The Emergency Team will assemble at the site of the incident.
4. If there is a danger of the vehicle exploding, the driver should be removed immediately by one of the emergency team trained first aiders.
5. If there is no danger of the vehicle exploding the driver should be left in the vehicle until the fire brigade or ambulance arrive.
6. First aid will be administered by one of the qualified First Aiders in the Emergency Team.
7. The Emergency Co-ordinator (Pat O Sullivan) will nominate a person/persons to co-ordinate the crowd.
8. Another nominated person will wait at the entrance for the emergency services and escort them to the incident, this is also organised by the Emergency Co-ordinator.
9. The Project Manager will contact the casualties' next of kin.
10. The Emergency Co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the Site Agent informed.
11. The Site Manager (Fiachra Page) will inform the company HSE Manager immediately of the situation.
12. The Site Manager will co-ordinate the investigation. He will co-ordinate with the emergency team to remove the vehicle (s) by crane.
13. If hired in, the vehicle will be collected by its owner or if owned by BAM it will be collected by the plant department.
14. The emergency co-ordinator will ensure that the accident is cleared of debris – especially a fuel spillage.

Emergency Spill Response Plan Rev 0 Date Jan 15

Emergency Response Coordinator on this site is: Pat O Sullivan

Site Safety, Health & Environmental (HSE) Officers: Martin Leonard

Contact the Emergency Response Coordinator or SHE Officer for advice & assistance Consider Personnel Safety First

1. Immediately alert area occupants to evacuate area if necessary and report the spill to the Area Supervisor, SHE Officer or Emergency Coordinator.
2. The Emergency Response Team (ERT) will attend if there is a fire, or if any people require medical attention or have been exposed to hazardous substances. Contaminated clothing must be removed immediately and the skin flushed with water for at least 15 minutes.
3. If a volatile, flammable material has been spilled, switch off or remove any sources of ignition close to the spill. Ventilate the area if indoors.
4. Put on personnel protective equipment, as appropriate to the substance spilled. As a minimum gloves must be worn (refer to the Material Safety Data Sheet if in doubt or consult the SHE Officer / Emergency Coordinator). Gloves should be available in the spill kit.
5. Consider the need for respiratory protection. Never enter a contaminated atmosphere without training or use a respirator without training. If respiratory protection is needed and no trained personnel are available do no not approach spill and keep up wind.
6. Contact emergency services on 112 if the spill: cannot be contained; and/or poses a serious public safety hazard; and/ or threatens a protected habitat area or watercourse

Spill Control and Clean Up

1. Try to identify the source of the pollutant and, if possible and safe to do so, stop the flow.

1. Get a spill kit(s) and apply absorbent materials appropriate to the spill type. Ensure that waste containers are available in which to place used absorbents.

2. Prevent the spill from spreading and contain it in as small an area as possible, using absorbent sausages, sand, earth or polythene to dam the flow. Divert any flow away from drains, sewers or watercourses or prevent pollutants from entering drains by placing sausages and/or polythene around or over the opening.

3. Never wash spillage into the drainage system and never use detergents

4. If any pollutant has entered a watercourse absorbent booms must be positioned to prevent the spread of the pollutant. Ensure that the booms are anchored to the shore and that water cannot flow around the edges of the boom. If there is not enough flow in the water to push the pollutant into the boom you may need to apply absorbent pads to the surface to soak up the pollutant.

5. If a large volume of liquid has been contained and is not soaking into the ground (e.g. if the spill occurs on concrete) it may be more appropriate to have a waste contractor remove the liquid by drawing it directly into a tanker for disposal, or pumping it into an IBC, which can be collected for disposal.

6. Alternatively if an oil interceptor is located nearby, any oil or oil/water mixture may be pumped into this, as long as the capacity of the interceptor is not exceeded.

7. Place used absorbent pads and shovel contaminated sand/earth/absorbent granules into sacks or containers. Store large volumes of contaminated soil/material in a contained impervious area, such as a plastic-lined bund.

8. Used absorbent pads / sausages / booms that are not fully laden with pollutant (i.e. not dripping when they are held up) may be stored in appropriate containers for reuse. Any such containers must be sealed and clearly labelled as to their contents and stored in a bunded area.

The HSE Officer or Emergency Coordinator shall notify the relevant authority, the Health & Safety Authority and neighbours, and complete an Environmental Incident Report, if required.

EMERGENCY PLAN				
Failure of Equipment	EMP 15	REV: 1	DATE: July 2019	PAGE: 1 of 1

1. The emergency team consists of the Site Foreman (Pat O Sullivan) & the Project Manager (Mick Duffy).

2. When the alarm is raised a member of BAM staff is to notify the Emergency Team and call the emergency services.

3. The Emergency Team will assemble at the site of the incident.

4. The Emergency team will assess the equipment that has failed and the situation. If there is a danger of further failure or to a casualty in the vicinity of the fail equipment, they should be removed immediately by one of the emergency team trained first aiders.

5. If there is no danger to the casualty they should be left in place until the fire brigade or ambulance arrive.

6. First aid will be administered by one of the qualified First Aiders in the Emergency Team.

7. The Emergency Co-ordinator (Pat O Sullivan) will nominate a person/persons to co-ordinate the crowd.

8. Another nominated person will wait at the entrance for the emergency services and escort them to the incident, this is also organised by the Emergency Co-ordinator.

9. The Project Manager will contact the casualties' next of kin.

10. The Emergency Co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the Site Agent informed.

11. The Site Manager (Fiachra Page) will inform the company HSE Manager immediately of the situation.

12. The Site Manager will co-ordinate the investigation. He will co-ordinate with the emergency team to remove the failed equipment by appropriate machine.

13. The emergency co-ordinator will ensure that the area is cleared of debris – especially a fuel spillage.

EMERGENCY PLAN				
Collapse of Structure	EMP 18	REV: 1	DATE: July 2019	PAGE: 1 of 1

1. The emergency team consists of the Site Foreman (Pat O Sullivan) & the Project Manager (Mick Duffy).

2. When the alarm is raised a member of BAM staff is to notify the Emergency Team and call the emergency services.

3. The Emergency Team will assemble at the site of the incident.

4. The Emergency team will assess the structure that has collapsed and the situation. If there is a danger of further failure or to a casualty in the vicinity of the collapsed structure, they should be removed immediately by one of the emergency team trained first aiders.

5. If there is no danger to the casualty they should be left in place until the fire brigade or ambulance arrive.

6. First aid will be administered by one of the qualified First Aiders in the Emergency Team.

7. The Emergency Co-ordinator (Pat O Sullivan) will nominate a person/persons to co-ordinate the crowd.

8. Another nominated person will wait at the entrance for the emergency services and escort them to the incident, this is also organised by the Emergency Co-ordinator.

9. The Project Manager will contact the casualties' next of kin.

10. The Emergency Co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the Site Agent informed.

11. The Site Manager (Fiachra Page) will inform the company HSE Manager immediately of the situation.

12. The Site Manager will co-ordinate the investigation. He will co-ordinate with the emergency team to remove the collapsed structure by appropriate machine.

13. The emergency co-ordinator will ensure that the area is cleared of debris – especially a fuel spillage.

EMERGENCY PLAN				
FIRE	EMP 05	REV: 1	DATE: July 2019	PAGE: 1of 2

EMERGENCY PLAN IN THE EVENT OF A FIRE

1. Whoever discovers the fire should raise the alarm which, the location of which will be told to all persons at induction.
2. The Emergency Co-ordinator (Pat O Sullivan)will call the emergency services (112).
3. The Emergency Co-ordinator will nominate persons to act as sweepers and make sure that the site offices are evacuated.
4. The Emergency Co-ordinator will nominate persons to act as sweepers and make sure that the site is evacuated.
5. All personnel are to leave the site and assemble at the designated assembly point.
6. Do not stop to collect personal belongings.
7. Turn off generators, compressors and other powered equipment unless these provide power for emergency services.
8. Turn off all heat producing equipment and shut cylinder valves.
9. The emergency team members will attack the fire if safe to do so using the correct extinguisher. The locations of banks of fire extinguishers is marked on the site map which is displayed on the site safety noticeboard in the site office.
10. The information on the location of materials on the site and their flammability is held by the Emergency Co-ordinator who will pass it on to the fire brigade.
11. If somebody has caught fire they should be wrapped in a fire blanket, locations of which are marked on the site map and the burns unit of the fire brigade should be contacted.
12. The Emergency Co-ordinator will do a roll call with the assistance of the site clerk. Every sub-contractor must have a supervisor assigned to conduct a head count of their employees. They will then report back to the Emergency Co-ordinator
13. The person nominated by the Emergency Co-ordinator will wait at the site entrance to escort the emergency services.
14. The Emergency Co-ordinator will provide details of any known fire hydrants in the area.
15. After the emergency the Emergency Co-ordinator will call the all clear.
16. If it is a case that the offices are uninhabitable temporary accommodation will be provided as soon as possible the location of which will be decided by the Site Manager

EMERGENCY PLAN				
FIRE	EMP 05	REV: 1	DATE: July 2019	PAGE: 2of 2

17. If there are casualties these will be removed to hospital and the Project Manager (Mick Duffy)will contact their next of kin.

18. The Emergency Co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the Site Manager informed.

19. The Site Manager (Fiachra Page) will inform the HSE Manager immediately of the situation.

20. The Site Manager will co-ordinate the investigation.

21. The Site Manager will call the all clear if it is safe to go back or operate from the temporary offices.

22. The Site Manager and Emergency Co-ordinator to review the situation and organise items such as demolition, remedial works etc.

EMERGENCY PLAN				
FLOOD	EMP 12	REV: 1	DATE: July 2019	PAGE: 1 of 1

1. The emergency team consists of the Site Foreman (Pat O Sullivan) & the Project Manager (Mick Duffy).

2. When the alarm is raised a member of BAM staff is to notify the Emergency Team and call the emergency services.

3. The Emergency Team will assemble at the site of the flood.

4. The Emergency Co-Ordinator will assess the severity of the flood. Any items of plant or materials that are in danger of being flooded will be moved to higher and safer ground if it is safe to do so. If there is danger too site operatives / General public then all works at the location will cease and the area will be evacuated. The site will be secured.

5. The Emergency Co-ordinator (Pat O Sullivan) will nominate a person/persons to co-ordinate the crowd. The Emergency Co-ordinator will assess if the flood can be controlled and contained. If so he will arrange for appropriate plant (i.e. pumps) and materials to be brought to the location.

6. Another nominated person will wait at the entrance for the emergency services and escort them to the flood location (if required) , this is also organised by the Emergency Co-ordinator.

7. If the flood results in a casualty then the Project Manager will contact the casualties' next of kin.

8. The Emergency Co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the Site Agent informed.

9. The Site Manager (Fiachra Page) will inform the company HSE Manager immediately of the situation.

10. The Site Manager will co-ordinate the investigation. He will co-ordinate as appropriate with the emergency team.

11. The emergency co-ordinator will ensure that the flood area is clean of debris when the flood recedes

Appendix 8: Construction Resource and Waste Management Plan

Construction Resource and Waste Management Plan

Site Name: Glenamuck District Road Scheme

Date: 19/04/2024

Revisions

Environmental Dept. Revision No: 12 May 2023			
Reason for Issue:	First submission		**Client Approval (if required)**
Originator	**Reviewer**	**Approver**	
S.Abbey	F.Page	E.Maloney	

Circulation

Copy	Circulation	Name	Company	Location
1	Construction Director	Alan Finn	BAM	Head Office, Kill
2	Project Manager	Fiachra Page	BAM	Site
3	Construction Manager	Mick Duffy	BAM	Site
4	Quality Manager	Stephen Abbey	BAM	Site
5	General Foreman	Pat O' Sullivan	BAM	Site
6	Site Health, Safety & Environmental Officer	Martin Leonard	BAM	Site (Part Time)
7	Co. Environmental Coordinator	Elaine Maloney	BAM	Head Office, Kill

Document Control Sheet for Waste Management Plan

	Originator	Reviewer/ Approver
Name:	S.Abbey	F.Page

Site Name	Document revised	Env Dept Rev No.	Site Rev No.	Reviewd by	Date
Glenamuck	*WMP*	*Rev 12*	*Rev 00*	*F.Page*	*19/4/2024*

Document:	
Site Rev No:	
Changes Made:	
Site Reviewer:	

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TABLE OF CONTENTS

Tables

Figures

1. INTRODUCTION

This Waste Management Plan (WMP) has been developed in accordance with BAM Environmental Procedures. The controlled copy of all environmental procedures is hosted on SharePoint.

This Plan is a working document, clearly stating the arrangements in place to manage the significant environmental aspects and legal requirements of this project. This Plan covers BAM activities and that of its subcontractors.

This Plan has been approved by BAM HSE Department at Kill and has the commitment of the Director, Construction Directors, Contract Manager, Project Manager and Project Team to fulfil the requirements of the Plan.

1.1. Purpose of the plan

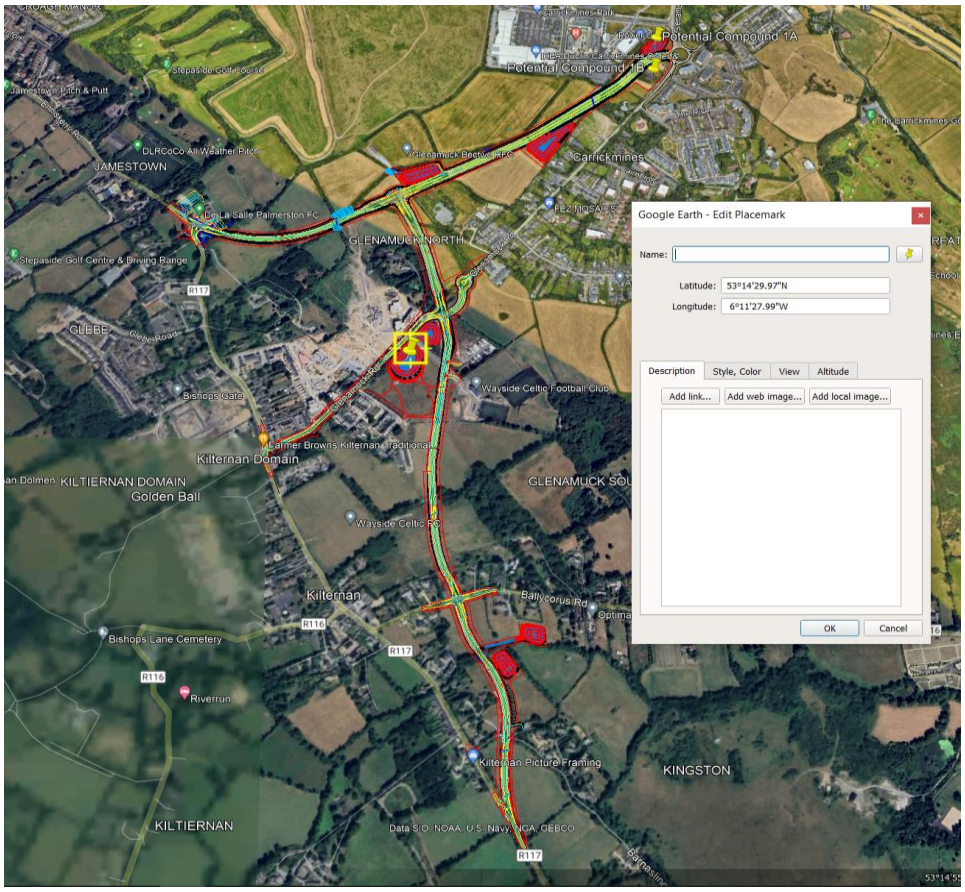
The purpose of this plan is to ensure that all waste materials arising from the *Glenamuck District Road Scheme is* managed and disposed of in accordance with:

- Waste Management Act 1996, as amended - https://revisedacts.lawreform.ie/eli/1996/act/10/front/revised/en/html
- Waste Management (Facility Permit and Registration) Regulations, as amended
- Waste Management (Collection Permit) Regulations, as amended
- European Union (Packaging) Regulations, as amended
- European Union (Waste Electrical and Electronic Equipment) Regulations, as amended
- Waste Management (Hazardous Waste) Regulations, as amended
- Please also be advised to refer to the most up to date Waste/Waste Management Acts and Regulations available at https://www.irishstatutebook.ie/
- The project specific construction requirements (Contract Documents)
- The Company Environmental Management System, and;
- Best Practice Guidelines on the preparation preparation of resource & waste management plans for construction & demolition projects.

1.2. Project description

The construction of approximately 3Km of a new road network and upgrading a portion of existing carriageway. This involves the construction of a bridge, box culverts and several retaining walls. In addition, there will be several utility diversions and accommodation works.

1.3. Site location



1.4. Working hours

Mon to Friday- 0800-1900hrs
Saturday 0800 – 1400hrs
Work outside these hours only permitted subject to the approval of Dún Laoghaire Rathdown County Council

1.5. Plan objectives

The objectives of this Plan are to detail:

- The amount and types of wastes arising from the works
- Methods and locations used for their handling and storage on site, including a site map showing waste management areas (in **Appendix 1**)
- Waste Collection Permits required for the removal of waste from site
- The disposal facilities for the waste streams and their associated Waste License or Permit.

1.6. Update and review

This plan will be updated at a minimum of six-monthly intervals unless significant changes take place in works being undertaken on site.

2. RECYCLING/WASTE MANAGEMENT STRATEGY

2.1. Recycling/Waste management goal

The recycling/waste management goal for the Project is to manage all waste in accordance with the relevant statutory provisions and the waste hierarchy:

The waste management strategy for the Project will follow the accepted waste hierarchy.

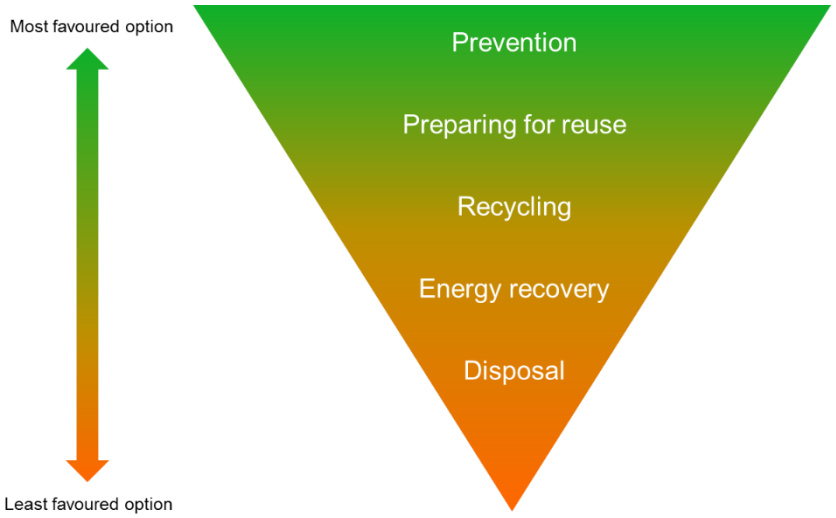
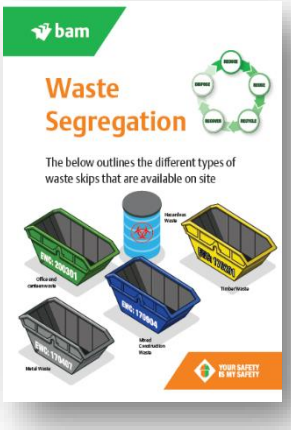


Figure 1: Waste management hierarchy

The waste management goals will include:

- Whenever possible materials for construction activities will be ordered as to prevent the minimum storage time and kept in the storage area before release to site for use.
- Materials will be ordered, where possible, in sizes to prevent wastage e.g. in form of offcuts and waste to be able to be returned to the original supplier (eg plastic pipe)
- Materials delivered to the project will be received and controlled by the Stores Manager (or similar). Materials will be stored to minimise the potential of damage or wastage. Measures will include off-ground storage (eg on pallets), remaining in original packaging, protection from rain damage or collision by plant or vehicles
- The materials storage area will be secured during out of hours to prevent unauthorised access
- A waste management compound will be set up to handle incoming waste from construction activities. This will be designed to facilitate the segregation of key waste streams to maximise the opportunity to re-use, recycle and return wastes generated on site



- The segregated waste will be placed in skip containers. Waste will be placed in the skips in such a way to minimise 'empty' void space.
- Skips will be labelled to clearly highlight waste stream for each skip. As a minimum skips and containers will be provided for segregating of the following key waste streams:

Mixed Metal	Timber	General/Mixed C&D	Packaging (Plastic & Cardboard)	Hazardous

- Hazardous waste will be kept in a secure area away from other wastes to ensure no contamination takes place
- Separate areas within the waste compound will also be allocated for the storage of plastic piping awaiting return to supplier, waste tyres and WEEE (where applicable). The layout of the waste compound will be provided in Appendix 1 of the contract-stage version of this Plan.

Waste and recycling targets

Waste and recycling targets will be to achieve:

- 100% recycling of surplus reinforcement where possible
- Reuse of all earthworks materials on site – zero export where possible (excluding contaminated materials)
- No contamination of skips – no additional costs due to inappropriate materials being placed in skips designated for particular waste streams.

2.2. How we will achieve our targets

The waste management goal will be achieved through the implementation of several guiding principles in accordance with the waste hierarchy, namely:

- Giving preference to the purchase of materials with minimum packaging
- Storing materials in designated areas and separate from wastes to minimise damage
- Establishing take back schemes and returning packaging and unused materials to the suppliers where possible
- No pallets to be placed in skips on site
- Maximising the reuse of soils and rock on site during the construction of the Project
- Segregating construction and demolition wastes into reusable, recyclable and non-recyclable materials
- Reusing and recycling materials on site during construction where practicable
- Recycling other recyclable materials through appropriately permitted/licensed contractors and facilities
- Disposing of non-recyclable wastes to licensed landfills.

2.3. Waste license/permit requirements

The following statutory restrictions apply with regard to the collection and treatment of waste in Ireland:

2.3.1. Waste Management (Collection Permit) Regulations 2008

- All types of waste may only be collected and transported from site by a contractor who holds a National Waste Collection Permit for the type of waste being collected
- Waste will only be disposed of or recovered at a site which holds a Licence or Permit under the Waste Management (Facility, Permit and Registration) (amend) Regs 2014
- We must obtain a copy of the 'end disposal site' Licence or Permit for the waste we are disposing of
- Copies of all relevant licenses and permits will be kept on site and attached to this plan in Appendix 2, namely waste collection permits and waste facility permits.

2.3.2. Waste Management (Hazardous Waste) Regulations 1998

- Hazardous waste removed from site must be accompanied by a Waste Transfer Form (WTF) as per European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011
- Hazardous waste to be removed from Ireland for treatment elsewhere must be accompanied by a Transfrontier Shipment Form in accordance with the Waste Management (Shipment of Waste) Regulations 2007.

2.4. Hazardous wastes management

Hazardous wastes pose a risk to the health and safety of personnel as well as the environment. The Site Safety, Health & Environmental Officer should be notified of any hazardous waste or suspected hazardous waste, and consulted for assistance with handling procedures. Under the health and safety plan risk assessments and procedures are available for:

- Excavating in Contaminated Ground
- Buried asbestos in landfill
- Removing asbestos from existing buildings
- Environmental Bulletins 16 & 19 'Asbestos Removal' to be adhered to.

2.5. Duty of care

Responsibility for waste management lies with the principal contractor unless a contractual agreement with subcontractors to manage their own waste arisings exists.

3. WASTE IDENTIFICATION AND MANAGEMENT

3.1. General

BAM will provide a dedicated waste handling and segregation area as shown on the site map in **Appendix 1**.

Waste segregation should occur where possible.

The Site Agent/Foreman will:

- Oversee all waste handling operations
- Regularly check skips to ensure correct segregation has been achieved, void space is minimised and that no contamination has taken place
- Ensure the compound is kept tidy and in good appearance at all times
- Order and change skips as required.

Each waste skip and bin will be clearly labelled as to the type of waste contained.

3.2. Waste procedures

3.2.1. Excavation waste

BAM shall consider the following measures to ensure that stockpiles are managed in an appropriate manner:

- Stockpiles shall be segregated depending on the source of the material and the apparent nature of the contamination.
- The locations of stockpiles shall be approved by the Employer's Representative at least five working days before excavation commences.
- Stockpiles shall be placed on a low permeability liner or sacrificial clay layer, suitably protected from damage by earthmoving plant and covered with a low permeability liner to prevent generation of leachate. Where leachate is generated, it shall be intercepted, collected and disposed off-site, or treated and disposed under licensed consent.
- Suitable barriers or sheeting shall be erected and maintained to prevent the escape of windblown wastes, asbestos fibres, vapours and odours from the Site.
- Stockpiles of suspected contaminated material shall not be more than 1500m3 in volume and shall be located away from adjacent human health, surface water and environmental receptors.
- Stockpiles shall be suitably shaped so as to be stable and to allow for surface water run-off, which shall be collected for disposal off-site or treatment and disposal under licensed consent.
- A suitable temporary storage area shall be identified and designated;
- Contaminated or potentially contaminated soil shall be stockpiled only on hard-standing or high grade polythene sheeting to prevent cross-contamination of the soil below;

- Liquid and sludge contaminated materials shall be stored in suitable tanks or purpose built lagoons prior to testing and treatment/disposal. Such treatment/disposal shall be in accordance with the waste management regulations in force at the time.
- Stockpiles shall not be positioned adjacent to ditches, watercourses or existing or future excavations;
- Soils shall be stockpiled in the driest condition possible and use tracked equipment whenever possible to reduce compaction;
- Material handling systems and site stockpiling of materials shall be designed and laid out to minimise exposure to wind. Water misting or sprays shall be used as required if particularly dusty activities are necessary during dry or windy periods.
- Waste Acceptance Criteria (WAC) testing and associated waste testing shall be undertaken prior to disposal at an appropriately licenced landfill.
- Each stockpile shall be uniquely numbered and its source, classification and destination recorded. Stockpile samples and test results shall be uniquely numbered and traceable to the stockpile.
- Mixing of unclassified stockpiles of different origin, or of stockpiles having different classification, should not be carried out; and,
- An excavation/stockpile register shall be maintained showing at least the following information:
    - Stockpile number;
    - Origin (i.e. location and depth of excavation);
    - Approximate volume of stockpile;
    - Date of creation;
    - Description of material;
    - Classification;
    - Date sampled;
    - Date removed from site;
    - Disposal/recovery destination; and,
    - Photograph.

3.2.2. Demolition waste

Materials arising from any site clearance or demolition above and below ground that are not suitable for re-use shall be disposed of by the nominated waste management contractor to appropriately licensed facilities

3.2.3. Office waste

Office and canteen waste will be segregated into separate bins and collected by a licensed waste management contractor in 1,100-liter bins;
Only closed skips and bins may be used on site;
All food waste containers shall be enclosed and lockable. No food waste materials are to be stored longer than 1 week.

3.2.4. Construction waste

A waste management compound shall be set up to handle incoming waste from construction activities. This will be designed to facilitate the segregation of key waste streams to maximise the opportunity to re-use, recycle and return wastes generated on site. The segregated waste will be placed in skip containers which will be clearly labelled to highlight the waste stream for each skip.

In addition to the requirements of the CEMP, BAM shall comply with the following:

- Collection permits are to be kept on site for inspection by the Employer's Representative on request;
- Method statements shall be provided in relation to the handling and disposal of all waste materials from site and particularly contaminated waste.

Construction waste will be segregated on site into timber, metal and mixed C&DW. All skips will have the appropriate signage in order to promote segregation and once full skips will be removed off site by waste management contractor in either 9.2m3 skips or 'roll on – roll off' type skips where required.

3.2.5. Hazardous waste

Hazardous waste will be dealth with by following the MSDS for said chemicals and employing a specialist contractor to remove said waste.

4. WASTE CONTRACTORS

Table 1: Waste contractors

Type		LoW code	Name of waste contractor	National Waste Collection Permit (NWCPO) No.	Waste Facility Permit No/ Waste Licence No./ COR No
Office/ canteen Waste Contractor(s)		200301	TBC		
C&D Waste Contractors(s)		170904	TBC		
Excavated Waste Contractors(s)		170504	TBC		
Hazardous Waste Contractors(s)	Asbestos	TBC	TBC		
	Oil & Spill Kit Material	TBC			
Recyclables/Mixed Waste Contractor(s)	Packaging	TBC	TBC		
	Plastic	TBC	TBC		
	Timber	TBC	TBC		
	Metal	TBC	TBC		
	Gypsum	TBC	TBC		
	Other (Specify)	TBC	TBC		

** Note all waste contractors must be included (e.g. excavated material, skip hire, port-a-loos, canteen waste, roadsweepings, office waste, hazardous waste).*

5. WASTE VOLUMES

5.1. Company reporting

BAM requests all waste contractors to submit waste reports to the Environmental Coordinator on a quarterly basis. Waste statistics are then compiled in accordance with the Company Corporate Social Responsibility (CSR) requirements, which has been developed in accordance with the Global Reporting G4 standard, Greenhouse Gas Protocol and CDP questionnaire. Under the reporting requirements, waste contractors issue reports detailing the volumes of waste generated and the waste destination for their sites.

5.2. Site reporting

The *Glenamuck District Road Scheme* site will maintain a waste log of all waste removed from site to ensure all movements are recorded on site for Local Authority Inspections. The waste log will contain the following information:

- Date of collection
- Waste description (as per the *List of Waste)*
- Name of waste collector/haulier and National Waste Collection Number (NWCP)
- Destination of waste and Facility Permit/Licence Number
- Weight.

6. COMMUNICATION AND RESPONSIBILITY

6.1. Communication

All employees and contractors are required to undertake a site induction prior to conducting any work on site. At this induction the waste management goals and strategy will be made clear and the employees will be made aware that they are responsible for ensuring the management of waste in accordance with this management plan. Three Toolbox Talks on environmental and waste issues will be conducted quarterly. For further details refer to the *Environmental Management Plan*.

Progress on the implementation of the waste management plan will be communicated to staff at the monthly safety meeting and at internal progress meetings.

6.2. Cost tracking

The Quantity surveyor is responsible for tracking the costs associated with the implementation of the waste management plan. It is essential that waste costs are communicated back to personnel, particularly if additional charges are incurred due to contamination of skips with other wastes.

6.3. Responsibilities

The Project Manager is responsible for the implementation of this Waste Management Plan and for ensuring that activities on site comply with the requirements of the Waste Management Act as amended and associated regulations.

All site engineers and foreman will be responsible for monitoring the implementation of this management plan through regular site inspections. Monitoring should be recorded on the relevant checklists (refer to Section 7).

Table 2: Responsibilities

Task	Frequency	Responsible	Name and number
WMP implementation	Ongoing	Project Manager or Foreman	
Tracking costs	Ongoing (updated monthly)	Project Manager/QS	
Notification of skip contamination	At least weekly	General Foreman	
Inspections of skips, maintenance of skip area	At least weekly	General Foreman	
Order and exchange skips	As required	General Foreman	

Task	Frequency	Responsible	Name and number
Monitoring waste management implementation	Ongoing	General Foreman/ Site Safety, Health & Environmental Officer	
Issuing warning for illegal dumping in skips	As required	General Foreman	
Liaising with Client, neighbours, other contractors and regulatory bodies	As required	Project Manager	
Return printer / copier cartridges	As required	Site Administrator / Receptionist	
Provide advice on hazardous waste handling and disposal	Ongoing	Environmental Coordinator	
Undertaking toolbox talks on waste procedures	Three per quarter	Site Safety, Health & Environmental Officer	
Keeping records (eg checklists)	Weekly	Site Safety, Health & Environmental Officer	
Completing hazardous waste consignment note	As required	Specialist Hazardous Waste Contractor	
Internal audit	Quarterly	BAM Environmental Coordinator & Site Safety, Health & Environmental Officer	

7. MONITORING AND AUDIT

Monitoring of the waste management plan will be undertaken at various levels. The Project Manager (or similar) is responsible for tracking quantities of material sent for recycling, recovery or disposal and costs associated with each waste stream.

Monitoring the on-site implementation of waste handling procedures shall be undertaken by the General Foreman on an ongoing basis and should be reported weekly as part of the Foreman's Weekly Safety & Environment checklist. Monitoring of the skips in the main compound is undertaken by the Stores Manager or General Foreman as detailed before, and this is checked by the Safety, Health & Environmental Officer once a week as part of the general environmental inspection. Inspection reports are kept in a file on site by the Site Safety, Health & Environmental Officer. In consultation with the Site Safety, Health & Environmental Officer the General Foreman shall be responsible for any action required as a result of the weekly inspection to ensure compliance with the waste management procedures.

An audit of the waste management plan and procedures will be conducted by the Environmental Coordinator at three to six month intervals, as specified in the Site CEMP.

8. APPENDIX 1. SITE MAP (SHOWING WASTE STORAGE AREAS)

TBC

9. APPENDIX 2. WASTE LICENCES AND PERMITS

TBC

10. APPENDIX 3. WASTE CONTRACTOR CHECKLIST

Table 4. Waste contractor checklist

Question	Yes	No
Do you have a Waste Collection Permit (WCP) for EVERY Waste Contractor that collects ANY waste from the site (full copies including Appendices A, B, C & D)		
Is the waste contractor permitted to collect the type of waste in question? Is the specific waste type being collected detailed in the waste collection permit?		
Have you contacted the waste contractor and asked what licensed/ permitted facility our waste is being brought to?		
Is this licensed/ permitted facility stated in the waste collection permit? If not, the waste contractor should be contacted and asked.		
Have you checked the waste facility permit/ license to see if they can accept the waste in question? (It is very important to check this if the waste is hazardous)		
Have you checked the waste transfer notes comply with EA-20 and EA-39 on Waste Transfer Notes		
Have waste transfer forms been obtained for all hazardous waste removed off site?		
Have waste export certificates (if applicable) been obtained for any hazardous waste shipped outside of the Republic of Ireland?		
Have destruction certificates been obtained for all hazardous waste removed off site?		

11. APPENDIX 4. DEFINITIONS

Re-use

Products or components that are not waste are used again for the same purpose for which they were conceived.

Recycling

Any recovery operation by which waste materials are reprocessed into products, materials or substances.

Recovery

Any operation the principal result of which is waste serving a useful purpose by replacing other materials which would otherwise have been used to fulfill a particular function, or waste being prepared to fulfil that function, in the plant or in the wider economy.

Disposal

Any operation which is not recovery even where the operation has as a secondary consequence the reclamation of substances or energy. Annex I sets out a non-exhaustive list of disposal operations.

Inert Waste

Waste that;

- Does not undergo any significant physical, chemical or biological transformations,
- Will not dissolve, burn or otherwise physically or chemically react, biodegrade or adversely affect other matter, or be adversely affected by other matter, including waters, with which it comes into contact in a way that causes or is likely to cause environmental pollution, or
- Will not endanger the quality of surface water or groundwater.

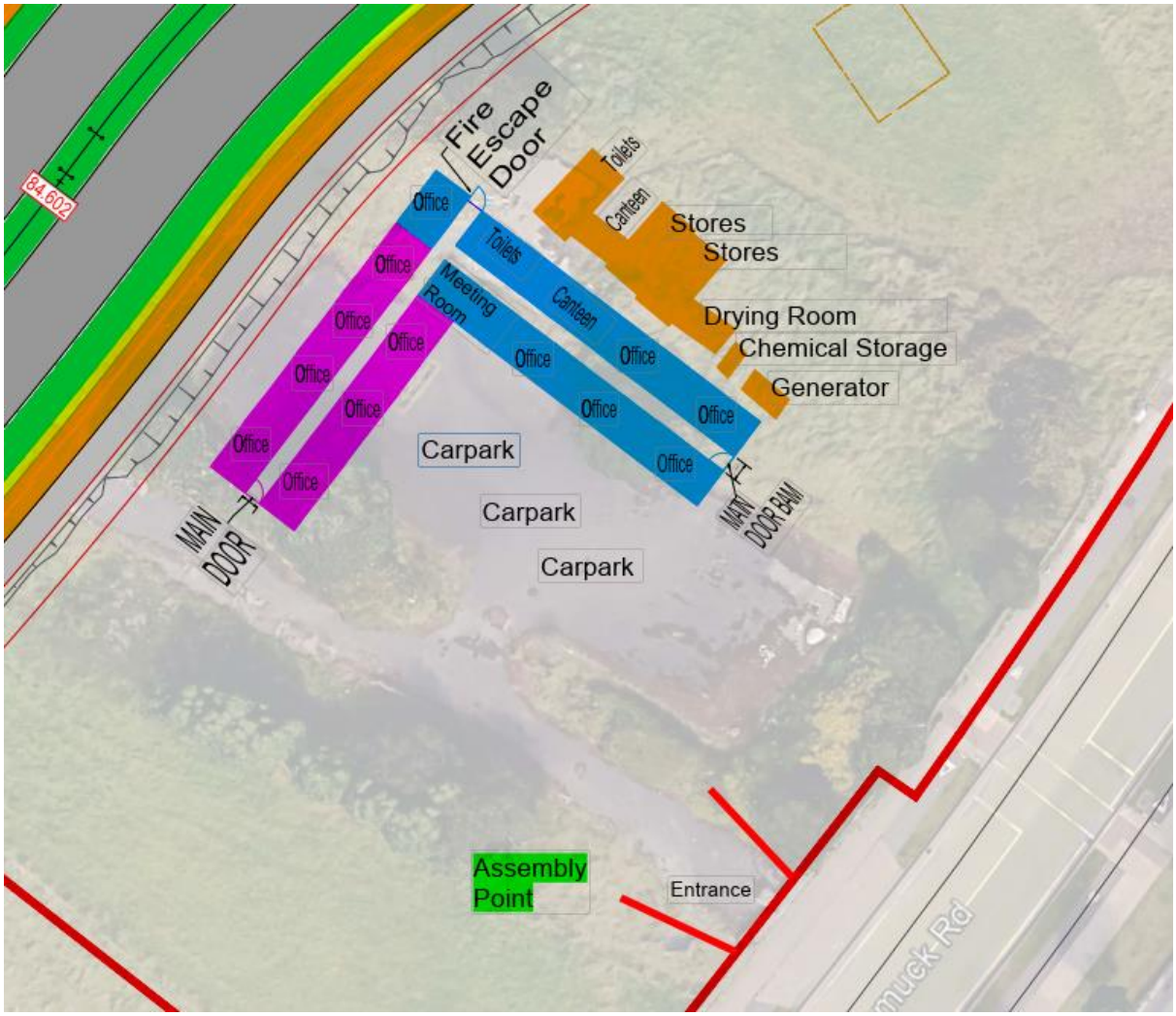
Hazardous Waste

Waste which displays one or more of the hazardous properties listed below:

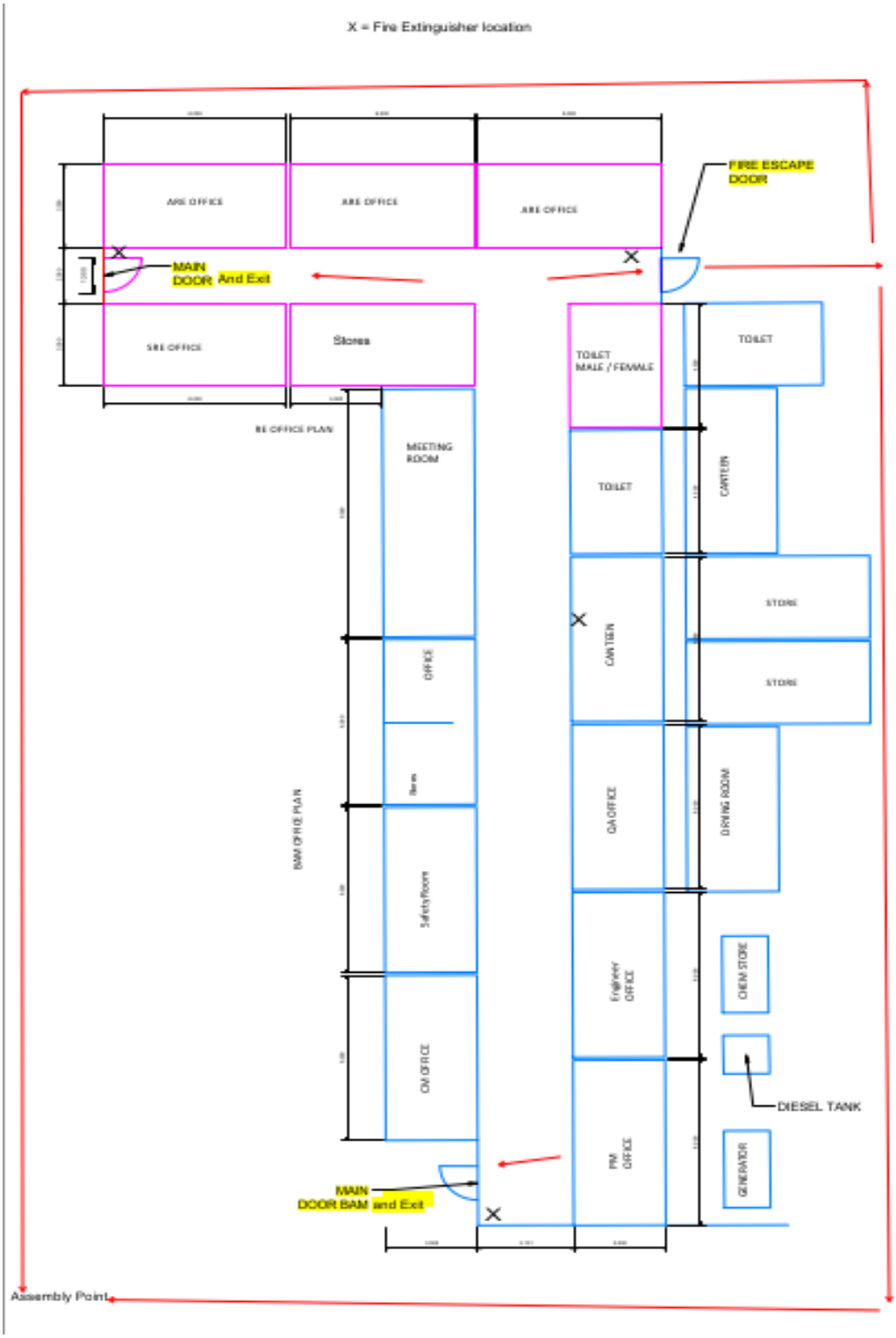
- Explosive
- Oxidizing
- Highly flammable (liquids, substance, solid liquid, gaseous substance)
- Flammable liquid substances
- Irritant
- Harmful
- Toxic
- Carcinogenic
- Corrosive
- Infectious
- Toxic for reproduction

- Mutagenic
- Waste which releases toxic or very toxic gases in contact with water, air or an acid
- Sensitizing substances
- Eco-toxic
- Waste capable by any means, after disposal, of yielding another substance, e.g. a leachate, which possesses any of the characteristics listed above.

Appendix 9: Site Compound location and layout

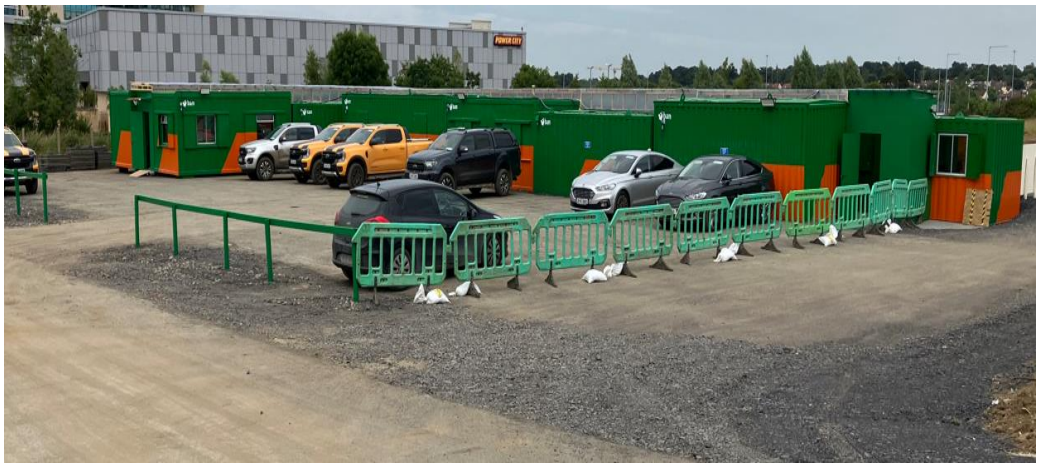


Fire evacuation plan



Chemical stores at main compound

Septic Tank at Compound Location



Main compound carpark and offices

Appendix 10: Environnemental Procedures

Purpose:	To identify all environmental performance requirements prior to commencing new projects and thus avoid delays and/or financial exposures.
Scope:	All sites and activities
Responsibility:	Contract/Project Manager

Identifying Compliance Requirements (before works commence):

Undertake a literature review of all existing permissions/reports relevant to the site. This must include The Legal Register (sharepoint), Appropriate Assessments (AA) Environmental Impact Statements (EIS), Contract Documents, Planning Permissions and Conditions, Site Investigations (ecology, archaeology, contamination, wildlife surveys) and Client Documents.

The Safety, Health & Environmental (HSE) Department maintain a register of legislation and other guidance documents on sharepoint with access to all Company employees. An example of such information is detailed below:-

Act	Regulations	BAM Compliance
Local Government (Water Pollution) Act, 1977 -1990	Local Government (Water Pollution) Regulations 1978- 2001	BAM Group cannot discharge waters without a discharge licence or similar approval
Waste Management Acts 1996-2013	Waste Management Landfill Levy Regulations 2002-2019	Landfill levy increased to €75 per tonne
Environmental Protection Acts 1992-2003	European Union (Birds and Natural Habitats) Regulations 1997-2021	Ensure Appropriate assessments are carried out before our duties and works commence
Environmental Protection Acts 1992-2003	European Communities (Environmental Impact Assessment) Regulations, 1988 - 2022	BAM to ensure all Environmental Impact Assessments or Statements are obtained and taken into consideration during our works
Planning and Development Acts 2000-2022	Planning and Development Regulations 2001-2022	Planning Permissions to be obtained and adhered to during BAM works

Incorporating Requirements into Site Documents

1. Incorporate any conditions specifically stated in the requirements into the ERA, Environmental Management Plan and Waste Management Plan e.g. “discharge licences required as per Water Pollution Regulations” or “no hedges or trees to be disturbed during construction works unless agreement has been reached with NPWS or similar” or “site access by Strand Road as per the Planning Permission”.
2. Conditions outlined in the requirements will be fully briefed to all applicable staff during the site induction.

Compliance Documents Must be Available on Site

For site specific documents including the Contract, EIAR, Planning Conditions, Client Documents and Discharge License copies must be kept on site. For general documents including guidelines (e.g. Tii, Inland Fisheries Ireland) and legislation the site must have access to copies – either via the Company SharePoint or internet, or otherwise keep copies on site.

Control Measures:

Findings of the Environmental Compliance Assessment must be considered when developing control measures for a project or activity, as outlined above. The control measures shall be included in the project ERA, EMP and/or method statements for specific activities. Compliance will be monitored through regular inspections, monitoring and audits conducted by the Environmental Co-ordinator and during updates of the Environmental Risk Assessment.

Reviewing Compliance

Compliance with the identified requirements will be established, implemented and maintained before works commence and reviewed during internal audits as per ISO 14001. These issues are included in EMP in the form of hold points and contractual requirements and specifics noted in the ERA. A checklist is noted below which identifies the typical documents and records that should be reviewed. Due to the volume of environmental legislation, only reference will be made to legislation which applies to individual projects such as requirements for discharge licences or appropriate assessments.

Checklist of typical compliance requirements (note: this is not a comprehensive list)

Issue	Compliance Document(s)	Records required
Water Quality	Local Government (Water Pollution) Act 1977 & 1990 Section 4 Inland Fisheries Ireland Acts 1959 – 2017 Sections 131 & 171 Requirements (water quality levels) specified in Discharge License, Planning Conditions, EIAR or Contract European Communities (Quality of Salmonid Waters) Regulations 1988 European Communities (Quality of Shellfish Waters) Regulations 2006 (amendment) 2009 Requirements for the Protection of Fisheries Habitat during Construction and Development Works at River Sites (Inland Fisheries Ireland) Maintenance and Protection of the Inland Fisheries Resource during Road Construction and Improvement Works (Requirements of the Inland Fisheries Board).	Water quality monitoring records Records of visual inspections of watercourses Records of consultation with Inland Fisheries Ireland.
Noise & Vibration Levels	Requirements (noise or vibration levels) specified in Planning Conditions or Contract NRA Guidelines for Noise & Vibration BS 5228: 2009 Parts 1 and 2 Environmental Noise Regs 1994-2021	Noise and vibration level monitoring records
Air Quality Levels	Requirements (permitted dust or particulate matter levels) specified in Planning Conditions, EIAR or Contract. Air Quality Standards Regulations 2011 NRA Guidelines for the Treatment of Air Quality	Dust level monitoring records – either by dust deposition gauges or using meters.
Habitat, Flora & Fauna Protection	Requirements specified in Planning Conditions, EIAR or Contract Wildlife Act 1976 Wildlife Amendment Acts 2000 - 2022 Flora Protection Order 1980 – 2022 European Union (Birds and Natural Habitats) Regulations 1997-2021 Tree Preservation Orders under the Section 205 of the Planning & Development Act 2000 NRA Guidelines for the protection and preservation of trees, hedgerows and scrub NRA Guidelines for the treatment of Badgers NRA Guidelines for the treatment of Bats	Ecology surveys and reports Records of visual inspections of protected habitat areas Records of consultation with the NPWS
Waste	Requirements specified in Planning Conditions, EIAR or Contract Waste Management Acts and associated Regulations 1996 – 2013 Waste Management (Collection Permit) Regulations 2001 – 2016 Waste Management (Facility Permit and Registration) Regulations (amendment 2007-2019) Waste Management (Hazardous Waste) Regulations 2000 European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011 Waste Management (Shipment of Waste) Regs 2007 Waste Management (Transfrontier Shipment of Waste) Regulations 1998 Litter Pollution Acts 1997 - 2007	Copies of Waste Permits, Waste Collection Permits & Waste Transfer Forms (WTF) Disposal Certificates for Hazardous Waste Records of visual inspections of waste skips and areas

For further information refer to the Register of Legal and Other Requirements or the compliance documents.

Purpose:	To determine the significant environmental aspects associated with project activities.
Scope:	All sites and activities
Responsibility:	Contract/Project Manager and Environmental Co-ordinator

Definitions:

Environmental Aspect – element of an organisation's products or services that can interact with the environment. Aspects may be direct (those caused as a direct result of the Company's activities and therefore controllable) or indirect (those over which the Company has influence but no direct control).

Environmental Impact – any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services. Aspects and impacts should be thought of in terms of 'cause' and 'effect' respectively. That is, activities have aspects (interactions with the surrounding environment) that cause environmental impacts (changes to that environment).

Significant Environmental Aspect – aspect that has or can have a significant impact on the environment.

Environmental Risk Assessment – the method used to identify and quantify the risks associated with a particular site and activity, establish the environmental impacts and aspects and identify control measures required.

Management Requirement:

All activities that have significant environmental aspects must be managed. The following procedure must be used prior to commencement on site to determine those activities that have significant environmental aspects. Control measures must be implemented when carrying out these activities to reduce the potential for the environmental impact to occur.

Management Procedure:

The following procedure will be completed by the Environmental Co-ordinator or nominated other using the Environmental Risk Assessment Report Form; following a review of the environmental compliance requirements for the particular project or activity (refer to EP-01) and after detailed descriptions from the Site Management Team of the proposed activities on site.

1. Identify all of the activities associated with the project within the scope of the contract and under BAM Civil / BAM Building / BAM Rail / BAM FM control.
2. For each activity, list the environmental aspects associated with it taking into account whether the activity occurs during normal, abnormal or emergency working conditions and the design elements of the project.
3. For every aspect, list the potential impact on the surrounding environment. Once this impact has been determined, the **pre-controlled risk rating** will be determined. This is done by:-
    - Determining the **severity** (moderate, significant, major) and comparing this with the **likelihood** of environmental harm being caused (very unlikely, possible, very likely). This calculation results in the **pre-controlled risk rating** for the particular activity.
4. Control measures will then be added to the pre-controlled risk rating for each activity which results in the **controlled risk rating**. This is done by:-
    - Identifying the new severity and comparing this with the new likelihood of environmental harm being caused. This will result in the **controlled risk rating**
5. A copy of the ERA should be attached to the EMP.

Any environmental aspect with a score of 4 or greater (pre-control measure) is considered to be a significant Environment Risk and must be controlled.

The ERA should be updated at least every 6 months or if and when significant tasks are planned.

Risk Rating Explanations:

Severity

Moderate Environmental Impact – low level work required to return to natural state
Significant Environmental Impact – high level remediation and monetary value required to return to natural state
Major Environmental Impact – major remediation, and high monetary value required and EPA or Local Authority must be informed

Likelihood

Very unlikely – an event which may happen less than once per year doing this activity every day
Possible – an event which is likely to happen more than 3 times a year doing this activity every day
Very likely – an event which is probably going to happen

Control Measures:

Environmental Control Measures to mitigate the environmental risks shall be implemented during works. The control measures must be included in the project EMP and/or method statements for specific activities. Compliance must be monitored through regular inspections, in accordance with EP-05.

For any further information or advice contact the Environmental Co-ordinator on 0871411476

References:

IEMA (2013) Environmental Management in Organisations. Earthscan

ISO 14001:2015 Environmental Management Systems – Specification with Guidance for Use

P Hyde & P Reeve (2018) Essentials of Environmental Management. IOSH

TMS Consulting (2006) Training Course Notes - IEMA approved foundation course in environmental auditing (Ireland)

EP-06	Environmental Incident Procedure	

Note: Always print or copy to double-sided pages	PROC. NO: EP-06	REV: 00	DATE: 19/4/2024	PAGE: 1/4

Purpose:	To outline the definitions of Major and Minor Environmental Non Conformances and Major and Minor Environmental Incidents
Scope:	All sites and activities
Responsibility:	Contract/Project Manager, Site Agent, Emergency Response Coordinator

Definitions:

"**Major Environmental Non-Conformance**": No evidence of adherence to the project environmental performance requirements including company policy, procedures, process instruction and legislation or where there is a significant and/or immediate potential for pollution to occur or a complete break down of the EMS

"**Minor Environmental Non-Conformance**": Limited evidence of adherence to a procedure/process instruction or an occurrence which may breach the EMS with the potential to cause environmental pollution or any breach of the project environmental performance requirements, including Company Policy and procedures and other statutory or contractual requirements.

"**Major Environmental Incident**": any situation which has resulted in significant pollution requiring high level of resources for response and remedy and must therefore be reported to Site/Company Management, the Client and/or any relevant statutory authority.

"**Minor Environmental Incident**" any situation which has resulted in environmental pollution which requires minimal action to aide recovery from Site/Company Management. Non reportable to the Client and/or any relevant statutory authority.

"**Environmental Near Miss**" any undesired even which, under slightly different circumstances would have resulted in harm to the environment.

Procedure

An environmental non-conformance may be identified during routine inspections, audits or normal working on the site.

Identification of Environmental Non-Conformance / Incident

During the inspection or audit, any environmental non-conformances or environmental incidents (see "Definitions") shall be recorded on the Environmental Inspection Report (EF-05) or similar. Reference should be made to the following pages for assistance in determining whether any non-conformances have occurred. If you are unsure whether a non-conformance or incident has occurred, contact the Company Environmental Coordinator for advice.

For any non-conformances the following shall be noted:

- Location
- Brief description
- Contractor responsible (if applicable)
- Action required / taken

If any Major or Minor Environmental Non-Conformance is detected during the inspection or audit the Site Environmental Representative or similar shall discuss the issue with Site Management. Remedial action will be undertaken within an acceptable timeframe to rectify the matter.

Any major or minor Environmental Incident should be reported to the Site Management team and Environmental Coordinator immediately. Depending on the nature of the incident there may be a requirement to report to the Client and/or relevant regulatory authority.

Reporting

Environmental incidents must be reported to the HSE Department using the online Incident Report Form. The incident report will be reviewed by a member of the HSE Department and will only be accepted once the incident report is fully completed.

Reporting of environmental incidents is required under various statutory instruments. Environmental legislation specifically provides that a person must disclose pollution to an environmental regulator when it is migrating off-site. Specific reporting provisions are set out under the IE and IPC licensing regime, air quality water pollution and waste legislation. An operator is also obliged under the European Community (Environmental Liability) Regulations 2008 to 2015 to notify the EPA where there is an imminent threat of environmental damage. Incidents to the EPA must be reported as per the EPA's Guidance to Licensees/COA holders on the Notification, Management and Communication of Environmental Incidents.

Investigating

Major Environmental Incidents (which have caused significant environmental pollution and require a high level of response for remedy) will be investigated on site by the Environmental Department.

GUIDANCE ON ENVIRONMENTAL NON-CONFORMANCES and INCIDENTS

The following section provides examples of major and minor environmental non-conformances that may occur on site. A determination of the non-conformance as either major or minor will depend on whether there is immediate potential for pollution to occur, or if pollution has or is occurring (refer to definitions above).

Environmental Incidents are undesired events which result in harm to the environment or loss to processes and will often arise from non-conformances on site

Surface Water Controls & Water Pollution

Runoff of sediment-laden or otherwise polluted water to an external waterway **(major)**

Spills of fuel, oil or hazardous substances into water or an external waterway **(major)**

Note: water pollution is an environmental incident and breach of legislation

Any materials or waste allowed to fall into a watercourse **(major or minor)**

Pumping of polluted water from an excavation to an inappropriate area on site **(major or minor)**

Surface water controls that require cleaning out or replacement – sediment controls such as hay bales can become a pollution source once their capacity to remove sediment is exceeded **(major)**

Placement of materials or waste too close to a waterway (such that pollution is likely) **(major)**

Pumps placed next to waterways without drip trays **(major)**

Materials & Waste Management

Waste ineffectively sorted and/or put into the wrong bin or skip **(minor)**

Hazardous waste mixed with non-hazardous waste or stored in an inappropriate manner **(major)**

Waste left on site or disposed in an inappropriate location (e.g. a drainage line or haul road) **(minor)**

Skips put in an area other than the designated waste area **(minor)**

Skips without signs to indicate the type of waste that may be placed in them **(minor)**

Inappropriate skips for the waste being generated on site **(minor)**

Domestic waste disposed on site (drink and food containers or packaging) **(minor)**

Hazardous Substances / Fuel Storage, Leaks & Spills

Any drum, container or tank containing a hazardous substance or fuel that is stored without bunding **(minor)**

Oil or fuel leaks from any plant and equipment, fuel drums etc, or other spills **(minor or major)**

Refuelling being undertaken in an unprotected area (i.e. no bund) without any drip tray **(minor)**

Spill kits not available on site or not adequate for the fuels / hazardous substances being used on site **(minor)**

Concrete waste / washings disposed in a non-designated area **(minor or major)**

Drums or containers of hazardous substances left unattended on site **(minor)**

Drums or containers of hazardous substances that are not marked to show their contents **(minor)**

Hazardous substances for which there is no MSDS on site **(minor)**

Land Contamination

Spills of fuel, oil or hazardous substances to unprotected ground **(minor)**

Storage of contaminated or hazardous waste on unprotected ground **(minor)**

Habitat, Flora & Fauna Protection

Areas of protected habitat (including waterways), retained vegetation or individual trees / shrubs that are not adequately protected with barrier fencing or not clearly marked with signs **(minor)**

Damage (e.g. broken branches) to any retained trees, vegetation or protected habitat **(minor)**

Placement, or evidence of placement or movement, of any materials, waste, vehicles within a protected area **(minor)**

Compaction of the ground beneath any trees or shrubs **(minor)**

Harm to any fauna species **(minor)**

Air Pollution

Dust emissions beyond the site boundary **(minor)**

Dust being generated but no dust controls available **(minor)**

Inadequate controls to deal with the level of dust being generated **(minor)**

Emitting smoke for more than 10 seconds from any operating plant and equipment **(minor)**

Vehicles, plant or equipment left running without purpose **(minor)**

Roads and Traffic

Construction vehicles using roads that are not approved in the Traffic Management Plan **(minor)**

Vehicles leaving site with dirty wheels and underbodies when washing facilities are available **(minor)**

Washing facilities not available are inadequate for site vehicles using them (where this is a contract-specific requirement) **(minor)**

Washing facilities that are operating ineffectively (water too dirty, too far from site exit) **(minor or major)**

Sediment tracked onto public roads and no action being taken to remove it (e.g. road sweeper, hand brushes) **(minor or major)**

Trucks entering and leaving the site uncovered or without tailgates secured (Note: contract-specific requirement) **(minor)**

Gates / Access Ways

Site access ways that are inadequately stabilised (with clean stone, concrete, tarmac) **(minor)**

Shaker grills operating ineffectively or not cleaned out **(minor)**

Noise & Vibration

Note: monitoring will usually be required to determine whether noise or vibration levels beyond the site boundary are outside the acceptable limits for the site.

Only trained personnel (i.e. competent persons) can perform noise and vibration monitoring.

If activities are occurring on site which are causing excessive noise or vibration check monitoring records (if being undertaken). Monitoring may be required if it is not being carried out.

Also check complaints records to see if any have been received with regard to noise and vibration.

Noise mitigation measures that are installed must be operating effectively

See BS 5228: 2009+A1:2014 CoP for noise and vibration control on construction and open sites Part 1 Noise, and Part 2 vibration for reference.

If you are unsure whether a non-conformance or an incident has occurred, or whether they would be classed as major or minor, contact the Company Environmental Coordinator on 045 886557.

Purpose:	To provide guidance on control measures to minimise the adverse impacts of air pollution during construction activities.
Scope:	All sites and activities, particularly site preparation, earthworks, haul routes and material storage.
Responsibility:	Contract/Project Manager, Foreman, HSE Advisor

Regulatory Requirements:

- Air Pollution Acts, 1987 - 2004
- Road Traffic (Construction and Use of Vehicles) Regulations, 1963 - 2018
- Air Pollution Act, 1987 (Air Quality Standards) Regulations, 1987
- Environmental Protection Agency Act, 1992 (Control of Volatile Organic Compound Emissions resulting from Petrol Storage and Distribution) Regulations, 1997
- Air Pollution Act, 1987 (Petroleum Vapour Emissions) Regulations, 1997 and amend 2007
- European Communities (Control of emissions of gaseous and particulate pollutants from non-road mobile machinery) Regs 1991-2021
- Air Pollution Act, (Marketing, sale and distribution of fuels) (Amendment) Regulations 2012 - 2020

Definitions (from Air Pollution Act, 1987 - 2004):

"Air pollution" in this Act means a condition of the atmosphere in which a pollutant is present in such a quantity as to be liable to —

(i) be injurious to public health, or
(ii) have a deleterious effect on flora or fauna or damage property, or
(iii) impair or interfere with amenities or with the environment.

Management Procedure:

Air pollution control measures must be implemented from the commencement of site activities and will be required for the duration of construction. The control measures required to mitigate air pollution will depend on the:

- activities being undertaken and their potential to generate emissions and dust;
- weather conditions; and
- location of sensitive receptors adjacent the site (e.g. residents, businesses, schools, hospitals, flora and fauna habitat, agricultural land).

Note that additional control measures may be required to comply with the conditions of an Integrated Pollution Prevention Control (IPPC) Licence or Waste Licence, relating to emissions to air, if working within a licensed facility.

Some or all of the control measures in this procedure may be attached or included in method statements and/or included in the site specific EMP. Other measures not listed below may be more effective for particular activities or sites, and if adopted on site, must be specified in the EMP or method statement.

For assistance in implementing any control measures or further information contact the Site HSE Advisor or Environmental Coordinator.

Emissions Control Measures:

BAM Contractors shall use best practicable means to limit and if possible prevent air emissions. This includes;

- Operating and maintain equipment in a manner that ensures that smoke, visible vapour, grit, sparks, ashes, cinders or oily substances are not emitted;
- No burning of any material on site;
- That best practicable means should be used to ensure air emissions do not exceed the air quality standards e.g. During the use of generators and heavy plant/equipment;
- Ensuring that mobile containers for the transportation of fuel are designed so that residual vapours are retained in the

container after the unloading of fuel;

- Mobile containers should also be operated and maintained in accordance with the requirements of the regulations.

Dust Control Measures

The generation of dust particles shall be minimised on site through the implementation of the following measures:

- Minimising the area of disturbed ground and the time for which ground is disturbed, by retaining vegetation and topsoil where possible and replacing topsoil and reseeding as soon as possible after work is completed;
- Damping down haul roads with water bowsers as required during windy and/or dry conditions;
- Limiting plant and vehicle movement to designated haul roads;
- Providing stabilised site access at site entry points;
- Placing aggregate or other stabilising material on heavily travelled haul roads;
- Employing road sweepers to remove dust from public roads;
- Cleaning footpaths and gutters with hand brooms and shovels;

Water must NOT be used to wash dirt off roads and footpaths except where the polluted water can be directed to a sediment interceptor or similar control measure prior to discharge to stormwater or surface waters

- Damping down temporary stockpiles during windy and/or dry conditions;
- Stabilising long-term stockpiles by seeding, surfacing with vegetation or covering with tarpaulins;
- Damping down material when crushing rock during windy and/or dry conditions;
- Ceasing operation during extremely windy and/or dry conditions when other measures are not effective.

For further advice or information contact the Site HSE Advisor or Environmental Coordinator.

Monitoring

Monitoring of emissions and dust levels may be undertaken through visual inspections and assessments of the air quality surrounding the site. Visual inspections are undertaken on site by the HSE Advisor, Foreman and Site Manager.

If emissions of smoke from plant or equipment last for 10 seconds or longer the machine should be powered down and inspected or serviced to improve performance. Any plant or equipment that is consistently emitting smoke must be replaced.

If significant levels of dust are observed additional control measures must be implemented immediately – primarily by damping down the source of the dust.

Assessments of air quality may be undertaken by two methods:

1. Testing dust deposition rates by collecting dust over a period of time (usually a month) and analysis in a laboratory;
2. Taking readings with a hand-held monitor.

Such assessments are usually only undertaken when specified as a specific requirement in the contract or by the relevant authority, and/or where a very high risk has been identified due to the receptors adjacent the site.

References:

BRE Environment (2003) Controlling particles, vapour and noise pollution from construction sites. BRE Publishing

BRE Environment (2003) Control of dust from construction and demolition activities. BRE Publishing

IAQM (2016) Guidance on the assessment of dust from demolition and construction.

Irish Statute Book – www.irishstatutebook.ie

Attachment 1: Dust deposition monitoring

Dust Control

EP-09	Noise and Vibration Control	bam			
Note: Always print or copy to double-sided pages	PROC. NO: EP-09	REV: 00	DATE: 19/4/2024	PAGE: 1/3	

Purpose:	To provide guidance on control measures to minimise the adverse impacts of noise and vibration during construction activities.
Scope:	All sites and activities.
Responsibility:	Contract/Project Manager and Environmental Management Representative

Regulatory Requirements:

- Local Government Planning & Development Acts, 1963 – 2022
- Environmental Protection Agency Acts 1992-2015
- Road Traffic (Construction, Equipment and Use of Vehicles) Regulations, 1963 – 2014
- European Communities (Construction Plant and Equipment Permissible Noise Levels) Regulations, 1988 - 1996
- European Communities (Noise Emission by Equipment for use Outdoors) Regulations, 2001-2006
- Environmental Noise Regs 2006 - 2021

For health and safety legislation, refer to the Health and Safety Plan and associated risk assessments and procedures.

Management Procedure:

Noise and vibration have the potential to be a nuisance to neighbours and cause damage to property. The control measures required to mitigate noise and vibration will depend on the:

- Activities being undertaken and their potential to generate noise and vibration; and
- Location of sensitive receptors adjacent the site (e.g. residents, businesses, schools, hospitals).

Generally, the primary method of controlling noise and vibration is to restrict the hours of operation at the site. Good maintenance of equipment and site planning can also help to minimise impacts.

Note that the perceived impact of the works on sensitive receptors (and associated complaints) can be significantly reduced by establishing good communications with neighbours and keeping them well informed with regard to:

- Particularly noisy activities;
- The duration of such activities; and
- Activities undertaken outside the normal hours of operation (particularly at night).

Some or all of the control measures in this procedure may be attached or included in method statements and/or included in the site specific EMP. Other measures not listed below may be more effective for particular activities or sites, and if adopted on site, must be specified in the EMP or method statement.

For assistance in implementing any control measures or further information contact the Site HSE Advisor or Environmental Coordinator.

Control Measures:

Noise and vibration reduction measures may be undertaken as follows:

- Plan the working hours and duration of work with consideration for the effects of noise/vibration on any noise sensitive receiver;
- Locate haul routes away from sensitive receivers and maintain road surfaces to reduce vehicle noise;
- Ensure the use of the least noisiest plant suitable for the activity;
- Avoid simultaneous use of noisy equipment where reasonably practicable;
- Ensure plant and equipment that is used intermittently will be shut down or throttled down to a minimum between work periods;
- Locate plant known to emit noise strongly in one direction so that noise is directed away from sensitive receivers;
- Ensure that plant and equipment are maintained and lubricated as per the manufacturers instructions to avoid rattling of loose parts, frictional noise etc;

- Handle materials carefully to avoid noise caused by dropping from height, throwing materials (eg scaffold poles);
- Where other measures are inadequate controlling noise and vibration at source, through the provision of barriers or acoustic cabins and/or use of resilient mountings. Annex B of BS 5228-1;2009+A1:2014 provides examples of acoustic enclosures.

For further information on reducing noise refer to Annex B of BS 5228-1: 2009+A1:2014 – Noise sources, remedies and their effectiveness, particularly Table B.1 which provides methods of reducing sound levels for different types of plant and equipment.

For additional information on acoustic screens refer to CIRIA SP38 – The use of screens to reduce noise from sites and the EPA Guidance Note for Noise Action Planning 2009.

For works on any NRA contract refer to the NRA Guidelines for the treatment of noise and vibration in National Road Schemes.

Monitoring

Routine noise and/or vibration monitoring at noise sensitive receivers may be undertaken to ensure noise or vibration is not causing a nuisance or, in the case of vibration, damage to adjacent buildings. Maximum noise and vibration levels emitted from the site as a whole may be specified in the contract / planning approval for the project. Monitoring is required to ensure levels do not exceed these limit values, and that action is taken to improve performance where noise and vibration does approach or exceed the limit.

Assessments of noise may be undertaken by two methods:

1. Continuous monitoring using a meter and data logger, with results downloaded at regular intervals;
2. Taking readings with a hand-held monitor.

Vibration measurements are usually taken using a continuous vibration meter.

Such assessments are usually only undertaken when specified as a specific requirement in the contract or by the relevant authority, and/or where a high risk has been identified due to the receptors adjacent the site or the nature of the activities (e.g. blasting, piling). Measurements are usually assessed at the site boundary or 1m from the façade of the affected building. These assessments would only be undertaken by a 'competent' person as outlined in the Environmental Protection Agency Guidance Note for Noise: Licence applications, surveys and assessments in relation to scheduled activities (NG4). In the event that a BAM site have a competent person and decide to carry out their own noise assessments, a site specific procedure for the measure of construction related noise must be produced and approved prior to the commencement of monitoring.

Maximum sound power levels for most types of construction equipment are also specified in the European Communities (Noise Emission by Equipment for use Outdoors) Regulations, 2001-2006

All noise and vibration equipment to be accompanied by calibration certification which states compliance with relevant standards e.g. IEC 61672 – 1:2013 for noise and IEC 60068 for vibration

References:

BRE Environment (2003) Controlling particles, vapour and noise pollution from construction sites. BRE Publishing

BS 5228-1: 2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Part 1 Noise

BS 5228-2: 2009+A1:2014 Code of practice for noise and vibration control on construction and open sites. Part 2 Vibration

CIRIA SP38 The use of screens to reduce noise from sites.

EPA Ireland (2016) Guidance Note for Noise: Licence applications, surveys and assessments in relation to scheduled activities (NG4).

EPA (2009) Guidance Note for Noise Action Planning

Irish Statute Book – www.irishstatutebook.ie

NRA (2004) Guidelines for the treatment of noise and vibration in National Road Schemes.

EP-10	Surface Water Control				
Note: Always print or copy to double-sided pages	**PROC. NO: EP-10**	**REV:** 00	**DATE:** 19/4/2024	**PAGE:** 1/6	

Purpose:	To provide guidance on control measures to minimise the adverse impacts on watercourses caused by sediment release during construction activities.
Scope:	Control of surface water on all sites
Responsibility:	Contract/Project Manager, Foreman, HSE Officer, All site personnel

Regulatory Requirements:

- Inland Fisheries Ireland Acts, 1959 - 1980 and Fisheries (Amendment) Acts 1983 - 2003
- Local Government (Water Pollution) Acts, 1977 – 1990
- Planning and Development Act, 2000 and Amendment Act, 2002
- Local Government (Water Pollution) Regulations, 1978 – 2001
- European Communities (Quality of Salmonid Waters) Regulations 1998
- European Communities (Quality of Shellfish Waters) Regulations 2006
- European Communities (Water Policy) Regulations 2003
- Environmental Protection Acts 1992-2003
- Bathing Water Quality Regulations 2008
- Inland Fisheries Ireland Act 2010

Under the Water Pollution And Fisheries Acts allowing polluting matter to enter any waters is an offence.

Under the Local Government (Water Pollution) Act, 1977, a licence is required for the discharge of trade effluent or sewage effluent (see definitions below) to waters or for the discharge of trade effluent or other matter to a sewer. Such a license would specify the quality of the water that may be discharged.

Definitions – from Local Government (Water Pollution) Act, 1977

"polluting matter" includes any poisonous or noxious matter, and any substance (including any explosive, liquid or gas) the entry or discharge of which into any waters is liable to render those or any other waters poisonous or injurious to fish, spawning grounds or the food of any fish, or to injure fish in their value as human food, or to impair the usefulness of the bed and soil of any waters as spawning grounds or their capacity to produce the food of fish or to render such waters harmful or detrimental to public health or to domestic, commercial, industrial, agricultural or recreational uses;

"trade effluent" means effluent from any works, apparatus, plant or drainage pipe used for the disposal to waters or to a sewer of any liquid (whether treated or untreated), either with or without particles of matter in suspension therein, which is discharged from premises used for carrying on any trade or industry (including mining), but does not include domestic sewage or storm water;

"waters" includes—

(a) any (or any part of any) river, stream, lake, canal, reservoir, aquifer, pond, watercourse or other inland waters, whether natural or artificial,

(b) any tidal waters, and

(c) where the context permits, any beach, river bank and salt marsh or other area which is contiguous to anything mentioned in paragraph (a) or (b), and the channel or bed of anything mentioned in paragraph (a) which is for the time being dry,

but does not include a sewer.

Trade effluent can include:

- Water from dewatering operations, which may or may not contain sediment;
- Water from cutting or blasting operations;
- Waste chemicals, including oils and fuels;
- Plant wash down water, including wheel washes;
- Concrete washout water;
- Cleaning water, which may contain detergents and/or other chemicals;
- Liquid wastes discharged from sinks, basins and toilets.

The only effluents that is not classed as trade effluent is clean, uncontaminated surface water (i.e. that has not been contaminated when running over or through the site).

Common pollutants from construction sites and their effects on aquatic life are given below.

Pollutant	Affect on Aquatic Life
Silt or sediment	Reduces water quality, clogs fish gills causing suffocation, covers aquatic plants stunting their growth and reducing fish shelter, destroys riverbed insect habitat and thus fish food source.
Coarse sediments	Can physically injure fish through abrasive action.
Cement or concrete wash water	Are highly alkaline and change the pH and chemical balance of the water.
Oil, diesel & other hydrocarbons	Form a film on the water surface that reduces oxygen and can suffocate aquatic life.
Detergents	Remove dissolved oxygen from the water
Heavy metals & metalloids	May be present in contaminated ground and can be toxic to aquatic life such as tadpoles, frogs, minnows and trout at low concentrations.

Protection of Watercourses and Bodies

A river, stream, estuary or lake may be afforded additional protection in national legislation by being designated:

- A Natural Heritage Area (NHA) under the Wildlife (Amendment) Act, 2000
- A Special Area Of Conservation (SAC) under the European Communities (Natural Habitats) Regulations 1997/8:
- Salmonid Waters under the European Communities (Quality of Salmonid Waters) Regulations 1998
- Shellfish Waters under the European Communities (Quality of Shellfish Waters) Regulations 2006-2009
- Inland Fisheries Ireland Act 2010

A watercourse may be protected by more than one, or all, of these statutory instruments. For further information on NHAs and SACs refer to EP-12.

Management Requirements:

Water pollution as a result of construction activities usually occurs as result of the release of silt / sediment or spillage of hazardous substances. To prevent such impacts control measures must be implemented from the commencement of site activities and will be required for the duration of construction. The procedure outlined below is for surface water control (often referred to as erosion and sediment control) to minimise the release of sediment to waterways. For control measures to minimise fuel and hazardous substance releases refer to EP-13 Bulk Fuel & Oil Storage, EP-14 Storage & Handling of Hazardous Substances and EP-15 Containing & Cleaning Up Spills.

Sediment control measures are designed to minimise the transport of sediment and other pollutants into watercourses, either by providing a physical barrier (filtering) or by slowing the flow rate of water so that suspended pollutants 'drop out' (settling). Filtering measures include sediment fences and inlet filters, whilst settling measures include sediment ponds and check dams.

The type and capacity of control measure required is dependent on a number of factors, including the volume and

duration of flow, and the particle size of the sediment. Fine sediments (clay & silt) are harder to remove as they will take longer to settle than coarse sediments (sand & gravel). Methods for calculating the capacity of the sediment control can be found in the CIRIA publication *C648 Control of water pollution from linear construction projects – technical guidance*. The different types of control measures are described below.

For any activities that have the potential to impact on fisheries habitat the Inland Fisheries Ireland documents *Guidelines on the protection of fisheries during construction in and adjacent to waters* and/or document *Maintenance and Protection of the Inland Fisheries Resource During Road Construction and Improvement Works* must be consulted.

For all NRA contracts the NRA *Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes* must be consulted.

All guidance documents are available from the HSE Department.

Surface Water Management Procedure:

This procedure and the associated control measures may be attached to or included in method statements.

1. Prior to any work that may affect a watercourse the environmental sensitivity and level of protection of the waterways must be established by **consulting the appropriate authority** – either Inland Fisheries Ireland, Irish Water, the Local Authority, NRA, Waterways Ireland (for any canals), National Parks and Wildlife Service (NPWS).
2. The relevant authority(ies) may specify requirements for design or construction and must be kept informed through regular liaison during the works.
3. Wherever possible surface water flowing onto the site should be diverted around, over or under the construction area to prevent clean water entering excavations and becoming contaminated and avoid the movement of vehicles through watercourses. Water should be diverted using pipes or temporary **culvert / stream diversions** (lined with clean stone or geotextile material) and discharged downstream of the work area. All affected watercourses should be diverted prior to the commencement of earthworks.
4. Where possible it is preferable to direct sediment-laden water to a vegetated area, particularly grass, which will provide a physical barrier to improve filtration and also slow water flow, thus increasing infiltration. This is often more effective than other built control measures. Areas of vegetation that may be used for this purpose should be identified prior to site stripping and retained. In particular, maintaining stream bank vegetation will provide an effective filter strip for surface water containing sediment.
5. Any sediment-laden water that accumulates within the work area either through surface water runoff or groundwater ingress must be channelled and intercepted at regular intervals, or mechanically pumped, to appropriate **surface water controls** prior to discharge to any watercourse. Details of different control measures are given below.
6. It is better to install control measures nearest to the source of sediment and as far as possible from the discharge point (i.e. where the water enters the waterway). This allows more opportunities to install additional measures should further treatment of the water be required.
7. **Drainage** must be designed or altered so that all contaminated or sediment laden water from the construction site, including any water pumped out of excavations, flows to the control measures and not directly to any watercourse or stormwater inlet.
8. Where site water is being pumped into catchment areas such as v-ditches or sediment ponds, ensure the capacity of the structure can contain the volume of water being pumped
9. Ensure that the discharge from sediment traps, tanks or ponds outflows to a vegetated filter strip or through clean stone and not directly into a waterway. Overflow will usually occur when the capacity of the control measure has been exceeded so the additional filtering will assist to minimise pollution.
10. Where work is being conducted in, over, or directly adjacent to sensitive or protected watercourses surface water

control measures may need to be specifically designed by a specialist consultant. Such measures may include in-stream controls such as floating sediment curtains, and drainage and sediment pond systems designed to particular flow capacities.

11. The type of surface water controls to be used and their location, including drainage changes, must be specified in the **activity specific method statement** for the work to be undertaken.
12. **Regular inspection** and maintenance of any surface water control measures is required to ensure they remain effective. For example sediment must be removed from sediment tanks to ensure they continue to operate effectively and filtering measures checked to ensure no breaks.
13. **Routine water quality monitoring** may be specified as a requirement by the client and/or regulatory authority, to ensure water pollution does not result from site activities. In such cases, waters which encroach or run through the site would be checked on a regular basis for signs of pollution – if anything is noticed photos must be taken and areas and sign recorded. Additional monitoring would be undertaken up and downstream of the discharge point to determine what impact the discharge is having on the watercourse. Water samples must be analysed by an accredited laboratory. A specialist consultant can assist in setting up the sampling regime and may also undertake ongoing sampling.

For any further advice contact the Company Environmental Coordinator, HSE Department.

Surface Water Control Measures:

When designing and constructing sediment controls always ensure they are of a sufficient capacity to effectively treat the volume of water expected and identify additional overflow areas.

References given are for further information, including design drawings, cases studies and example photographs

Diversion Drain (CIRIA 648 - 18.6.8)

Diversion drains are simple linear ditches used to channel water to a desired location, such as a sediment pond or discharge point. The may be used divert runoff around disturbed areas, away from slopes or to a slope drain. If there is a risk that the diversion drain itself will erode it should be lined with geotextile fabric and/or clean stone and check dams may be installed.

Slope drain (CIRIA 648 - 18.6.10)

A slope drain is a pipe or lined channel used to drain runoff from the top of a slope to the bottom without causing erosion. It is used in conjunction with other controls, such as diversion drains, to confine flow to the designated slope drain.

Filter strip / buffer (CIRIA 648 - 18.6.1 & MDOT 4)

A filter strip or buffer is an existing vegetated area. When overland sheet flow is carried across the vegetation suspended solids are removed and water infiltrates into the ground. Filter strips are suitable for smaller volumes of water with small suspended solid loads. They can become smothered by high sediment loads and eroded by high flows of water and are normally used in conjunction with other control measures.

Grass swale

Swales are open grassed or vegetated channels that slow water flow, increasing infiltration and filtering out pollutants. They depend on well established vegetation and can be eroded by large volumes of water. Treatment performance can be increased by the construction of weirs and check dams to slow the flow of water.

Filter (“French”) drain

A filter drain is a narrow linear drain containing granular material such a stone or gravel that filters out sediment prior to discharge. The drain may also contain a perforated pipe and is best suited to small sites or limited runoff areas where sediment loads and water volume are small. May also be installed adjacent haul roads.

Sediment / silt trap or sump (CIRIA 648 - 18.6.11 & MDOT 8)

Small excavation for low flows of diverted or pumped water, usually allowing infiltration into the ground. May be lined with geotextile material or clean stone to prevent scouring. Such traps are often placed near watercourses and it is

important to ensure that any overflow is directed over a vegetated filter strip or through clean stone prior to entering the watercourse.

Sediment / silt tank

A prefabricated tank, usually containing a number of separate chambers, allowing sediment to settle out of the water. These are most effective when treating low flows and coarser sediments, although a flocculant may be used to assist the settlement of finer material. A number of tanks may be used together to increase capacity. Must be regularly inspected and sediment will have to be removed to remain effective.

Sediment Pond / Basin

A sediment pond is used when high volumes of water and sediment loads are expected, typically on large projects where there is a large disturbed area. Sediment ponds may be part of the permanent works on such projects. A number of ponds may be used, allowing flow between them, thus increasing capacity and retention time.

Check dams (CIRIA 648 - 18.6.11 & MDOT 14)

A check dam is usually constructed from clean stone placed in a grass swale or existing drainage line to slow the flow of water and increase infiltration. When using check dams always ensure that they are level across the channel so that water does not scour the banks on one or both sides of the check dam. Geotextile fabric may be placed on banks to prevent scour and over check dams to further reduce flow, if required.

Surface Water Control Measures (cont.):

Sediment fence & Straw Bale filter (CIRIA 648, 18.6.12, MDOT 9)

Sediment fences and straw bale filters are permeable barriers used to remove the sediment from, and break the flow of, sheet flow runoff. They should be placed as close as practical to the work area and can also be used in filter strips to reduce water flows. They can also be placed around stockpiles to prevent loss of material. Geotextile fabric is usually used to construct sediment fences and can also be wrapped around straw bales to increase their effectiveness.

Riprap (MDOT 5)

Riprap is a layer of stone laid over an exposed surface to provide a non-erodible cover, dissipate flow and prevent erosion. A geotextile liner is usually installed under the stone. May also be installed in stream beds and culverts.

For assistance in implementing any control measures or further information contact the Environmental Coordinator.

Other Measures

Additional measures that assist surface water controls and should also be considered include:

- Vegetation and topsoil retention – by reducing the area of exposed surfaces, the potential for erosion is minimised. This also assists dust control (refer to Procedure EP-08);
- stabilised site access – either using aggregate, tarmac or concrete, providing an area to wash vehicle wheels before leaving site and minimise sediment loads on public roads;
- truck wash and wheel wash facilities – as above;
- Control of potentially polluting substances such as fuels and oils by providing storage areas that are bunded and isolated from the drainage system (refer to Procedure EP-14 and EP-15).
- Providing drip trays for all water pumps and other static equipment and ensuring the use of drip trays when refuelling mobile equipments, which should be undertaken in a designated area away from watercourses.

For further advice or information contact the Environmental Coordinator, on 045 886557

References:

CIRIA C532 (2001) Control of Water Pollution from Construction Sites: Guidance for Consultants and Contractors

CIRIA C648 & C649 (2006) Control of water pollution from linear construction projects – technical guidance & site guide

CIRIA C650 (2005) Environmental Good Practice on Site

Inland Fisheries Ireland (2016) Guidelines on the protection of fisheries during construction in and adjacent to waters

MDOT (Michigan Department of Transportation) - Construction Site Soil Erosion and Pollution Prevention Pocket Guide

NRA (2006) Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes.

Inland Fisheries Board (2007) Maintenance and Protection of the Inland Fisheries Resource During Road Construction and Improvement Works – Requirements of the Inland Fisheries Board.

Irish Statute Book – www.irishstatutebook.ie

Purpose:	To provide guidance on control measures to minimise adverse impacts on sensitive habitats in, adjacent to, or in close proximity to, construction works
Scope:	All sites and activities
Responsibility:	All site staff

Regulatory Requirements:

- Wildlife Acts & amendments 1976 -2022
- The Forestry Act & amendments, 1946 – 1920
- Planning & Development Acts, 1963 -2022
- European Communities (Natural Habitats) Regulations, 1997 - 2005
- European Communities (Conservation of Wild Birds) Regulations, 2007 - 2021
- European Communities (Quality of Salmonid Waters) Regulations, 1998
- European Communities (Quality of Shellfish Waters) Regulations 1994 - 2009
- Flora Protection Order, 1980 - 2022
- EPA Acts 1992-2015
- European Communities (Birds & Habitats) Regulations 2009 - 2021

Definition:

Sensitive habitats are those areas which have been designated either as a:

- **Salmonid Waters** under the European Communities (Quality of Salmonid Waters) Regulations
- **Areas containing Invasive Plants/Species (European Communities (birds & Habitats) Regs**
- **Protected Trees or hedgerows**
- **Blue Flag beaches –**must meet Blue flay regulations including that bathing water complied with the 2006 EU Bathing Water Directive
- **Invasive Species;** Invasive species are species that have been introduced (deliberately or accidentally) by humans and have a negative impact on the economy, wildlife or habitats of Ireland and Northern Ireland.
- **Natural Heritage Area** under the Wildlife (Amendment) Act. This is an area considered important for the habitats present or which holds species of plants and animals whose habitat needs protection.
- **Special Areas of Conservation (SACs)** are sites that have been adopted by the European Commission and formally designated by the government of each country in whose territory the site lies
- **Special Protection Area (SPA)** under the European Communities (Conservation of Wild Birds) Regulations
- **Candidate SACs (cSACs) cSPAs** and Proposed Natural Heritage Areas **(pNHAs)** are sites that have been submitted to the European Commission, but not yet formally adopted. These sites do not have the same statutory protection as fully adopted SAC, SPA and NHA however for construction purposes they must however be protected in the same manner.
  The legal basis on which SACs are selected and designated is the EU Habitats Directive, transposed into Irish law in the as amended in 1998 and 2005. The Directive lists certain habitats and species that must be protected within SACs. Irish habitats include raised bogs, blanket bogs, turloughs, sand dunes, machair (flat sandy plains on the north and west coasts), heaths, lakes, rivers, woodlands, estuaries and sea inlets. Irish species which must be afforded protection include Salmon, Otter, Freshwater Pearl Mussel, Bottlenose Dolphin and Killarney Fern. A full list of protected or threaten species can be viewed in the attached checklist from the NPWS.

Listed_species_checklist_Dec12.pdf

Management Procedure:

Before works start in areas which may be protected or hold special importance, a survey should be conducted by a competent person such as a qualified ecologist to determine whether there are any sensitive habitats that may be affected by the construction activities. Information regarding such habitats or species may be identified when determining the environmental assessment requirements for the project

in accordance with Procedure EP-01 or with any contractual documents such as an Appropriate Assessment, Environmental Impact Assessment Report (EIAR) or similar.

Areas that require protection, particularly at site boundaries, may be protected by:

- Erecting high visibility barrier fencing;
- Constructing earth bunds (ensuring that the bund itself does not impact on the habitat area);
- Erecting signs; and
- Creating restricted working areas.

When determining the type of barrier to be installed take into account:

- The duration of the project and of work activities in close proximity to the habitat area;
- The type of plant to be used (eg mobility, level of ground impact, driver visibility);
- Whether protective measures are required as part of the permanent works.

Any measures put in place to protect sensitive habitats must be inspected regularly to ensure they remain adequate and highly visible. This may be undertaken as part of the regular environmental inspection.

All employees and contractors must be made aware of any sensitive habitat areas and the control measures put in place to protect them. If the works are likely to cause disturbance to protected species such as bats, badgers, otters then a derogation licence will be needed from the National Parks and Wildlife Service as specified under the Habitats Directive. See http://www.npws.ie/licences for full list of licence requirements.

Sensitive habitats may also be impacted by site runoff and control measures may be required. Refer to EP-10 Surface Water Control for control methods.

There may be protected species of flora and fauna that require surveying, monitoring and/or relocation which a specialist consultant would be required to carry out.

If invasive species are identified prior to or during construction works, a management plan must be drafted, which will outline the methods available in dealing with the species. E.g. for Japanese Knotweed, the plant can be avoided, removed offsite to landfill, deep buried onsite according to the required standard or placed in specially constructed bunded and treated with herbicide for 3 years.

References:

Various Irish Acts and Regulations
Local Govt. Planning & Development Acts.
National Parks & Wildlife website (www.npws.ie)
Irish Statute Book – www.irishstatutebook.ie
Invasive species – www.invasivespeciesireland.com
Environmental Protection Agency website – www.epa.ie

Example 1: A protected tree

Example 2: Ecological Area

Japanese Knotweed

Giant Hogweed

Himalayan Balsam

For further advice or information contact the Environmental Coordinator 0871411476

Purpose:	To provide guidance on the management and storage of fuels, to minimise the potential for the release of fuels to the surrounding environment in the event of a spill.
Scope:	All sites and activities requiring fuel storage.
Responsibility:	Contract/Project Manager, HSE Advisor

Regulatory Requirements:

- Air Pollution Acts, 1987 - 2011
- Local Government (Water Pollution) Act, 1977-2001
- Environmental Protection Agency Act, 1992 (Control of Volatile Organic Compound Emissions resulting from Petrol Storage and Distribution) Regulations, 1997
- Water Quality (Dangerous Substances) Regulations, 2001
- Protection of Groundwater Regs 1999
- EPA Acts 1992-2015

Management Requirement:

Spills of fuels or oils from fixed or mobile storage tanks on construction sites can result in significant contamination of soil, surface waters and groundwater beneath and around the site. Project planning must take account of the need to protect fuel storage from damage, both accidental and malicious, so as to reduce the likelihood of spills, and to contain and limit the impact of any spills that may occur.

For assistance in implementing any control measures or further information contact the SHE Department.

Management Procedure:

1. Elimination
   - Where practical, do not store fuels or oils on site.
   - Where practical, do not refuel from mobile tanks on site.
2. Location
   - Tanks must be positioned such that easy access is maintained for fuel delivery vehicles and the vehicles / plant / equipment that will be refuelled from the tanks.
   - Position tanks so as to minimise the risk of damage by impact from plant or vehicles. Where this is not possible adequate barriers and / or high visibility fencing must be installed around the tanks to prevent impact.
   - Do not position tanks in significant risk locations – ie within 10m of a watercourse or 50m of a well or borehole, or close to a protected habitat area or cultural heritage artefact.
   - For security reasons tanks should always be located within the works compound and well away from boundary fences.
3. Containment
   - The surface where deliveries are made and fuel or oil is dispensed must be impermeable and isolated from any surface water drainage system. The drainage catchment of the refuelling area should be served by an oil interceptor where possible. If not possible, additional containment measures to be adopted in line with CIRIA documents.
   - All tanks and ancillary equipment must be located within an impermeable secondary containment system such as a bund. Details are given below.
   - Note: Double skinned tanks are NOT an adequate substitute for properly bunded tanks as the fixtures and

fittings are usually outside the protection of the double skin.

4. Security
    - All valves on fixed or mobile tanks should be securely locked when not in use, to prevent vandalism and unauthorised use and/or valves being left open.
5. Inspection & Emergency Response
    - Regular inspection of tanks and bunds must be carried out to check for leaks and ensure other material is not stored within the bunded area, thus reducing capacity. This may be carried out as part of the Environmental Inspection (refer to Procedure EP-05).
    - Emergency spill kits must be available on site at all times, with adequate stock of absorbent materials, and staff trained in their correct use and disposal.
6. A contingency plan must be prepared to deal with any spill (refer to EP-15 Containing & Cleaning Up Spills).

Temporary Storage (Mobile Bowsers)

- Portable fuel tanks must be parked in a secure, bunded and paved area (where possible), and must have spill kits with them at all times
- Operators of mobile fuel tanks must have appropriate training both in delivery of fuels and spill control.
- Any flexible pipes and taps must be fitted with a lever valve where they leave the container and be shut off when not in use.
- Flexible delivery pipes must be fitted with manually operated pumps or a valve at the delivery end that closes automatically when not in use.
- The pump must have a lever valve for shutting off when not in use.
- Refuelling must not take place in significant risk locations – i.e. within 10m of a watercourse or 50m of a well or borehole, or close to a protected habitat area or cultural heritage artefact – unless stringent controls are in place to avoid drips and spills. Such controls must include as a minimum the use of drip trays with absorbent materials.

Static Storage

- Static fuel tanks must be located in a secure, bunded and impermeable surfaced area where possible
- Bunds should be designed in accordance with CIRIA Report 163D (1997), 'The Construction of Bunds for Oil Storage Tanks', and BS EN 1992-3 Design Of Concrete Structures - Part 3: Liquid Retaining And Containment Structures
- As a minimum, storage must be bunded to a volume not less than 110% of the tanks maximum capacity. If more than one container is stored the system must be able to contain 110% of the largest tank or drum within the bunded area or 25% of the total tank capacity within the bund, whichever is greater. A calculation method is contained in the attached checklist.
- The design of fuel/oil storage areas should ensure that all valves and pipework are contained within the bunded area when not in use.
- The bunded area must be impermeable to oil and water with no direct outlet connecting the bund to any drain, sewer or watercourse, or discharging onto a yard or unmade ground.
- The tank and bund should also be covered to prevent ingress of rainwater, which, if it accumulates, would reduce the capacity of the bund to contain tank losses and also complicate the possible recovery of any losses from the bund.

References:

CIRIA Report 163D (1997) 'The Construction of Bunds for Oil Storage Tanks'

BS EN 1992-3 Design Of Concrete Structures - Part 3: Liquid Retaining And Containment Structures

DEFRA (2001) 'Guidance Note for the Control of Pollution (Oil Storage) (England) Regulations 2001'

Enterprise Ireland Best Practice Guide BPGCS005 Oil Storage Guidelines

EPA (2013) 'Guidance Note on Storage & Transfer of Materials for Scheduled Activities'

UK Environment Agency PPG02 (2014) 'Pollution Prevention Guidelines for Above Ground Oil Storage Tanks'

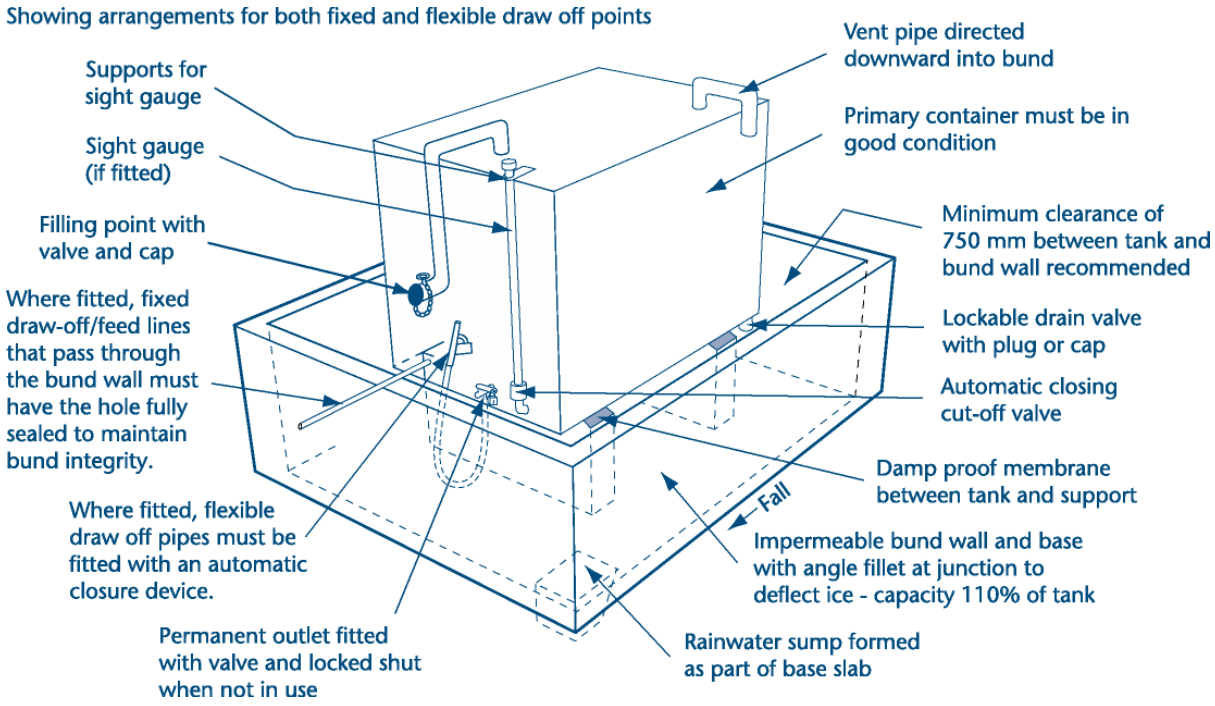
Irish Statute Book – www.irishstatutebook.ie

Attachments:

Details of secondary containment structure and calculation method to determine capacity, from PPG02.

Photo 1: Typical bunded and covered storage tank as available from the Plant Department

Attachment 1: Secondary containment structure and calculation method to determine capacity, from PPG02.



Calculation of capacity for existing secondary containment systems

The capacity of a tank located within an open containment system can be calculated by making the measurements shown in the table below. If the tank supports take up significant space, the calculation must take this into account.

Where the tank is enclosed within a proprietary system, you will have to refer to the manufacturer for this information.

Calculation	Result	
Maximum capacity of primary tank(s) If unknown, use tank length x width x depth in metres and multiply by 1000 to convert to litres.	.....litres	A
Containment capacity = length x width x depth of secondary container in metres	..... m_3	
Then multiply by 1000 to convert to litres	..... litres	B
Volume lost due to tank supports *(if significant)* in cubic metres	..... m_3	
Then multiply by 1000 to convert to litres	..... litres	C
Actual containment capacity = B – C (C = 0 if tank supports do not occupy a significant volume.)	..... litres	D
Minimum containment capacity (110%) = (110/100) x A	..... litres	E

If D is equal or greater than E, then the containment system volume is adequate

If D is less than E, then the containment system capacity is insufficient.

Note that for installations where the tank takes up a significant part of the bund, the capacity available in the event of overfilling may be inadequate. This will require consideration of delivery procedures and alarm systems if the risk is to be managed.

Purpose:	To provide guidance on the storage and handling of drums and containers of potentially polluting substances, and minimise the potential for their release to the surrounding environment.
Scope:	All sites and activities.
Responsibility:	Contract/Project Manager

Regulatory Requirements:

- Local Government (Water Pollution) Act, 1977 and amendments to 1999
- Air Pollution Acts, 1987 - 2011
- Protection of the Groundwater Regs 1999
- Water Quality (Dangerous Substances) Regulations, 2001
- European Communities (Water Policy) Regulations, 2003 - 2022
- EPA Acts 1992-2015

Management Requirement:

The use of potentially polluting substances on construction sites poses a significant risk of contamination of soil, surface waters and groundwater beneath and around the site, via accidental leakage or spills. Such substances include fuels, oils & chemicals, which may be stored in containers ranging in capacity from a few litres to drums of 205 litres (45 gallons). Project planning must take account of the need to protect drums and containers from damage, both accidental and malicious, so as to reduce the likelihood of spills, and to contain and limit the impact of any spills.

For handling and disposal of hazardous wastes refer to procedures EP-21

For assistance in implementing any control measures or further information contact the Environmental Coordinator.

Management Procedure:

1. Health & Safety Requirements
   - Ensure that the storage and handling of any hazardous substances is in accordance with the appropriate legislation, guidelines and industry standard, and the Material Safety Data Sheet (MSDS)
2. Purchasing & Delivery
   - Where practical, do not store drums or containers on site.
   - When ordering chemicals always ensure that the least hazardous substance and the smallest amount / container size suitable for the purpose is requested.
   - Ensure there is adequate contained storage space available prior to delivery of chemicals.
   - Do not accept quantities of chemicals over the ordered amount, particularly if there is not adequate contained storage space.
3. Drums and Containers
   - Individual containers must be clearly labelled with the nature of their contents and the MSDS must be available to anyone using the substance. The MSDS must be provided by the supplier.
   - The primary storage container must be of sufficient strength and integrity to ensure that in normal circumstances it is unlikely to burst or leak.
   - Damaged or unsuitable containers should be immediately repaired or removed from circulation, with their contents transferred to another suitable container.
4. Designated Storage Areas & Lockable Chemical Stores
   - Drums and containers should be delivered, handled and stored in designated areas which are clearly signposted and located so as to minimise the risk of impact by plant or vehicles. Where this is not possible adequate barriers must be installed to prevent impact.
   - Do not locate storage areas in significant risk locations – ie within 10m of a watercourse or 50m of a well or borehole, or close to a protected habitat area or cultural heritage artefact. Never store hazardous substances next to the site boundary unless they are adequately protected to prevent vandalism.

- All drums and containers of hazardous substances must kept in a lockable chemical stores with built in spill containment or otherwise secured in the designated storage area. Contact the plant department for specifications of different types of storage containers.
- The designated storage area must be bunded and impervious (eg lined with plastic or concreted) or otherwise have adequate secondary containment for the volume of hazardous substances stored (see below).
- Always check the MSDS to determine the requirements for storage of the substance and to that it is safe to store different types of chemicals together. For example, flammable and oxidising substances should never be stored together.

5. Secondary Containment

Secondary containment can be provided by prefabricated steel or plastic systems, or an in-situ concrete system using kerbs, walls, ramps and sloped floors to provide containment. Details of the various storage options and prefabricated systems are provided in the attached table.

- As a minimum, the containment system must sufficient capacity to contain 110% of the largest drum or container being stored or 25% of the total volume of the containers being stored, whichever is greater. For large external stores 25% containment capacity may result in low containment walls, which can be quickly overwhelmed by rainfall or firefighting agents. An additional 100mm freeboard is recommended.
- For an in situ system the surface of the area must be impermeable and isolated from any surface water drainage system. The drainage catchment of the area should be served by an oil interceptor or sump.
- Where a drip tray is used it should be capable of containing 25% of the volume of the container.

6. Cleaning Out Bunds & Drip Trays

After rainfall containment areas may have to be pumped out to remove excess water. This must be done as soon as possible following the rainfall event to restore full capacity to the containment area. The water will almost certainly be contaminated due to leaks/drips/spills from the stored drums. The following options are available:

- Have the area pumped out by an appropriately licensed waste contractor and disposed of off-site (refer to EP-21 Handling & Disposal of Hazardous Waste for more details). Note: The Company has an agreement with Greenstar for the removal of waste at agreed rates.
- If contaminated with fuel or oil pump the water to an oil interceptor, if one is available on the site.
- If the water is contaminated with oil floating on the surface it may be possible to remove the oil using oil-only absorbent pads / socks and then pump the water out to a sediment pond or other area on site where it cannot flow directly into surface waters (e.g. a grassed area). However, only do this if you are sure that all the contaminant has first been completely removed. Note: used absorbent pads must be disposed of in accordance with EP-21 Handling & Disposal of Hazardous Waste.

7. Use of Hazardous Substances on Site

- Drums with holding hazardous substances must be stored within a drip tray (or sump pallet) while being used on site
- Containers holding hazardous substances must be stored within a drip while being used on site
- Drums and containers should not be left unattended on site, particularly over night or weekends, and must be returned to the chemical stores / designated storage area at the end of each day.

8. Inspection & Emergency Response

- Regular inspection of containers and storage areas must be carried out to check for leaks and ensure other material is not stored within the containment area, thus reducing capacity. This could be carried out as part of the Environmental Inspection (refer to Procedure EP-05).
- Emergency spill kits must be available on site at all times, with adequate stock of absorbent materials and any PPE required, and staff informed of their correct use and disposal.
- For flammable materials ensure that appropriate fire extinguishers are available.
- A contingency plan should be prepared to deal with any spill (refer to EP-15 Containing & Cleaning Up Spills), including notification procedures to appropriate authorities.

References:

Parts adapted from UK Environment Agency PPG 26 (2014) 'Storage and Handling of Drums and Intermediate Bulk Containers'

Enterprise Ireland Best Practice Guide BPGCS005 Oil Storage Guidelines

EPA (2004) 'Guidance Note on Storage & Transfer of Materials for Scheduled Activities'

Attachments:

Details of storage options and containment systems, from PPG 26 (2014).

Examples (Photographs)

Attachment 1: Storage options and systems available for storage of drums, containers and intermediate bulk carriers (IBCs), from UK Environment Agency PPG 26 (2004).

Storage Option	Description	Uses	Notes
Drip tray	Simple container placed under single drum to contain minor leaks and spillages.	Drums Containers	Ideal for single drums in storage or at their point of use.
Dispensing sump trolley	Proprietary system used for transporting and then dispensing a single drum.	Drums	Good where products need to be stored next to their point of use. Fully bunded when in horizontal position.
Sump pallets	Pallets to hold two or four drums with a sump to contain spills.	Drums Containers IBCs	Containers are kept off the ground and containment is provided.
Decking	Decking units allow containers to stand off the ground on a grid while providing containment underneath.	Drums Containers IBCs	Proprietary units can be added to cover the floor area required, either in the area of use or in a dedicated store.
Drum racking	Racks specifically for the storage of drums, normally in pairs or rows of four.	Drums	May have integral bunding or otherwise can be used in dedicated stores. Drums are normally stored off the ground and in their horizontal position on the rack. In this position, drums should be orientated so that both bungs are covered with product (i.e. at 3 and 9 o'clock) and extra care will be needed to watch for leaks.
Conventional racking systems	The racking found in most warehouses, with the addition of chocks to keep drums in place.	Drums Containers IBCs	For use in dedicated stores where secondary containment is provided. Drums should be orientated as above.
Dedicated internal store	Purpose-built, prefabricated or adapted (e.g. freight container) store.	Drums Containers IBCs	Ideal where substantial storage capacity is required. Containment can be provided by means of stepped or ramped access, kerbing, bund walls, sloping floors or use of a proprietary system.
Dedicated external store	Purpose-built external storage area incorporating containment design features.	Drums Containers IBCs	Useful for storing large quantities of materials, particularly where ventilation is an issue. Containment provided as above. In addition, containers should be protected from the elements by roofing (which will also prevent rainwater accumulating) and be stored off the ground. Consider the need for fencing for security and to prevent containers being ejected in the case of fire.

Attachment 2: Hazardous Chemical Stores


PLEASE DO
NOT LITTER
-USE BINS
PROVIDED
HAZARDOUS
CHEMICAL
STORES
ascon
TOILETS

Purpose:	To provide guidance on the management of spills of hazardous substances, particularly oil and fuel, which have the potential to pollute the environment.
Scope:	All sites and activities
Responsibility:	Contract/Project Manager, Site Agent, General Foreman, Site HSE Officer

Regulatory Requirements:

- Air Pollution Act, 1987
- Local Government (Water Pollution) Act, 1977 and Amendment Act, 1990
- Environmental Protection Agency Act, 1992 (Control of Volatile Organic Compound Emissions resulting from Petrol Storage and Distribution) Regulations, 1997
- Water Quality (Dangerous Substances) Regulations, 2001
- European Communities (Water Policy) (Amendment) Regulations 2008
- EPA Acts 1992-2013
- European Communities Environmental Objectives (Surface Water) Regulations 2009
- European Communities Environmental Objectives (Ground Water) Regulations 2010

Management Requirement:

Spillages of fuels or oils from fixed or mobile storage tanks, or other harmful substances on construction sites can result in significant contamination of soil, surface waters and groundwater beneath and around the site. The release of fuel, oil or chemicals into waterways can reduce the level of oxygen available for fish, coat fish, aquatic animals, birds and plants, and contaminate waters that may be used for irrigation or drinking water. Such contamination represents a breach of several pieces of national legislation. Project planning must take account of the need to contain and limit the impact of any spills through a quick, coordinated response.

If hazardous or potentially polluting substances are being used on site an emergency spill response procedure must be developed under the Site Health & Safety Plan and referenced in the Environmental Management Plan. A template Emergency Spill Response Plan is attached to this procedure.

Management Procedure:

1. Planning

When considering the risk of a spill occurring on the site the first step is to minimise the potential for spills to occur, and should they occur, to minimise the impact of the spill on the environment. It is essential to ensure that all oils, fuels and harmful substances are stored in appropriate containers in suitably bunded or otherwise protected areas. The storage area should be as far away as possible from any sensitive receiving environment such as a river or habitat area. Refer to procedures EP-13 Bulk Fuel & Oil Storage and EP-14 Storage & Handling of Drums and Containers for further details.

It is also important during the planning stage to have a good understanding of the drainage of the site and the location of potential receiving environments so that spill containment can effectively block the pathway of the pollutant to those environments. Consult drainage drawings and ensure that up-to-date information is available.

Points to consider:

- The type and quantity of harmful substances being used on site, and thus the appropriate amount and type of spill containment materials required for their containment and clean up;
- PPE required to safely handle contaminated materials. As a minimum gloves must be worn, however, further equipment may be required, including respiratory equipment;
- The Safety Data Sheet (SDS) contains essential information – including ecological impacts, recommended containment and clean up methods, PPE and disposal requirements;
- Ensure that any booms for rivers or exposed shorelines are long enough and have suitable anchorage points;

- Absorbent granules and fibres generally absorb much more than their own weight. Check the manufacturer's guidelines for application rates and do not apply too much of the material, which will be classified as hazardous waste once used and will require specialist disposal (refer to Disposal below).

- Ensure that appropriate waste disposal containers are available to place contaminated material into following the clean up. These can be obtained from waste disposal contractors (refer to Disposal below).
- Contact the Purchasing Department for a list of suppliers of spill kits and absorbent materials.

2. Spill Kits & Absorbent Types

Adequate spill kits must be available on site to deal with a spill, should it occur. The type and amount of spill containment materials will depend on the substance being used and volume that can potentially be spilled. The following types of absorbents are available:

Oil-selective absorbents: white or light blue in colour. Do not absorb water. For spills in water or on land.

Universal absorbents: grey in colour. For spills on land. Cannot be applied to spills in water.

Chemical absorbents: may be yellow or grey in colour. For chemical or acid spills on land.

These absorbent types may be available as:

- Granules and shredded fibres, which can be applied to spills on land;
- pads and sausages, which can be used to contain or direct spills on land, particularly hard surfaces; and
- booms, which can be used to contain and absorb spills on the surface of waters.

Spill kits must be placed as close as possible to where they may be required, in a clearly marked container such as a wheelie bin. They must be available at fuel storage or refuelling areas, and next to watercourses when work is being carried out in their vicinity, or within their drainage catchment. All mobile bowsers must have a spill kit and drip tray with them at all times.

In addition to the spill containment materials spill kits must contain appropriate PPE (gloves as a minimum) and a copy of the Emergency Spill Response Plan. They must also contain disposal bags suitable for the removal of used absorbents and contaminated material, which are classified as hazardous waste. Alternatively, additional clearly marked containers may be provided in the same location as the spill kit). Refer to Disposal section below for further information.

3. Inspections & Maintenance of Spill Kits

Spill kits must be inspected regularly to ensure they are adequately stocked and in good order (if in remote locations they may be vandalised, have materials taken from them or rubbish thrown into them). Following use the spill kit must be restocked as soon as practical to ensure it is adequate to deal with any subsequent spills. An inventory of the spill kit contents may be contained in the spill kit (for example attached to the lid of a wheelie bin) or in the site office as a minimum.

The location and type of spill kits must be noted in the EMP and, for large sites, the spill kit locations must also be included on site plans attached to the EMP.

4. Emergency Coordinator & Other Responsible Personnel

It is a requirement under the Health and Safety Plan to have a designated Emergency Coordinator for the site, who will generally have primary responsibility for the implementation of the spill response procedure. However, other employees on site including the General Foreman, Area Supervisor, Safety Officers, Fitters and those responsible for refuelling should also be aware of the spill response procedure. Training may be required for all personnel responsible for responding to spills, who must:

- Know the location of spill kits and/or materials and how to apply them;
- Understand the principles of spill containment and be aware of the site drainage and locations of receiving environments;
- Know the appropriate PPE requirements to deal with oils, fuels and other harmful substances used on the site;

- Know how to dispose of contaminated materials; and
- Know the appropriate authorities to notify, if required, and emergency services to contact if the spill is beyond the capacity of the site resources to contain. The emergency contact list may include details for:
    - Emergency Services;
    - The Local Authority;
    - Inland Fisheries Board;
    - The Coast Guard;
    - The Health & Safety Authority;

Specialist clean up and waste disposal contractors.

5. Employee / Contractor Awareness

All employees and contractors must be made aware of the procedure to deal with spills and, in particularly, who to contact in the event of a spill. Consideration should be given to:

- Providing general information on spill response during site inductions and pre-start safety meetings;
- Providing copies of the spill response procedure to all contractors; and
- Conducting tool box talks and emergency drills on spill response at regular intervals.

Disposal of Contaminated Materials

Used absorbent pads, sausages and contaminated granules, sand or earth are classified as hazardous waste and require specialist disposal (usually incineration overseas). For disposal they must be placed into UN Approved barrels (clamp-lidded 240L steel drums) or lined fibre international bulk carriers (FIBCs). These can be provided by a waste contractor, or check with the Purchasing Department for suppliers. Note that the Company has existing agreement with numerous waste contractors for the disposal of waste at agreed rates. Contact The Plant Department for details.

If barrels or FIBCs are not available on the site any contaminated waste must be stored in impermeable containers and/or placed in an impermeable bunded area until barrels/FIBCs are sourced.

Large volumes of soil or other materials contaminated with hazardous substances must be stored in an impermeable bunded area and will need to be removed by a suitably licensed waste contractor. If the material is to be stored for more than 24 hours it should be covered with polythene sheeting or similar to prevent ingress of rainwater and leaching of the hazardous substance.

For further information refer to EP-21 Handling & Disposal of Hazardous Waste

References:

FAS & CIF (2004) Construction & Demolition Waste Management – A Training Programme for Contractors & Site Managers (Course Notes).

P Hyde & P Reeve (2001) Essentials of Environmental Management. IOSH

UK Environment Agency (2001) PPG 18 Managing Fire Water and Major Spillages

UK Environment Agency (2004) PPG 21 Pollution Incident Response Planning

Attachments:

Photos

Template - Emergency Spill Response Plan

Photo 1: Oil-selective absorbent booms and pads applied to stop the flow of diesel down a stream

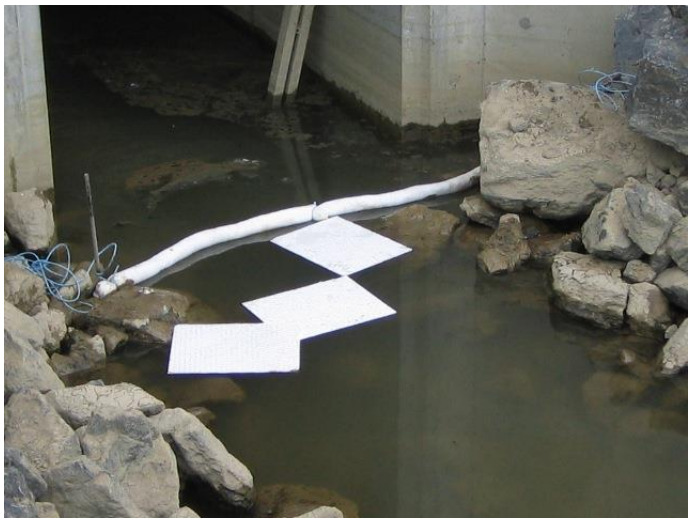


Photo 2: Spill kits located in diesel storage and refuelling area

Photos 3 & 4: Spill kits located next to watercourses


EMERGENCY
OIL/DIESEL
SPILL KIT


SPILL KIT
EMERGENCY
USE ONLY

Absorbent Granules:

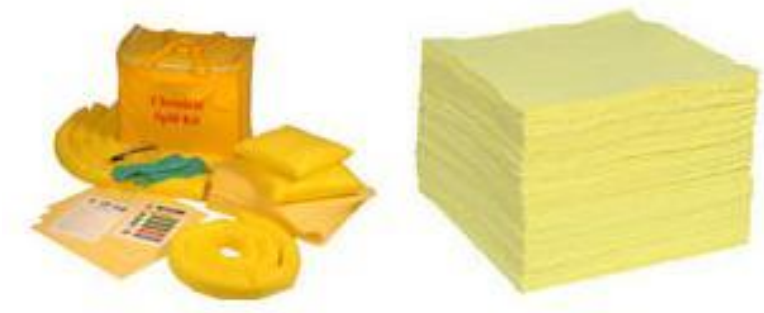
Absorbent Pads / Pillows:

Oil Selective Booms/Sausages:

Oil Selective Absorbents (Pads and Booms):

Universal Absorbents:

Chemical Absorbents:



Emergency Spill Response Plan

Attachment 1 to EP-15: Template Spill Response Plan. May be modified to make site-specific Rev: 03 25.03.2013

Emergency Response Coordinator on this site is: _____ Mob: _____

Site Safety, Health & Environmental (HSE) Officer: _____Mob: _____

Contact the Emergency Response Coordinator or HSE Officer for advice & assistance

Consider Personnel Safety First

1. Immediately alert area occupants to evacuate area if necessary and report the spill to the Area Supervisor, HSE Officer or Emergency Coordinator.
2. The Emergency Response Team (ERT) will attend if there is a fire, or if any people require medical attention or have been exposed to hazardous substances. Contaminated clothing must be removed immediately and the skin flushed with water for at least 15 minutes.
3. If a volatile, flammable material has been spilled, switch off or remove any sources of ignition close to the spill. Ventilate the area if indoors.
4. Put on personnel protective equipment, as appropriate to the substance spilled. As a minimum gloves must be worn (refer to the Material Safety Data Sheet if in doubt or consult the HSE Officer / Emergency Coordinator). Gloves should be available in the spill kit.
5. Consider the need for respiratory protection. Never enter a contaminated atmosphere without training or use a respirator without training. If respiratory protection is needed and no trained personnel are available do no not approach spill and keep up wind.

Contact emergency services on 112 if the spill: cannot be contained; and/or poses a serious public safety hazard; and/or threatens a protected habitat area or watercourse.

Spill Control and Clean Up

1. Try to identify the source of the pollutant and, if possible and safe to do so, stop the flow.
2. Get a spill kit(s) and apply absorbent materials appropriate to the spill type. Ensure that waste containers are available in which to place used absorbents.
3. Prevent the spill from spreading and contain it in as small an area as possible, using absorbent sausages, sand, earth or polythene to dam the flow. Divert any flow away from drains, sewers or watercourses or prevent pollutants from entering drains by placing sausages and/or polythene around or over the opening.

Never wash spillage into the drainage system and never use detergents

4. If any pollutant has entered a watercourse absorbent booms must be positioned to prevent the spread of the pollutant. Ensure that the booms are anchored to the shore and that water cannot flow around the edges of the boom. If there is not enough flow in the water to push the pollutant into the boom you may need to apply absorbent pads to the surface to soak up the pollutant.
5. If a large volume of liquid has been contained and is not soaking into the ground (e.g. if the spill occurs on concrete) it may be more appropriate to have a waste contractor remove the liquid by drawing it directly into a tanker for disposal, or pumping it into an IBC, which can be collected for disposal.
6. Alternatively if an oil interceptor is located nearby, any oil or oil/water mixture may be pumped into this, as long as the capacity of the interceptor is not exceeded.
7. Place used absorbent pads and shovel contaminated sand/earth/absorbent granules into sacks or containers. Store large volumes of contaminated soil/material in a contained impervious area, such as a plastic-lined bund.
8. Used absorbent pads / sausages / booms that are not fully laden with pollutant (i.e. not dripping when they are held up) may be stored in appropriate containers for reuse. Any such containers must be sealed and clearly labelled as to their contents and stored in a bunded area.
9. The HSE Officer or Emergency Coordinator shall notify the relevant authority, the Health & Safety Authority and neighbours, and complete an Environmental Incident Report, if required.

Emergency Spill Response Plan

Purpose:	To provide guidance on the definition and classification of waste according to the relevant statutory Acts and Regulations
Scope:	All sites and activities
Responsibility:	Contract/Project Manager, General Foreman, Site Agent

Regulatory and Policy Requirements:

- Waste Management Acts and Regulations 1996-2013
- EPA Waste Classification: List of waste and determining if waste is hazardous or non-hazardous (2015)
- Govt Policy: Changing Our Ways (1998), Delivering Change (2002), Taking Stock & Moving Forward (2004)
- Regional Waste Management Plans 2015
- EPA (2021) Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects

Waste Definition and Classification

Under Section 4(1) of the Waste Management Act, waste is defined as:

"*any substance or object belonging to a category of waste specified in the First Schedule or for the time being included in the European Waste Catalogue which the holder discards or intends or is required to discard, and anything which is discarded or otherwise dealt with as if it were waste shall be presumed to be waste until the contrary is proved*."

Since 1 June 2015, waste classification is based on:

1. Commission Decision of 18 December 2014, amending Decision 2000/532/EC on the list of waste pursuant to Directive 2008/98/EC of the European parliament and of the Council (2014/955/EEC) [referred to hereafter as 'The List of Waste (LoW)'].

2. Commission Regulation (EU) No 1357/2014 of 18 December 2014, replacing Annex III to Directive 2008/98/EC of the European Parliament and of the Council on waste and repealing certain Directives.

This waste classification system applies across the EU and is the basis for all national and international waste reporting obligations. This document consolidates the Decision and Regulation and provides guidance on how to follow them.

The LoW document replaces:

- The 2002 European Waste Catalogue and the Hazardous Waste List
- Hazardous Waste Classification Tool
- Hazardous Waste Classification Worksheet.

For a copy of the First Schedule or the contact the Environmental Coordinator.

Construction & Demolition Waste Definition

C&D waste is considered by the EPA to include:

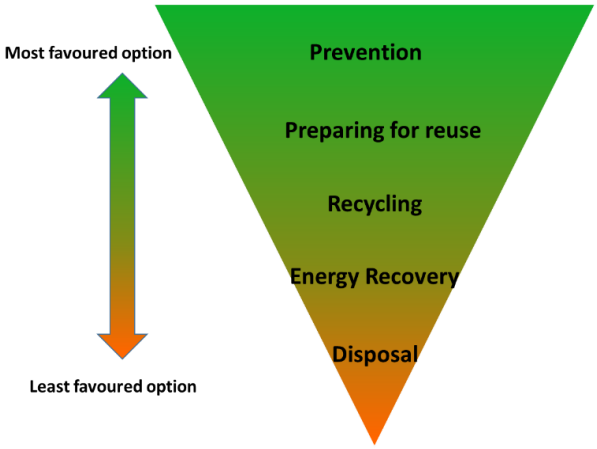
1. All waste that arises from construction, renovation and demolition activities;
2. Surplus and damaged products and materials arising at construction works or used temporarily during on-site activities;
3. Dredge spoil;
4. All wastes mentioned in Chapter 17 of the LoW (a copy of Chapter 17 is appended to Procedure EP-17 Management of Mixed C&D Waste).

For further information and management procedures refer to Procedure EP-17 Management of Waste and other

procedures for specific waste types.

Waste Hierarchy

The waste hierarchy is an internationally accepted method of prioritising options for waste management, which has been adopted by the government in waste management legislation and policy documents. Consideration of the waste hierarchy is essential when planning for the management of waste.



Movement & Disposal of Waste

Under the Waste Management (Collection Permit) Regulations 2007 (amend) 2016 all waste can only be collected and transported by a contractor who holds a National Waste Collection Permit.

Waste can only be disposed of to a site that holds a Permit under the Waste Management (Facility Permit and Registration) Regulations 2007 (amend) 2019 or a Licence under the Waste Management (Licensing) Regulation 2004 and European Communities (waste directive) regulations 2011.

Classification of Waste for Disposal to Landfill

Under the EU Landfill Directive, 1999 (99/31/EC) all landfills must be classified as either inert, non-hazardous or hazardous. This classification determines what waste types the landfill can receive. The classification of waste into one of these categories has implications for handling, storage and transport of the waste, the type of waste facility that can accept the waste, and for the cost of the disposal.

Inert waste means waste that does not undergo any significant physical, chemical or biological transformations. Inert waste will not dissolve, burn or otherwise physically or chemically react, biodegrade, or adversely affect other matter with which it comes into contact in a way likely to give rise to environmental pollution or harm human health. Inert waste may be disposed of to an inert landfill, which does not require lining to contain leachate. Examples of inert waste are:

- Clean soil and stones;
- Concrete;
- Bricks;
- Ceramics and tiles.

Non-hazardous waste means waste which is not inert but is not classified as hazardous. This waste type will biodegrade over time and needs to be disposed of in an engineered, lined landfill site, which will control landfill gas and contain leachate. Examples of non-hazardous waste are:

- Municipal solid waste;
- Household waste;
- Gypsum based waste
- Commercial/office waste;
- Food/canteen waste.

Hazardous waste is any waste that is prescribed under section 4(2) of the Waste Management Act, and also displays one or more of the properties indicated in the Second Schedule to the Act; or waste listed as hazardous on the EPA

List of Waste. For examples and management procedure refer to EP-20 & EP-21.

Movement & Disposal of Hazardous Waste

Movement and disposal of hazardous waste is controlled by the following legislation:

Waste Management (Hazardous Waste) Regulations 2000

Waste Management (Movement of Hazardous Waste) Regulations 1998;

Waste Management (Shipment of Waste) Regulations 2007

For further information and management procedures refer to the Hazardous Waste Procedures.

For further advice or information contact the Environmental Coordinator, 0871411476

References:

Waste Management Acts and Regs 1996-2013

EPA Waste Classification: List of waste and determining if waste is hazardous or non-hazardous (2015)
Irish Statute Book – www.irishststutebook.ie

EP-19	Litter Management	bam			
Note: Always print or copy to double-sided pages	PROC. NO: EP-19	REV: 00	DATE: 19/4/2024	PAGE: 1/2	

Purpose:	To provide a guideline for the procedures to be implemented for the management of litter in accordance with the regulatory requirements and Environmental Policy.
Scope:	All sites and activities
Responsibility:	Contract/Project Manager, General Foreman, Area Supervisors

Regulatory / Management Requirement:

Under the Litter Pollution Acts 1997 to 2009 and Regulations 1999 there are a number of requirements with regard to littering. The primary obligation (Section 6) placed upon the owner or occupier of a property that can be seen from a public place is to keep the premises litter free. Where litter has accumulated the local authority can issue a notice requiring its removal. If the owner or occupier does not comply with the notice the local authority can do whatever is necessary to clean up the site and require the owner / occupier to pay all costs involved.

The Litter Pollution Regulations 1999 make the following activities offences under the Act:

- Depositing a substance or object so as to create litter in a public place or litter that is visible to any extent from a public place. *Section 3 (1)*;
- Depositing for collection by or on behalf of a local authority a substance, material or thing, or
  - Loading, transporting, unloading or otherwise handling or processing anything, or
  - Carrying on a business, trade or activity;

  in a manner that creates or tends to create litter in a public place or litter that is visible to any extent from a public place. *Section 3 (2)*
- Placing municipal waste into or near a litter receptacle. *Section 3 (3)*
- Failing to take measures in using a vehicle to transport goods or materials to prevent the creation of litter on a public road or in a public place. *Section 4 (1)*
- Failing to take measures to prevent the creation of litter in the vicinity of a skip. *Section 4 (2)*
- Failing to keep a footpath or margin adjoining a public road free of litter. *Section 6 (4)*
- Removing litter from a footpath or margin onto a road. *Section 6 (5)*

Leaving or throwing litter in a public place is an offence that can be subject to an on-the-spot fine of €150, or a maximum fine of €3,000 if you are convicted in the District Court. Where an offence continues after conviction, the person concerned is guilty of a further offence and liable to a fine not exceeding €600 for each day during which the contravention continues. The Protection of the Environment Act 2003 introduced conviction on indictment and carries a maximum fine not exceeding €130,000 and a fine not exceeding €10,000 per day for continuing offences.

On-the-spot fines can be issued by a litter warden appointed by the local authority or by a Garda. If you are convicted of a litter offence, the court may also require you to pay the local authority's costs and expenses in investigating the offence and any costs incurred in bringing the prosecution.

Management Procedure:

During site inductions and pre-start meetings ensure that all personnel and contractors are aware of the requirement to keep the site and any surrounding public places free of litter.

Ensure security measures are put in place to prevent fly tipping on the site.

At the commencement of site activities designate responsibility for checking work areas, and particularly the area around skips, and ensuring they are kept free of litter and that waste is placed into the appropriate skip or bin.

Any personnel involved in the transport of materials around the site or off-site must ensure that such transport does not cause litter to be deposited on a public road or place.

Undertake regular inspections (as part of the Environmental Inspection – refer to EP-05) to ensure compliance with the above requirements.

For further information or advice contact the Environmental Coordinator, on 0871411476

References:

Litter Pollution Acts 1997 to 2009 and Regulations 1999 & EPA Acts 1992-2013

EP-23	Emergency Procedure for Sediment Release	bam			
Note: Always print or copy to double-sided pages	**PROC. NO: EP-23**	**REV:** 00	**DATE: 19/4/2024**	**PAGE:** 1/2	

Purpose:	To provide guidance on the management of a sediment release into a waterway.
Scope:	All sites and activities.
Responsibility:	All personnel

Regulatory Requirements:

Local Government (Water Pollution) Act, 1977 and Amendment Act, 1990 and regulations
Fisheries (Consolidation) Act, 1959 and Amendment Act, 1999
European Communities (Quality of Salmonid Waters) Regulations 1988
European Communities (Quality of Shellfish Waters) Regulations 2006 (amend) 2009
Fisheries Inland Act 2010
European Communities (Environmental Liability) Regulations 2008
European Communities Environmental Objections (Surface Water) Regulations 2009
European Communities Environmental Objections (Ground Water) Regulations 2009
IFI (2016) Guidelines on Protection of Fisheries during Construction Works in adjacent to Waters

Management Requirement:

Runoff of sediment from earth works can smother aquatic stream life including vegetation, invertebrates & fish eggs. Such pollution is a breach of Irish legislation. Project planning must take account of the need to contain and limit the impact of sediment releases through a quick, coordinated response. In all cases, the first priority should be to control the source of pollution by:

- controlling runoff from the site, which will otherwise erode exposed soil, haul roads and stockpiles
- dewatering excavations in a controlled manner
- installing appropriate sediment control measures to treat runoff prior to discharge from site and
- using best practice methodologies when working in or near water

For further information on sediment controls refer to EP-10 Surface Water Control and the Emergency Environmental Plan (EEP).

If there is potential for sediment to pollute watercourses on, adjacent or downstream of the site emergency sediment release response plan must be developed and referenced in the Environmental Management Plan (EMP). A template Sediment Release Response Plan is attached to this procedure.

Materials and resources must be available on site to quickly install additional control measures and/or improve existing control measures, including:

- Geotextile fabric or lining exposed surfaces, wrapping straw bales and/or constructing sediment fences
- Clean stone to line drainage lines, culverts, or sediment pond outflow points and install check dams
- Straw bales to install as check dams in drainage lines and sediment traps, or as filter strips
- Pumps to divert sediment laden water or pump it to alternative control measures
- Vehicles & Plant to transport and install the materials, dig diversion channels

An Emergency Response Co-ordinator must be nominated on site.

References:

CIRIA 532 - Water Pollution

CIRIA 648 - Control of Water Pollution from Linear Construction Projects

MDOT (Michigan Department of Transportation) - Construction Site Soil Erosion and Pollution Prevention Pocket Guide

NRA – Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes

Attachments:

Template – Sediment Release Response Plan

Emergency Response Co-ordinator: **Mob:**

Health, Safety, & Environmental (HSE) Officer: **Mob:**

WATER POLLUTION CAUSED BY SEDIMENT RELEASE IS AN OFFENCE AND MUST BE RECTIFIED IMMEDIATELY.

On the discovery of any sediment release to a watercourse, or where there is an imminent threat of sediment being released to a watercourse:

1. Report the incident immediately to the Management Team, HSE officer and Emergency Response Co-ordinator
2. Try to identify the source of pollution and stop the flow into the watercourse:-
   - If water is being pumped, turn off the pump and/or divert flow to an alternative sediment control, vegetative area, drainage channel or area for retention
   - If there is capacity in the drainage system to retain the sediment-laden water, plug the drainage channel outflow until alternative sediment controls are installed
3. If materials are available (*i.e. floating sediment curtains*) and it is safe to do so, install control measures in the watercourse to prevent the sediment spreading or flowing downstream. (*Sediment curtains must be anchored to the bank and weighted down or anchored to the streambed / sea floor*).
4. Inspect the existing sediment control facilities to ascertain whether they are operating effectively. Make any necessary repairs to improve performance of the existing controls. E.g. replace straw bales, repair gaps in sediment fences and dig into the ground or top up stone check dams
5. Install additional control measures to treat the sediment laden water, such as:-
   - Sediment traps or ponds
   - Check dams in the drainage line using clean stone or straw bales or
   - Sediment fences
6. If sediment laden water has been successfully retained but is not clearing, or the capacity of the control measures is likely to be exceeded, the water should be pumped to a bowser
7. Where required, water samples should be taken up and downstream of the sediment discharge point
8. The Site Management Team shall notify the relevant authority and neighbours, and complete an Environmental Incident Report (*if required*)

EP-24	Environmental Complaints and Incidents Procedure	

Note: Always print or copy to double-sided pages	PROC. NO: EP-24	REV: 00	DATE: 19/4/2024	PAGE: 1/2

Purpose:	To detail the process to be followed when dealing with complaints and filling out the "Complaints Register".
Scope:	All sites and activities.
Responsibility:	All

Management Requirement for Complaints Procedure

Each site must establish and maintain a Complaints Register for internal communication and for receiving, documenting and responding to environmental complaints from external parties. The following process must be followed when complaints are received.

Management Procedure for Complaints:

- Complaint is received
- All complaints received from external sources must be reported to the Project Manager. HSE Officer, Quality Manager and any other persons involved (*different sites may use different methods of informing the appropriate people of a complaint/incident such as internal notification systems or similar*)
- Complaints will be investigated on site as soon as possible after the complaint has been received
- All environmental complaints will be recorded in the project Complaints Register
- The Register is maintained by the Quality Manager (*or site similar*), who also allocates responsibility for resolving any issues and follows up complaints to ensure they are resolved.
- Only specified persons can respond to the complainant
- Any issues to be resolved or followed up must be added to the Site Action Register by the HSE Officer or equivalent and all actions closed out and dated where applicable

- Complaints should be reported to relevant authorities depending on Contract Documents and agreements
    - The Local Authority
    - Inland Fisheries Ireland
    - NRA
    - Waterways Ireland
    - Irish Water
    - Department of Environment, Community and Local Government
    - National Parks and Wildlife Service
    - Other relevant authorities/3rd parties required per construction contract

- Complaints will be forwarded to the HSE Department
- Complaints are reviewed during internal audits by the Environmental Coordinator.

Purpose:	To detail the process to be followed when dealing with environmental incidences and when reporting environmental incidents to Site Management and Head Office.
Scope:	All sites and activities.
Responsibility:	Contract/Project Manager, Quality Manager, Site Safety Officer

Management Requirements for Environmental Incidents Procedure:

Each site must adhere to this procedure when reporting and dealing with environmental incidences. All incidents will be investigated on site and reported to Head Office on the online Incident tracking system on SharePoint. Please see EMP for more details on environmental incidences.

Management Procedure for Environmental Incidents

- Environmental Incident is noticed or information regarding the incident is received
- All information must be reported to the Project Manager and all other related persons such as Site Environmental Rep/HSE Officer etc.
- **HSE Department must be informed of the Incident ASAP**
- Depending on the nature of the incident, it *may* have to be reported to the Client and relevant Regulatory Authorities depending on Contract Documents and agreements.
- Environmental Incidents will be investigated immediately and corrective actions taken to remedy the situation
- All plant/equipment etc which may have caused or been related to the environmental incident must be stopped immediately and taken away from the incident site and taken out of service until the investigation has been completed and equipment rectified or removed permanently
- All related information will be gathered concerning the environmental incident and photographs will be taken
- All relevant parties will be spoken with regarding this matter; subcontractors, site staff, witnesses
- When all the information has been gathered (*immediate cause, basic cause and corrective actions etc.*), it will be added to the 'Sharepoint reporting system'. If any further actions have to be taken, these will be agreed and timescales set.
- All incidents must be submitted on the Sharepoint Incident Tracking system within 7 days.
- All environmental incidents that are added to the Incident Tracking System are reviewed by the HSE department prior to final approval and are included on the monthly 'Loss Events Report'.

References: Environmental Management Plan and EMS Manual

Inform the HSE Department immediately of any incident 045 886557

EMERGENCY PLAN				
FIRE	EMP 05	REV: 1	DATE: July 2019	PAGE: 1of 2

EMERGENCY PLAN IN THE EVENT OF A FIRE

1. Whoever discovers the fire should raise the alarm which, the location of which will be told to all persons at induction.

2. The Emergency Co-ordinator (Pat O Sullivan)will call the emergency services (112).

3. The Emergency Co-ordinator will nominate persons to act as sweepers and make sure that the site offices are evacuated.

4. The Emergency Co-ordinator will nominate persons to act as sweepers and make sure that the site is evacuated.

5. All personnel are to leave the site and assemble at the designated assembly point.

6. Do not stop to collect personal belongings.

7. Turn off generators, compressors and other powered equipment unless these provide power for emergency services.

8. Turn off all heat producing equipment and shut cylinder valves.

9. The emergency team members will attack the fire if safe to do so using the correct extinguisher. The locations of banks of fire extinguishers is marked on the site map which is displayed on the site safety noticeboard in the site office.

10. The information on the location of materials on the site and their flammability is held by the Emergency Co-ordinator who will pass it on to the fire brigade.

11. If somebody has caught fire they should be wrapped in a fire blanket, locations of which are marked on the site map and the burns unit of the fire brigade should be contacted.

12. The Emergency Co-ordinator will do a roll call with the assistance of the site clerk. Every sub-contractor must have a supervisor assigned to conduct a head count of their employees. They will then report back to the Emergency Co-ordinator

13. The person nominated by the Emergency Co-ordinator will wait at the site entrance to escort the emergency services.

14. The Emergency Co-ordinator will provide details of any known fire hydrants in the area.

15. After the emergency the Emergency Co-ordinator will call the all clear.

16. If it is a case that the offices are uninhabitable temporary accommodation will be provided as soon as possible the location of which will be decided by the Site Manager

17. If there are casualties these will be removed to hospital and the Project Manager (Mick Duffy)will contact their next of kin.

18. The Emergency Co-ordinator will appoint a person to go to the hospital if a casualty or casualties are taken there and will keep the Site Manager informed.

19. The Site Manager (Fiachra Page) will inform the HSE Manager immediately of the situation.

20. The Site Manager will co-ordinate the investigation.

21. The Site Manager will call the all clear if it is safe to go back or operate from the temporary offices.

22. The Site Manager and Emergency Co-ordinator to review the situation and organise items such as demolition, remedial works etc.

Appendix 11: Initial Stock Pile Locations

ON ORIGINAL

0 5 10 15 20 25 30 40 50mm

NOTES:

LEGEND

- EXISTING BITUMINOUS PAVEMENT TO BE BROKEN UP AND REMOVED TO STOCKPILE [U2 MATERIAL] - SEE APPENDIX 6/2
- EXISTING BITUMINOUS PAVEMENT TO BE BROKEN UP AND REMOVED TO TIP
- EXCAVATED U2 MATERIAL - PROPOSED STOCKPILE LOCATION
- RCX PAVEMENT CORE LOCATION *[GREEN OUTLINE INDICATES NON HAZARDOUS LAB RESULT, RED INDICATES HAZARDOUS]*

N W E S

THE PARK CARRICKMINES

PROPOSED GDDR

GLENAMUCK ROAD

ENNISKERRY ROAD

ENNISKERRY ROAD NORTH
AREA 1: U2 STOCKPILE LOCATION

PROPOSED GDDR

ENNISKERRY ROAD NORTH
AREA 1: U2 EXTENTS
VOLUME: 73m³

ENNISKERRY ROAD

PROPOSED GLDR

GLENAMUCK ROAD

GLENAMUCK ROAD
AREA 2: U2 EXTENTS
VOLUME: 104m³

GLENAMUCK ROAD
AREA 2: U2 STOCKPILE LOCATION

GOLDEN BALL

PROPOSED GLDR

BALLYCORUS ROAD (TRENCH)
AREA 5: U2 STOCKPILE LOCATION

BALLYCORUS ROAD (110KV TRENCH)
AREA 5:: U2 EXTENTS
VOLUME: 84m³

BALLYCORUS ROAD (ROAD WORKS)
AREA 3: U2 EXTENTS
VOLUME: 120m³

BALLYCORUS ROAD

BISHOPS LANE

BALLYCORUS ROAD

BALLYCORUS ROAD
AREA 3: U2 STOCKPILE LOCATION

BARNASLINGAN LANE
AREA 4: U2 EXTENTS
VOLUME: 24m³

ENNISKERRY ROAD

BARNASLINGAN LANE
AREA 4: U2 STOCKPILE LOCATION

PROPOSED GLDR

BARNASLINGAN LANE

rev	date	description	by	chkd.
C02	28-03-24	ISSUED FOR CONSTRUCTION	JVS	JPC
C01	25-07-23	ISSUED FOR TENDER	DJG	JPC

client approval: A - Approved; B - Approved with comments; C - Do not use

suitability: A5 - CONSTRUCTION

issue purpose: CONSTRUCTION

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project ref.

GLENAMUCK DISTRICT ROADS SCHEME

drawing title

BITUMINOUS CARRIAGEWAY EXCAVATION - U2 EXTENTS

client: dlr Comhairle Contae County Council

designed by	author	scale	sheet size
DMF	DMF	NTS	A1P

drawing no.: 170172-DBFL-0600-SP-DR-C-1201

revision: C02

Appendix 12: Landscape Specification

LAND PLANNING & DESIGN

Series 3000
Landscape & Ecology Specification
Tender Stage

for

GLENAMUCK DISTRICT ROADS

DUBLIN 18

September 2022

This section should be read in conjunction with the specifications outlined on the accompanying drawings.

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

Date: 22/10/20

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3001 General

1. Quality Management Schemes - Landscape and ecology works for the scheme shall comply with series 3000 and the associated quality management schemes detailed at Appendix A of Volume 1 of the MCHW.
2. Notice and Liaison - The Contractor shall give the Project Manager at least 48 hours notice (i.e. 2 working days) of the intention to commence the following works as stated in MCHW Appendix 30/1:

    i) Subsoil treatment.
    ii) Topsoil cultivation.
    iii) Grass or Wildflower seeding and turfing.
    iv) Planting.
    v) Mulching.
    vi) Tree felling.
    vii) Arboricultural works.
    viii) Application of pesticides
    ix) Work outside the road boundary
    x) Any works within, adjacent to, or which may affect any site of nature conservation or archaeological interest.

    This notice shall be repeated subsequent to periods when the operations have been temporarily suspended.
3. Peat Use - Peat or peat based products shall not be used unless required to match existing soil conditions. If used peat is to be extracted from areas approved by the Department of Environment.
4. Pest Control - The Contractor shall supply a 'Landscape Works – Pesticides Record' to the Project Manager 7 days after use of such materials. See Appendix A, Sheet 1 for sample pro-forma. See MCHW series 3000 for full definition of what is considered a pest.
5. Bird Nesting Season - The bird nesting season applicable to this contract will be from the beginning of the third week of 1st March until the end of 31st August.
6. The Contractor shall supply a 'Landscape Works – Inspection Report' to the Project Manager at least four times a year at dates to be agreed prior to the start of work. See Appendix A, Sheet 2 for a sample pro-forma.
7. Landscape drawings include:

    Plans

    17479-3-100-112

    Details

    - 17479-3-901 Tree Planting Details
    - 16369-3-902 Median Hedge Planting Details

8. If planting is to occur outside the growing season all bareroot stock should be replaced with containerised or balled stock at the container sizes specified in this document and as approved with the landscape architect. Alternatively the Contactor can also refrigerate the stock. Either method should only be for stock planted in the months of April to mid May and suitably watered throughout dry periods as denoted in the specification. Refrigerated stock should be suitably sweated out, depending on species, prior to planting.

3002 Weed Control

1. Weed control for all weeds, including injurious and noxious species, shall be carried out from the contract starting date until the end of the defects period. Weed control operations shall be carried out at sufficient frequency to control weed growth, to a programme and in locations agreed with the Contract Administrator. Weeds shall include: Ragwort, Himalayan Balsam, Giant hogweed & Japanese knotweed, Thistle, Dock, Common Barberry, Male Wild Hop and Spring Wild Oat, or any other noxious species identified by the Department of Environment.

   Control of other weed species identified during subsequent site inspections shall be agreed with Project Manager.

2. Weed control shall achieve total die-back of the weeds. Total weed control, meaning all types of vegetation, shall achieve less than 5% regrowth within any one 6 month period. Select weed control, meaning plants listed in cl.3002-1, shall achieve less than 5% regrowth within the growing season.

3. Total weed control shall be achieved on the advice of a registered Pesticides Advisor. Total weed control shall apply to the following locations:

   i) Hard surface and gravel areas
   ii) 5cm circle or strip around bases of signage, lighting columns, furnishings, feature walls and fencing, min-pillars, etc
   iii) All landscape areas prior to seeding or planting
   iv) All stockpiles of topsoil
   v) A 50cm diameter circle around each plant station or clump of plants in all planting areas
   vi) All ornamental shrub and herbaceous planting

   Select weed control operations shall apply to the following locations:
   i) Grassed areas
   ii) 5cm to strip along site boundary fencing, walls unless identified as feature walls

   The Contractor shall apply all products in accordance with the manufacturer's specification.

4. Other than the control of injurious or noxious weeds on watercourses, dealt with in Cl.3002-1, no control of weeds shall be carried out within 2m of on open ditches, lagoons, watercourses, filter drains or any other drainage channel or pond associated with the road drainage system, without the Contractor seeking the prior consent of the Contract Administrator.

5. Weed control operations shall be applied as necessary and agreed with the Contract Administrator to all planting areas from the starting date until the defects date in respect of the planting.

6. Weed control by hand weeding shall be carried out where spot application of herbicide may cause damage. Hand weeding shall consist of the removal of the entire weed, including roots, by digging, forking hoeing or pulling. Weeds shall be removed prior to flowering. Particular attention should be paid to any areas of ornamental and semi-ornamental planting.

7. Weed control shall be carried out by cutting where the extent of growth or type of weed is not effectively controlled by herbicide application as agreed with the Project Manager. Cutting should occur prior to flowering.

8. All arisings from weed control operations shall be removed from site. Injurious weed arisings shall be destroyed.

3003 Control of Rabbits, Hares and Deer

1. Effective rabbit, hare and deer control shall be implemented and maintained from the starting date until the defects date in respect of the planting. Where required, effective controls need to be put in place for badger and fox control
2. The control of rabbits, hares and deer shall comply with current legislation in relation to pest control and make available to the Contract Administrator evidence of suitable qualified training for the operatives carrying out the work.
3. A register shall be maintained by the contractor detailing the following, persons employed; pesticides used; weather; site observations (e.g. location of setts, vehicle damage, damage to vegetation); and confirmation of satisfactory control.
4. All areas of bramble and herbage that may interfere with the control of rabbits shall be cut and maintained at ground level.
5. The Contract Administrator may request an inspection of the Site with a representative of the Contractor to agree all locations and ensure that effective control of rabbits has been achieved.
6. Planting is to be protected from rabbits, hares and deer by using a spiral or tubular PVC guard and stake to protect the lower vegetation and bark during the first few years of growth. Guards should be loose and adjustable. Guards will be checked regularly to ensure they are in a vertical position and are not rubbing or restricting the growth of the tree.
7. The Contractor shall replace and maintain plants until the defects date in respect of the planting.

3004 Ground Preparation

1. Grasses and other herbaceous vegetation shall be cut to a height of between 50 and 75mm and the arisings removed from the Site.
2. The Contractor shall control weeds in accordance with Cl. 3002 to all areas to be planted between 21 and 25 days prior to planting.
3. Subsoil to planting areas shall be ripped using a ripping tine or subsoil plough to 45cm depth, where agreed with the Contract Administrator. Subsoil shall comply with BS 8601-2013 Specification for subsoil and requirements for use. Minimum subsoil depths under topsoil shall be 15cm in grassed areas, 30cm in ornamental shrub areas, 45cm large shrub areas and hedgerows, 60-100cm in woodland and large tree areas.
4. The spacing of tine furrows shall be 60cm to allow for the breakup of the entire area to be landscaped.

5. STRIPPING TOPSOIL
   - General: Before beginning general excavation or filling, strip topsoil from areas where there will be regarding, buildings, pavings/ roads and other areas shown on drawings.
   - Depth:
     - Remove to an average depth of 300mm.
     - Give notice where the depth of topsoil is difficult to determine.
   - Handling: Handle topsoil for reuse or sale in making sure not to compact it or cause any contamination.
   - Around trees: Do not remove topsoil from below the spread of trees to be retained.
   - Site storage: is to be in **stock piles 1.5m high, 3m wide and any length**, location to be agreed.

6. HANDLING TOPSOIL
   - Aggressive weeds:
     - Species: As Identified in the noxious weed list published by the Department of the Environment.
     - Give notice: Obtain instructions before moving topsoil.
   - Earthmoving equipment: Select and use to minimize disturbance, trafficking and compaction.
   - Contamination: Do not mix topsoil with:
     - Subsoil, stone, hardcore, rubbish or material from demolition work.
     - Oil, fuel, cement or other substances harmful to plant growth.
     - Other grades of topsoil.
   - Multiple handling: Keep to a minimum. Use topsoil immediately after stripping.
   - Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or as described in BS3882:2007 Section 5.4.

7. ADJACENT EXCAVATIONS
   - Proximity: Where an excavation encroaches below a line drawn at an angle from the nearest formation level of another higher excavation, the lower excavation, all work within it and backfilling thereto must be completed before the higher excavation is made.
   - Angle of line from horizontal: 45^{o}

8. PERMISSIBLE DEVIATIONS FROM FORMATION LEVELS
   - Beneath mass concrete foundations: ±25 mm.
   - Beneath ground bearing slabs and r.c. foundations: ±15 mm.
   - Embankments and cuttings: ±50 mm.
   - Ground abutting external walls: ±50 mm, but such as to ensure that finished level is not less than 150 mm below dpc.

9. INSPECTING FORMATIONS
    - Give notice: Make advance arrangements for inspection of formations for stock piles.
    - Preparation: Just before inspection remove the last 150 mm of excavation. Trim to required profiles and levels, and remove loose material.

DISPOSAL/ STORAGE OF MATERIALS

10. TOPSOIL STORAGE HEAPS
    - Location: Away from all working areas so that soil is not disturbed by construction traffic.
    - Height (maximum): **1.5m high, 3m wide and any length**.
    - Protection:
        - Do not place any other material on top of storage heaps.
        - Do not allow construction plant to pass over storage heaps.
        - Prevent compaction and contamination.
        - Do not store soil near water courses, in wet, boggy areas or areas prone to flooding

11. TOPSOIL STORAGE HEAP TREATMENT
    - Treatment: Remove all weed and weed seed in accordance with methods agreed with a Pesticides Advisor a minimum 2 weeks before using.

12. SURPLUS SUBSOIL
    - Excavated material: Stockpile in temporary storage heaps.
    - Retained material: Spread and level surplus subsoil on site.
        - Locations: to be agreed.
        - Protected areas: Do not raise soil level within root spread of trees that are to be retained.

13. WATER
    - Generally: Keep all excavations free from water until:
        - Formations are covered.
        - Below ground construction are completed.
        - Basement structures and retaining walls are able to resist leakage, water pressure and flotation.
    - Drainage: Form surfaces of excavations and fill to provide adequate falls.
    - Removal of water: Provide temporary drains, sumps and pumping as necessary. Do not pollute watercourses with silt laden water.

14. GROUND WATER LEVEL/ RUNNING WATER
    - Give notice: If it is considered that the excavations are below the water table.
    - Springs/ Running water: Give notice immediately if encountered.

Topsoil and growing media

15. GRADING SUBSOIL
    - General: Grade to smooth flowing contours to achieve specified finished levels of topsoil.
    - Areas of thicker topsoil: Excavate locally.

16. SUBSOIL SURFACE PREPARATION
    - General: Excavate and/ or place fill to required profiles and levels to even grade.
    - Loosening:
        - Light and noncohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 300 mm.
        - Stiff clay and cohesive subsoils: When ground conditions are reasonably dry, loosen thoroughly to a depth of 450 mm.
        - Rock and chalk subgrades: Lightly scarify to promote free drainage.
    - Stones: Immediately before spreading topsoil, remove stones larger than 50 mm
    - Remove arisings, contaminants and debris and builders rubble

17. INSPECTING FORMATIONS
- Give notice: Before spreading topsoil for lawn areas and planting beds
- Notice period: 5 days

18. SURPLUS TOPSOIL TO BE RETAINED
- Generally: Spread and level on site:
  - Locations: To be agreed on site.

19. IMPORTED TOPSOIL TO BS 3882
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Standard: To BS 3882.
- Grade: Multi-Purpose Topsoil
- Source: to be approved.
- Submit: Declaration of analysis including information detailing each of the relevant parameters given in BS 3882, clause 6 and table 2.
- Additional analyses: N/A.

20. COMPOST FOR PLANTING AREAS ONLY
- Standard: In accordance with PAS 100.
- Supplier: Submit proposals.
  - Product reference: submit proposals.
- Type: Sanitized and stabilized compost.
- Horticultural parameters:
  - pH (1:5 water extract): 7.0-8.7.
  - Electrical conductivity (maximum, 1:5 water extract): 200 mS/m.
  - Moisture content (m/m of fresh weight): 35-55%.
  - Organic matter (minimum): 25%.
  - Grading (air dried samples): 99% passing 25 mm screen, and 90% a 10 mm screen mesh aperture.
  - Carbon: Nitrogen ratio (maximum): 20:1.
- Texture: Friable.
- Objectionable odour: None.
- Composting Association certification: Required.
- Submit: Declaration of analysis.
- Additional analyses: Not required.
- Samples: Supply 5 kg sample before ordering.
- Application rate: 1.2 m^3/100 m^2 or as indicated on the drawings.
- Timing: Apply prior to cultivation.

21. SITE MANUFACTURED PLANTING MEDIA
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- Base material: Submit details.
  - Source: Submit details.
  - Grade: Submit details.
- Organic materials: Submit details.
  - Source: Submit details.
  - Content (by dry weight): Submit details.
- Contamination: Free from materials hazardous to human or animal life and detrimental to healthy plant growth.
- Nutrient content (Minimum index values for nitrogen, phosphorus, potassium and magnesium): As Multi-Purpose Topsoil to BS 3882.
- Crumb structure: Made up of discernible crumbs.
- Mineral particles:
  - Size in any dimension (maximum): Submit details.
  - Large particle content by dry weight (maximum): Submit details.

- Foreign matter: On visual inspection, free of fragments and roots of aggressive weeds, sticks, straw, subsoil, large pieces of brick, concrete, glass, wire, large clumps of clay or vegetation, and the like.
- Submit: sample.

22. CONTAMINATION

- General: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
  - Corrosive, explosive or flammable.
  - Hazardous to human or animal life.
  - Detrimental to healthy plant growth.
- Subsoil: In areas to receive topsoil, do not use subsoil contaminated with the above materials.
- Give notice: If any evidence or symptoms of soil contamination are discovered on the site, or in topsoil to be imported.

TOPSOIL STORAGE HEAPS

- Location: To be agreed on site.
- Height (maximum): 1.5 m.
- Width (maximum): 3.0 m.
- Protection:
  - Do not place any other material on top of storage heaps.
  - Do not allow construction plant to pass over storage heaps.

  Prevent compaction and contamination, by fencing and covering as appropriate.

23. HANDLING TOPSOIL

- Aggressive weeds: Give notice and obtain instructions before moving topsoil.
- Plant: Select and use plant to minimize disturbance, trafficking and compaction.
- Contamination: Do not mix topsoil with:
  - Subsoil, stone, hardcore, rubbish or material from demolition work.
  - Other grades of topsoil.
- Multiple handling: Keep to a minimum. Use or stockpile topsoil immediately after stripping.
- Wet conditions: Handle topsoil in the driest condition possible. Do not handle during or after heavy rainfall or when it is wetter than the plastic limit less 3%, to BS 1377-2.

24. SPREADING TOPSOIL

- Temporary roads/surfacing: Remove before spreading topsoil.
- Layers:
  - Depth (maximum): 150 mm.
  - Gently firm each layer before spreading the next.
- Depths after firming and settlement (minimum):
  - 5cm for meadow grass
  - 15cm for grass verges (unless otherwise indicated on drawings)
  - 30cm for 1m verge along roads, in medians and for 1m along footpaths
  - 30cm for whips/transplants (woodland area)
  - 45cm for feathered tree pits and hedgerow trenches
  - 70-120cm3 for Standard and Semi-mature tree pits (see planting details)
- Crumb structure: Do not compact topsoil. Preserve a friable texture of separate visible crumbs wherever possible.

25. FINISHED LEVELS OF TOPSOIL AFTER SETTLEMENT

- Above adjoining paving or kerbs: 30 mm.
- Below dpc of adjoining buildings: Not less than Not less than 150 mm.
- Shrub areas: Higher than adjoining grass areas by 100 mm.
- Within root spread of existing trees: Unchanged.
- Adjoining soil areas: Marry in.
- Thickness of turf or mulch: Included.

3005 Grass Seeding, Wildflower Seeding and Turfing

1. The optimum grass seeding periods are between 1st March – 31st May or 1st September and 31st October. Meadow grass seeding optimum seeding periods are April and September. Seeding outside these periods needs to be agreed with the Contract Administrator.
2. Final cultivation shall be immediately prior to sowing or hydraulic seeding or laying of turf, the upper 50mm of soil shall be reduced to a fine tilth by use of a chain harrow or other suitable machine.
3. To verge grassed areas fertiliser or other soil ameliorant shall be evenly incorporated into the upper 50mm of soil during final cultivation. Unless otherwise approved, fertiliser to be a pre-seeding application of NPK fertiliser, ratio 2:3:2 (or adjust to season) at 35g/m2 shall be applied 7-10 days before sowing. If a period of 30 days or more elapses before seeding then all areas will require a second application of fertiliser.
4. Grass seed mixture shall be as specified in Drawing 17479-3-100 Landscape Key Plan:

5. Grass seed shall comply with BS. 4428.
6. Grass seed shall be a tested mixture with certificates of germination and purity obtained from an Official Seed Testing Station certificate in accordance with The Department of Agriculture and EC purity and germination regulations, not more than six months prior to sowing. A certificate shall be provided to the contract Administrator before sowing, together with the names of the varieties used in the mixture. The information on seed certificates and seed bag labels shall correspond.
7. The Contractor shall provide written evidence that seeds comply with any provenance requirements for relevant seed mixes described in cl.3005-4.
8. Conventional sowing shall be carried by evenly distributing the seed at the rate specified for each mix.
9. Sowing shall be immediately followed by lightly raking the surface of the soil to cover the seed, by use of a chain harrow or other suitable machine.
10. No hydraulic shall be permitted by agreement, in advance of works, with the Contract Administrator. If used, hydraulic seeding mixture, and any specific process requirements and rate of application shall be adjusted and agreed. The mixture shall be kept constantly stirred during application to maintain a homogenous slurry.
11. Seeding shall be repeated as necessary until an evenly distributed grass sward is established. Seed growth and development shall be healthy, vigorous grass sward, free from the visible effects of pests, weeds and disease. When established the grass sward appearance should be a closely knit, continuous ground cover of even density, height and colour.

    The Contractor shall allow for maintenance of all grass areas until this has been achieved. Establishment shall be regarded as achieved when at least 80% of quadrant sub-divisions are recorded as 'filled' when tested in accordance with Annex A3 of BS 3969.
12. During establishment cuts uneven levels caused by shrinkage or settlement greater than 50mm over a 3m distance shall be made good by top-dressing with 50% sieved topsoil/ 50% fine sand mix.
13. There shall be 2 no. cuts during establishment of grass mown to leave a nominal 50 mm height. The first mowing shall be carried out once the grass has reached a height of 100 mm, the second and any subsequent establishment cuts when it has re-grown to 100 mm. The machinery used for mowing shall comply with any requirements.
14. Machinery shall be appropriate to weather and ground conditions and shall be agreed with the Contract Administrator in advance.
15. Unless permitted otherwise, all areas shall e left clear of grass cuttings following each mowing by raking or suitable method. All grass cuttings shall be removed and disposed of off-site.
16. Give notice if 3 days before, setting out, applying herbicide, applying fertilizer, preparing seed bed, seeding.

3006 Planting

1. All plants to be supplied shall comply with the relevant part of BS 3936 and that outlined on the drawings. Contractor should have the appropriately skills and experiences for the type of work, having appropriate training and be a competent landscape contractor with ALCI accreditation or equivalent.

2. All planting shall be implemented in accordance with the planting details on the drawings provided. Submit programme before execution of works.

   TIMES OF YEAR FOR PLANTING
   - Deciduous trees and shrubs: Late October to late March.
   - Conifers and evergreens: September/ October or April/ May.
   - Herbaceous plants (including marginal): September/ October or March/ April.
   - Container grown plants: At any time if ground and weather conditions are favourable.
     - Watering and weed control: Provide as necessary.
   - Dried bulbs, corms and tubers: September/ October.
   - Colchicum (crocus): July/ August.
   - Green bulbs: After flowering in spring.
   - Wildflower plugs: Late August to mid November or March/ April.
   - Aquatic plants: May/ June or September/ October.

3. Native plant material shall be Irish sourced unless otherwise agreed with the Contract Administrator.

4. Give 5 days notice before, setting out, applying herbicide, applying fertilizer, delivering plants, watering, visiting site during maintenance,

5. Arrangements for the Contract Administrator to select individual trees of standard size and semi-mature, at the nursery will be agreed with the Contractor.

6. Tree pits shall be back filled with site won topsoil. Where there is a shortage of site won material, imported topsoil may be used, subject to the approval of the Contract Administrator and on the strict understanding that the volume of imported material will be kept to an absolute minimum.

7. Compost and slow release fertiliser shall be deposited throughout the planting beds where plant densities are 1 per metre or greater. Whips and feathers shall have spot application of slow release fertiliser in planting pit.

8. Composition requirements for compost shall be approved by the Contract Administrator.

9. Slow release fertiliser shall be used in accordance with the manufacturer's recommendations.

10. Anti-desiccant shall be used for all evergreens. Bare rooted material shall be treated with an approved root dip at the time of planting.

11. All bare rooted and rootballed plants shall be planted between the beginning of November and the end of March.

12. All whips, transplants and shrubs to be pit planted and hedgerows to be excavated in trenches. Excavated topsoil shall be reused within planting pits, beds and trenches. All other arisings shall be removed from site.

13. Cultivation in accordance with drawings shall be carried out for all planting areas and slow release fertiliser applied. Do not use machinery within 100 mm of tree and plant stems

14. Any additional planting requirements for the planting of whips and shrubs into pits or trenches shall be agreed with the Contract Administrator.

15. Soil ameliorants shall be incorporated into backfill for the planting of whips and shrubs into pits or trenches in accordance with drawings. Soil for cultivating and planting: Moist, friable and (excepting aquatic/ marginal planting) not waterlogged.

16. Root barriers shall be required where the clearances required for underground services and drainage conflict with the planting objectives set out in the Employer's requirements. Where necessary the Contractor shall obtain the agreement of the relevant undertaker or authority and the Contract Administrator before installing root barriers to reduce standard clearances.

17. All trees to be watered on the day of planting to field capacity.

18. All woody plants to be protected by tree tubes. Number of stakes and ties to be appropriate to tree/shrub size and agreed with the Contract Administrator.

19. The use of surface mulches shall be at the discretion of the Contractor. The type and composition of mulches shall be agreed with the Contract Administrator.

20. For the duration of the contract period, the Contractor shall replace any plants found to be defective, failing establish, missing or dead at the end of each growing season up to the defects date.

21. Following the joint inspection of areas of planting in September and April, an inspection report shall be prepared by the Contract Administrators landscape Architect identifying planting that requires replacement. A copy of the report shall be sent to the Contract Administrator within two weeks of the joint inspection being carried out.

22. Replacement planting shall be in accordance the original specification unless agreed otherwise by the Contract Administrator.

23. All replacement planting shall be watered on the day of planting until field capacity.

24. Until the defects date in respect of the planting, the Contractor shall carry out maintenance of new planting in accordance with Clauses 3007, 3008 and 3009 as appropriate.

25. Mulch Material: medium grade bark mulch, or as approved. It should be free of pests, disease, fungus and weeds.

26. PLANTS/ TREES – GENERAL
    - Condition: Materially undamaged, sturdy, healthy and vigorous.
    - Appearance: Of good shape and without elongated shoots.
    - Hardiness: Grown in a suitable environment and hardened off.
    - Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
    - Budded or grafted plants: Bottom worked.
    - Root system and condition: Balanced with branch system.
        - Standard: The National Plant Specification.
    - Species: True to name.
    - Origin/ Provenance: Irish seed provenance where feasible.

    Definition: Origin and Provenance have the meaning given in the National Plant Specification.

27. LABELLING AND INFORMATION

    - General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar

with supplier's labelling for delivery to site, showing:
- Full botanical name.
- Total number.
- Number of bundles.
- Part bundles.
- Supplier's name.
- Employer's name and project reference.
- Plant specification, in accordance with scheduled National Plant Specification categories.

28. PLANT/ TREE SUBSTITUTION
- Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering: Submit alternatives, stating:
  - Price.
  - Difference from specified plants/ trees.
- Approval: Obtain before making any substitution.

29. PLANT HANDLING, STORAGE TRANSPORT AND PLANTING
- Standard: To HTA 'Handling and establishing landscape plants'.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Plant packaging: Black polyethylene bags.
- Packaging of bulk quantities: Pallets or bins sealed with polyethylene and shrink wrapped.
- Planting: Upright or well balanced with best side to front.

30. TREATMENT OF TREE WOUNDS
- Cutting: Keep wounds as small as possible.
  - Cut cleanly back to sound wood using sharp, clean tools.
  - Leave branch collars. Do not cut flush with stem or trunk.
  - Set cuts so that water will not collect on cut area.
- Fungicide/ Sealant: Do not apply unless instructed.

31. PROTECTION OF EXISTING GRASS
- General: Protect areas affected by planting operations using boards/ tarpaulins.
  - Excavated or imported material: Do not place directly on grass.
  Duration: Minimum period.

32. SURPLUS MATERIAL
- Subsoil, stones, debris, wrapping material, canes, ties, temporary labeling, rubbish, prunings and other arisings: Remove.

33. SOIL AMELIORANT/ CONDITIONER/ COMPOSTS
- Locations: to areas and at quantities indicated on the attached.
- Type: as indicated on the drawings.
- Manufacturer/ Supplier: submit details.
  - Product reference: submit details.
- Application: Spread evenly.
  - Timing: Apply prior to cultivation.
  - Rate: as indicated on the drawings and by the manufacturer.

34. CULTIVATION
- Compacted topsoil: Break up to full depth.
- Cultivation: Loosen, aerate and break up soil into particles of 2-8 mm.
  - Depth: indicated on the drawings.
  - Timing: Within a few days before planting.
  - Weather and ground conditions: Suitably dry.

- Surface: Leave regular and even.
- Levels: 25 mm above adjoining paving or kerbs
- Undesirable material brought to the surface: Remove visible weeds, roots and large stones with any dimension exceeding 30mm.
- Soil within root spread of trees and shrubs to be retained: Do not dig or cultivate.

35. SHRUB PLANTING PITS
    - Timing: Excavate 1-2 days (maximum) before planting.
    - Sizes: 75mm larger than rootball or container.
    - Pit bottom improvement: break up to depth of 150mm.
    - Backfilling material: to be excavated soil mixed with ameliorants as indicated on drawings.

36. TREE PIT ROOT BARRIERS
    - Locations: for trees along median.
    - Manufacturer: refer to drawings.
        - Product reference: refer to drawings.
    - Depth of top of root barrier below finished soil level: 50mm
    - Installation: With sides vertical.

37. STAKING GENERALLY
    - Stakes: Softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots and with pointed lower end.
        - Preservative treatment: none.
    - Nails: To BS 1202-1, galvanized, minimum 25 mm long and with 10 mm diameter heads.
    - Stake size (minimum): see drawings.

38. WOODLAND WORK GENERALLY
    - Services: Check for below and above ground services, including land drainage, in the vicinity. Give notice if they may be affected and obtain instructions before proceeding.
    - Safety: Comply with Arboriculture and Forestry Advisory Group Safety leaflets.

39. NOTCH PLANTING IN UNCULTIVATED GROUND
    - Notching: Make a vertical 'I', 'L', 'T' or 'H' notch.
        - Depth: To accommodate full depth of roots.
    - Planting: Plant tree, close notch with root collar at ground level and firm the soil.

3007 Grass and Meadow Grass Maintenance

1. Table 1. below gives details of grass and **meadow grass** areas to be maintained together with the frequency required;

   Table 1

Location	Operations to be Carried Out
Embankment Meadow Grass and all other areas not listed below	1 cut per year after flowering
Verges	Maintain to 15cm max height. Average 9 cuts per year

2. MAINTENANCE OF GRASSED AREAS
   - General: Maintain turf in a manner appropriate to the intended use.
   - Soil and grass:
     - Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
     - Water logging and compaction: Prevent.
     - Damage: Repair trampling, abrasion or scalping.
   - Ornamental lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills.
     - Edges: Neat and well defined, in clean straight lines or smooth flowing curves.
   - Litter and fallen leaves: Remove regularly to maintain a neat appearance.
3. Where there is bulb planting do not cut grass until bulb vegetation has died back.
4. FAILURES OF SEEDING/TURFING
   - Defective materials or workmanship: Areas that have failed to thrive.
     - Exclusions: Theft or malicious damage.
   - Method of making good: Recultivation and r eseeding/ returfing.
   - Timing of making good: November to March.
5. GRASS CUTTING GENERALLY
   - Before mowing: Remove litter, rubbish and debris.
   - Finish: Neat and even, without surface rutting, compaction or damage to grass.
   - Edges: Leave neat and well defined. Neatly trim around obstructions.
   - Adjoining hard areas: Sweep clear and remove arisings.
   - Drought or wet conditions: Obtain instructions.
6. No cutting shall be carried out within 250mm of unprotected trees and shrubs.
7. All arisings shall be removed and disposed of off Site. 4 All molehills shall be removed in verge grass areas only before cutting.

3008 Watering

1. The Contractor shall water all planting undertaken under the contract until the defects completion date in respect of the planting at the frequency necessary to ensure establishment and survival.
2. Additional watering shall be carried out for all planted areas during periods of abnormally dry weather until the defects completion date in respect of the planting.
3. The minimum quantity of water to be used for additional watering shall be to field capacity where a specific minimum quantity is not stated.
4. When watering wet full depth of topsoil ensuring to use tree irritation pipes where required or mounding up soil around base of trees to stop runoff of water. Ensure that the soil, mulch or shrubs are not disturbed and that new grass seed is not displaced.
5. Typical watering requirements for trees and shrubs is as follows:

    - 20-25cm gth trees 60L
    - 18-20cm gth trees 30L
    - 14-16cm gth trees 20L
    - 12-14cm gth trees 18L
    - Rootballed conifers 15L
    - Feathered trees 5L
    - Whips 2.5L
    - Containerised plants 1L for every litre of pot size, i.e. 3L pot needs 3L water.

6. WATER RESTRICTIONS

    If water supply is or is likely to be restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

3009 Establishment Maintenance for Planting

1. Plants and planting areas shall be maintained in accordance with Clause 3007, 3008 and 3009 and the NRA guidelines for landscape works from the completion date for the whole of the works until the defects date in respect of the planting.
2. Give 5 days notice before applying herbicide or fertilizer, water, and for each maintenance visit.
3. Stakes, tubes, guards and ties shall be inspected on a yearly basis and removed from plants where they are no longer required. Where agreed with the Contract Administrator they shall be returned to the Employer for re-use.
4. Weed control shall be applied in accordance with Cl 3002 to 250mm strip to base of hedge, and 500mm circles around trees. Weed control operations shall be of sufficient frequency to keep plant circles weed free.
5. Where directed by the Contract Administrator, the depth of mulch in individual plant circles and overall plant areas shall be inspected once per year in March and if less than an even depth of 75 mm, new mulch to Cl.3006 shall be laid to restore the depth to 75 mm.
6. Mulch mats shall not be used.
7. All planting areas shall be visited monthly and as required in the table below to carry out specified maintenance and weed control operations.
8. All shrub beds shall be cultivated in accordance with Cl 3009.19.
9. All hedge planting shall be subject to weed control in accordance with Cl 3002.

10. FAILURES OF PLANTING

- Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
  - Exclusions: Theft or malicious damage after completion.
  - Rectification: Replace with equivalent plants/ trees/ shrubs.
- Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- Timing of making good: November to March.

11. PLANTING MAINTENANCE GENERALLY

- Keep planting beds clear of weeds.
- Planted areas: Fork over beds as necessary to keep soil loose, with gentle cambers and no hollows. Take care not to reduce depth or effect of mulch.
- Firming up: Gently firm loosened soil around whips/ shrubs. Straighten leaning whips/ shrubs.
- Precautions: Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools.
- Firming up: Gently firm loosened soil around trees/ shrubs. Straighten leaning trees/ shrubs.
- Trees: Spray crown when in leaf during warm weather.
  - Timing: After dusk.

12. TREE STAKES AND TIES

- Inspection/ Maintenance times: As scheduled and immediately after strong winds.
- Stakes:
  - Replace loose, broken or decayed stakes to original specification.
  - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
- Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.

- Where chafing has occurred, reposition or replace ties to prevent further chafing.

• Removal of stakes and ties: When instructed.
  - Fill stake holes with lightly compacted soil.

13. REFIRMING OF TREES AND SHRUBS

• Timing: After strong winds, frost heave and other disturbances.
• Refirming: Tread around the base until firmly bedded.
• Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

14. PRUNING GENERALLY

• Pruning: In accordance with good horticultural and arboricultural practice.
  - Removing branches: Do not damage or tear the stem or bark.
  - Wounds: Keep as small as possible and cut cleanly back to sound wood.
  - Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
  - Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
• Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
• Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
• Disease or infection: Give notice if detected.
• Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

15. TRIMMING ESTABLISHING HEDGES

• Timing: Cut back in June and September by 10cm or 33% of season's growth to encourage bushy growth.
• Form: Allow to reach desired height and width only by gradual degrees, depending on growth rate and habit.

16. REMOVAL OF DEAD PLANT MATERIAL

• Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

17. DEAD AND DISEASED PLANTS

• Removal: from site.
• Replacement: between November and March.

18. WEED CONTROL GENERALLY

• Weed tolerance: 10%.
• Adjacent plants, trees and grass: Do not damage.

19. HAND WEEDING

• General: Remove weeds entirely, including roots.
• Disturbance: Remove the minimum quantity of soil and mulched ensuring not to damage trees and shrubs
• Completion: Rake area to a neat, clean condition.
• Mulch: Reinstate to original depth.

20. PLANTING MAINTENANCE – FERTILIZER

• Time of year: March or April
• Fertilizer: 10:10:10 NPK slow release
  - Manufacturer: N/A
  - Product reference: as above
• Application: Evenly spread 100g/m2 or as per manufacturers recommendations carefully

incorporating below mulch materials.

- Application rate: see drawings

21. WOODLAND PLANTING MAINTENANCE

- Loose plants: Refirm surrounding soil, without compacting.
- Vegetation except trees and coppice shoots to be retained: Cut within the plantation area.
  - Height (maximum): to be agreed with roads authority.
  - Arisings: Leave between rows.
- Mechanical, chemical or mulching methods of vegetation control: Submit proposals.

22. Mechanical equipment sparingly and should be use appropriately for the required task.

23. PROTECTION OF EXISTING GRASS

- General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

24. WEED CONTROL TO KILL REGROWTH

- Weed control measures shall be used only as necessary to maintain the landscape and in accordance with the Specification for Highway Works.

25. FERTILIZING ESTABLISHED TREES AND SHRUBS

- Fertilizers shall be used in the minimum quantities required to maintain the landscape and in accordance with the Specification for Highway Works.
- Time of year: April - May.
- Type of fertilizer: see drawing.
- Application: Spread evenly.
  - Rate: see drawing.

Table 3009-1- Maintenance Programme
This programme is a guideline only and times of operations may vary on approval by landscape architect.

Year 1

ONGOING REQUIREMENTS:	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**
Fine-cut grass cutting (Min 24 cuts)		*	**	**	**	**	**	**	**	**		
Rough-cut grass cutting (Min 4 cuts)				*		*		*		*		
Edging to grass areas				*			*			*		
Trimming to grass areas		*	*	*	**	**	**	*	*	*		
Fertiliser application to fine-cut grass areas.				*								
Hedge pruning											*	*
Weed control to 1m wide strip along hedgeline.		*	*	*	*	*	*	*	*	*	*	
Mulch top-up to hedge areas where applicable				*								
Fertiliser application to hedging				*								
Tree pruning											*	*
Removal of tree stakes on standard trees.				*								
Mulch top-up to tree circles where applicable		*				*				*		
Weed control to 500mm radius around tree stems		*	*	*	*	*	*	*	*	*	*	
Watering of new tree planting as deemed necessary				*	*	*	*	*				
Fertiliser application to tree circles				*								
Woodland thinning											*	*
Weed control to 500mm radius around stems of whips and feathered trees in woodland mitigation, woodland edge and hedgerow screening areas.			*	*	*	*	*	*	*	*	*	
Fertiliser application to woodland, woodland edge and hedgerow screening areas				*								

Sweeping of footpaths, roadways etc as necessary	*	*	*	*	*	*	*	*	*	*	*	*
Weed control measures to footpaths, cycle paths.				*								
Litter Clearance/pick up	***	***	***	***	***	***	***	***	***	***	***	***

Note: Planting areas outside weed free circle 500mm radius from the base of each plant shall be controlled by mechanical means. All noxious weeds including their root systems shall be eradicated in a method approved by the Designer. Vegetation in these areas shall be cut down in June and September.

Advice in relation to herbicide and pesticide use and application should be sought from registered Pesticide Advisor.

Appendix A

SHEET 1: Information to be provided by the Contractor

LANDSCAPE WORKS – PESTICIDES RECORD

Contract Reference number: **Date of Visit:** ../../.. (minimum one record / day)

Contract Name:

Name of Contractor: **Contractors Telephone no:**

Operations carried out	**Pesticide used**	**Locations of Operations**
Total weed control		
Selective herbicide to areas of grass		
Herbicide to cultivated plant beds		
Total herbicide around individual plants		
Other (state purpose)		

Names of operatives on site: **Qualifications of operatives named:**

Supervisor…… **……**

Storeman…….. **……**

Application by…… **……**

Signed (for Contractor)……

Contractor's observations on damage by others or incidents

……

……

SHEET 2: Information to be provided by the Contractor

LANDSCAPE WORKS – INSPECTION REPORT
Contract Reference Number:

Contract Name: **Name of Contractor:**

Date of Visit: ../../.. **Contractors Telephone no:**

Operations carried out	Locations of Operations

Names of operatives on site:

…… **……**

…… **……**

…… **……**

… Contractor's observations on damage by others, additional work required or general condition of the works:

……

……

Observations of Overseeing Organisation on standard of workmanship, additional work required or general condition of the works:

……

……

…The maintenance visit has been satisfactory completed.

SIGNED (for Contractor) ……

NAME:…… DATE:../../..

SIGNED (for Employer) ……

NAME:…… DATE:../../..

Appendix B - Fertilizers, Herbicides and Mulches

Note: fertilizers and herbicides shall be used in the minimum quantities required to maintain the landscape.

Weeds can cover only 10% of the ground from May to August.

Minimum nutrient content of rooting medium in Kg/m³

	N	$P_2 0_5$	K_2O	Mg
Tree planting and mulching compost	0.2	0.2	0.6	0.6
Mushroom compost	0.7	0.6	0.8	N/A

Dry matter and minimum total nutrient content of poultry manure by percentage

	Ash free dry material	N	$P_2 0_5$	K_2O
Manure	21.0	2.4	2.2	1.4

Appendix 13: Method Statements

C6053	bam	
Date **21/05/2024**	**Glenamuck DRS**	**MS 006** **Rev. No. : 00**

Method Statement for Earthworks

Rev	Date	Issue/Revision Record	By	Approved by
0	28/05/2024	First issue	MD	FP

COMPILED BY	APPROVED BY
Signed Mick Duffy **Date 21/05/2024**	**Signed Fiachra Page** **Date 28/05/24**
Project Manager	**Contracts Manager**

1. Scope of Works

	This method statement outlines the methodology and procedures to be followed whilst carrying out the earthworks on the Glenamuck DRS.

2. Responsibility & Supervision

The individuals responsible for the works concerned under this method statement will be Pat O' Sullivan (General Foreman) and Mick Duffy Project (Manager).

3. Training Details

- BAM Site Induction
- Safe Pass
- LUGS
- Mobile Plant
- Manual Handling
- Relevant plant CSCS tickets
- Relevant driving licence for tractor and trailer

4. Key Plant , Tools and Equipment

- 360 Excavator with height restrictor
- Articulated Dumptrucks
- Site dumper
- Dozer
- Grader
- Roller
- Tractor & low loader
- CAT Scanner

5. Risk Assessments

Refer to the Health & Safety Plan for the relevant Risk Assessments

Refer to the Appendix A

6. Operational Method Statement

Pre- Works

- All operatives to receive site induction prior to commencing on the site. They will also be briefed on this Method Statement / Risk Assessment and will be required to sign the briefing sheet to acknowledge they have understood its contents.
- Operatives will sign onto a safe work plan for earthworks prior to starting the works.
- Site clearance works will be carried out under a separate Site Clearance method statement/risk assessment.
- Environmental and Ecological requirements will be implemented in accordance with the Construction Environmental Management Plan.
- ESB, overheads will be protected in accordance with RAMS-004 - Working underneath Overhead Power Lines.
- All works in the vicinity of Overhead Power Lines shall be carried out as per RAMS 004 above.
- A permit to dig will be raised for each section, and plant operators will sign up to this to acknowledge existing services etc that require consideration when carrying out works.
- All plant GA1s are to be provided prior to coming to site.
- Silt mitigation control measures shall be put in place along the boundary of the watercourses and at the crossing points prior to commencement of any excavation.
- Care shall be taken to avoid crossing or contamination of Inland Fisheries Streams outside the permitted window of May to September. BAM have consulted with IFI and have agreed the installation of temporary pipes to be put in steams for access through the site. These piped access shall be installed ahead of the earthworks operation.
- Fuelling of plant shall be carried out away from watercourses or drains. Spill trays and kits shall be available at all times.
- Machinery used on Site shall be regularly inspected to ensure there is no leakage from them and to ensure the machinery shall not cause contamination of watercourses.
- The permanent drainage shall be installed as soon as practical to provide sufficient outfalls.

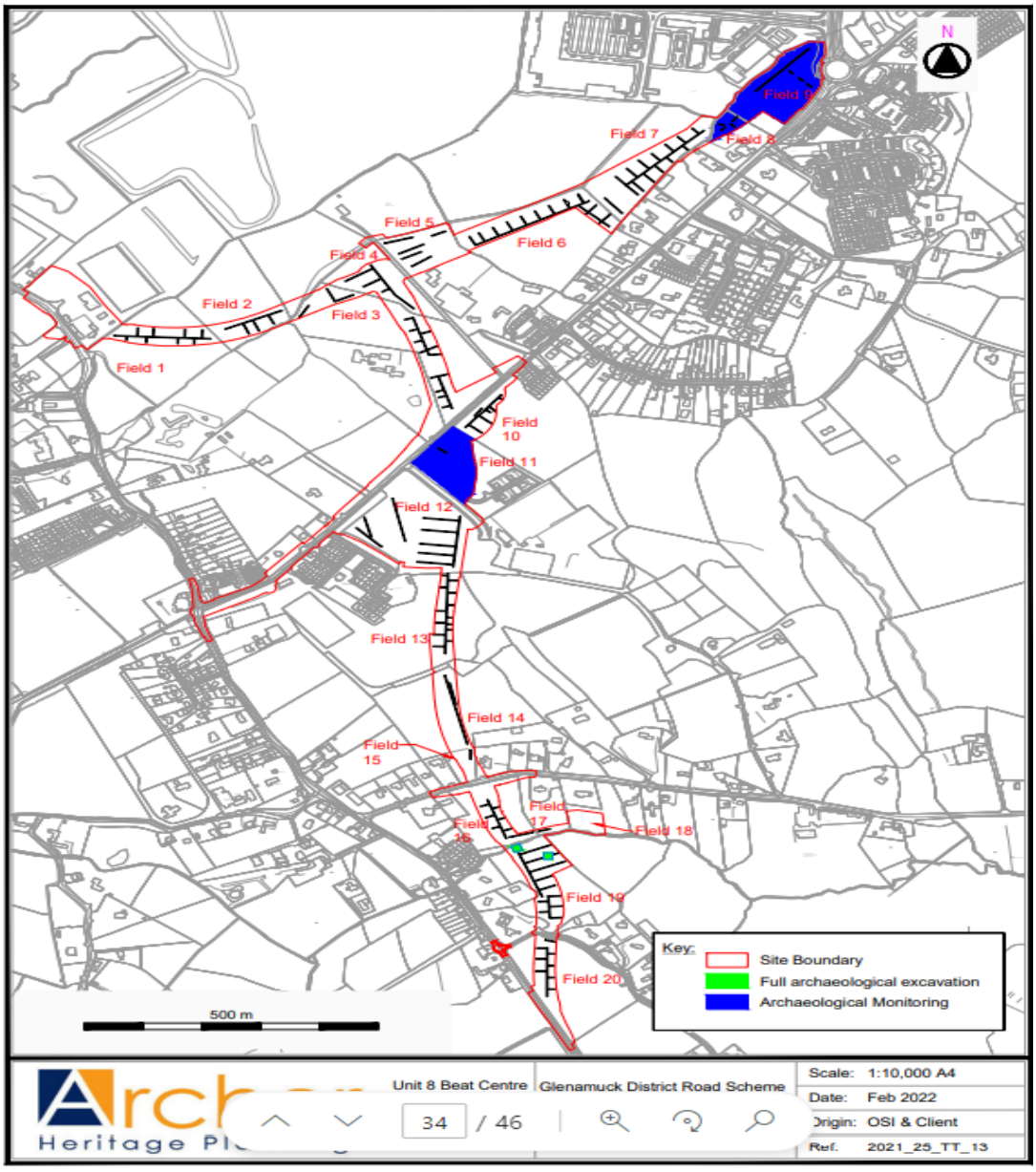
Trial Pits

- The authorised BAM Engineer will CAT scan the area and mark all services in the vicinity of the planned works and permit to dig issued.
- Trial holes will be carried out to assess the cut material. A 13-20t excavator will be used to dig holes along the earthworks cut footprint. The material will be sent to an off site lab for testing for material acceptability .
- On completion of the trial hole the hole will be backfilled and the area recorded using GPS.

Archaeological Monitoring

- BAM shall give the Employer's Archaeological Consultant advance notice prior to excavations within the areas specified below, and make arrangements with the Employer's Archaeological Consultant to attend site to undertake

archaeological monitoring.



Topsoil Strip

- Stripping, stockpiling, moving and spreading of topsoil shall only be undertaken when soil conditions are suitable.
- Any topsoil that is to be stripped will be stripped by dozer/excavators into stockpiles and loaded by excavators and hauled by dump trucks to temporary storage areas (either within the site or offsite temporary storage areas adjacent to the Scheme).
- Any offsite storage areas will be communicated to the Employers Representative in advance to ensure they are aware of same.
- Topsoil shall be stockpiled in mounds offsite and shall remained undisturbed until required for reuse.
- Topsoil shall not be stored adjacent to any rivers/major streams.
- Stockpiles shall be such that they shall shed water and shall not puddle. The

topsoil shall be tracked in and sealed with a tracked dozer to prevent any possible soil erosion, minimise sediment discharge and prevent and attenuation of water.
- All stripped topsoil shall be safely stored to avoid contamination in order to use on final batters and verges.
- After bulk earthworks are complete all topsoil shall be reloaded and placed on all landscape areas including batters and verges prior to seeding of these areas.
- All topsoil storage areas (either on or off site) shall be returned to their original state.

Bulk Earthworks General

- Setting out will be in the form of either, batter rails and profiles or GPS fitted to excavators.
- The authorised BAM Engineer will CAT scan the area and mark all services in the vicinity of the planned works.
- Trial holes to be dug by BAM to expose and locate all services within the vicinity of the works .
- All persons to be briefed on Plant safety zones. A separate RAMS 004 has been generated regarding working beneath overhead powerlines.
- Prior to commencing with the placement of fill material from a cut area samples will be taken and tests carried out as per Earthworks Specification series 600 1/5.1 to classify the acceptability of the material. Testing of material shall be carried out in the off site lab in accordance with Appendix 1/5 and 6/1 of the Works Requirements.
- A notification of inspection prior to fill will be issued and carried out with the ER/RE staff.

Class U2

- In the event that BAM encounter an area where the presence of Unacceptable Material Class U2 is suspected, BAM shall cease any excavation work in that area immediately and notify the Employer's Representative/RE staff.
- BAM will make arrangements to have the approved Sub-Contractor, specialising in the investigation of such material, to carry out sampling and testing of the suspected hazardous material.
- Where this material is identified as Class U2, BAM shall liaise with the Employer's Representative/RE staff and make arrangements for this material to be excavate, temporarily stockpiled on site and removed off site by a specialist waste-disposal sub-Contractor approved by the Employer's Representative. It will be disposed of to a properly licensed landfill site subject to the approval of the Environmental Protection Agency. No material shall leave the site without the approval of the Employer's Representative/RE staff. We shall keep records of the materials removed and shall obtain the Employer's Representatives/RE staff agreement of the records.

Cut to Fill

The site is primarily a cut area, material will be excavated and removed to the localised fill areas if required, these works will be carried out as follows:

- Pre-entry survey to be taken to quantify total volume of material to removed by the earthworks subcontractor.
- The area of cut shall be excavated to subformation and trimmed to level for inspection.
- CBR plate loading tests at 50 metre intervals longitudinally & 3 metres transversally at sub formation level shall be undertaken and reported to the ER/RE team.
- Sub formation shall not be left exposed and covered with Cl 6F1/6F2 as soon as possible after the inspection and testing.
- Any Geotextiles/Geogrids required beneath capping shall be rolled out and placed prior to laying capping.
- The first 50m3 shall form a demonstration area whereby BAM can demonstrate the methods, equipment and materials we proposes to use, and shall remain as part of the Permanent Works if it complies fully with all the requirements of the Works Requirements.
- Where rock is encountered during excavation for the capping layer, the Employer's Representative/RE staff shall inspect the extents of the rock surface and direct excavation to continue to sub-formation level at either a depth determined by the Employer's Representative/RE staff, or to the original proposed level of the subformation. Whereupon the surface of the sub-formation shall be excavated to a minimum depth of 75mm such that the surface level of any part of the excavation is below +20mm of the determined sub formation level design. The exposed excavation shall then be regulated by depositing capping layer material so that the surface level tolerance of the completed formation is within +20mm and -30mm relative to the design level.
- After capping has been placed and prior to placing subbase the formation areas shall be tested and passed off by carrying out CBR plate loading tests at 50 metre intervals longitudinally & 3 metres transversally.
- Where soft spots are required to be excavated, they shall be backfilled with Class 6F2 material to clause 613 to the underside of subbase level and achieve a minimum CBR of 15%.
- BAM shall ensure that all excavations and arisings are managed in accordance with the site Waste Management Plan. BAM shall separate different soil types and manage earthworks so that the most suitable excavated material is reused as earthworks fill with the least suitable material disposed off site or used within landscape deposition areas as appropriate.

Compaction

- Material to be placed in layers and receive the passes with the roller (as per table 6:4 of CC-SPW-00600).
- The rollers that are being used on site will all be within the over 5000kg category and are classed as being a vibratory roller which will require the following for the main classes of material:
    - 1A & 2C material- method 2- 275mm layers, with 4nr passes
    - 1C & 6B material- method 5- 800mm layers, with 5nr passes
    - 6A material- no compaction requirements
    - 6C material- method 3- 300mm layers, with 4nr passes
- In fill areas the footprint is to be overfilled, the batters pulled up using an excavator afterwards to be sure all material is compacted correctly.
- Materials testing will be on-going during the works as per Earthworks Specification Series 600 table 1/5.1

7. Permit To Work

Please tick if required: ✓ / X	Excavation	Hot Work	Confined Space	Roof Work	Ladder	ESB	Areas of Ecological Importance	Live Carraigeways	
	✓	X	X	X	X	X	✓	X	

8. Temporary Works

	N/A

9. Access and Egress

	Access to site shall be from the compound at Golf roundabout, Glenamuck Road, Ballychorus Road, De La Salle Rugby Club car park and Barnaslingan lane.

10. Working at Height (Fall Protection Measures)

	N/A

11. Hazardous Materials

Hazardous Substances: (Attach SDS if required)	 **Acute Toxic**	 **Health Hazard**	 **Corrosive**	 **Explosive**	 **Oxidising**	 **Highly Flammable**	 **Dangerous to the environment**
Please Tick: ✓/X	**X**	**X**	**X**	**X**	**X**	**X**	**X**

12. Personnel Protective Equipment

Please tick PPE if required: ✓ / X	 **Safety Boots**	 **Hard Hats**	 **Safety Gloves**	 **Hearing Protection**	 **Eye Protection**	 **Respiratory Protection**	 **Hi-Vis Clothing**
	✓	✓	**As required**	**As required**	**As required**	**As required**	✓
Other :	**A life buoy will be present during all works adjacent to deep watercourses. For streams deeper than 500mm operatives to wear life jackets/buoyancy aides**						

13. Emergency Procedures

	See Appendix C **Emergency Team Numbers**

14. Monitoring / Inspection Requirements	
	N/A
15. Traffic Management Requirements	
	TM will be erected at the site access points.
16. Environmental Controls	
	<u>Pollution / Environmental Control Measures during Construction Works</u> **<u>Siltation Control</u>** The watercourse will be protected from site run off by means of constructing silt traps, settlement ponds and bunds where required. The Glenamuck DRS team shall ensure that no pollution occurs as a result of the works and shall install and maintain the silt traps/settlement ponds/bunds as required. This shall be in accordance to the Construction Environmental Management Plan. **<u>Waste</u>** Materials will be reused on site where possible. Waste that can be recycled or disposed of off-site will only be collected by a contractor that has an appropriate Waste Collection Permit. The waste contractor will provide, collect and replace skip bins on the site. The Waste Collection Contractor must provide copies of their Collection Permits and the Waste Permits or Licenses for the sites where the waste will be deposited. All permits / licenses will be attached to the WMP. Skip bins will be clearly labelled to show the type of waste that can be placed in them. This shall be in accordance to the Construction Environmental Management Plan. **<u>Hazardous Substances (storage, removal and end disposal sites where known)</u>** The site SHE officer will be notified of any hazardous waste or suspected hazardous waste coming onto site. Hazardous waste will not be mixed with other categories of hazardous or with non-hazardous waste. All containers that are used are clearly and correctly labelled and stored properly and securely. Liquid wastes containers will be stored in a bunded area. Hazardous waste will be removed off-site by an appropriately licensed waste contractor. Adequately contained storage space will be available prior to delivery of chemicals. Individual containers will be clearly labelled and the SDS will be available in the canteen. Damaged or unsuitable containers will be immediately repaired or removed from site, with their contents transferred to another suitable container. Do not locate storage areas within 10m of a watercourse All drums and containers of hazardous substances will be kept in a lockable chemical store. The designated storage area will be bunded. Emergency spill kits are available on site at all times, with adequate stock of absorbent materials and any PPE required and employees are informed of their correct use and disposal. In the event of an incident the spill procedure will come into effect. This shall be in accordance with the This shall be in accordance to the Construction Environmental Management Plan.

Dust

The generation of dust particles shall be minimised on site through the implementation of the following measures:

- Minimising the area of disturbed ground and the time for which ground is disturbed.
- Damping down haul roads with water bowsers as required during windy and/or dry conditions;
- Limiting plant and vehicle movement to designated haul roads;

Employing road sweepers to remove dust from public roads where required.
This shall be in accordance to the Construction Environmental Management Plan.

Noise and Vibrations

The working hours and the duration of work will be planned with consideration for the effects of noise/vibration on any noise sensitive receiver. Road surfaces will be maintained to reduce vehicle noise. The least noisy plant suitable for the activity will be used. Simultaneous use of noisy equipment will be avoided where reasonably practicable. Plant and equipment that is used intermittently will be shut down or throttled down to a minimum between work periods. Plant known to emit noise in one direction will be located so that the noise is directed away from the work area. Plant and equipment will be maintained as per the manufacturers' instructions. This shall be in accordance to the Construction Environmental Management Plan.

Refuelling & Fuel storage

Tanks will be positioned so there is easy access for plant and equipment to refuel. Regular inspections of tanks and bunds are carried out. All refuelling of plant must take place in the designated refuelling area. A drip tray is sufficient when refuelling small plant. Emergency spill kits are available on site at all times, with adequate stock of absorbent materials. Employees are trained in their correct use. An emergency plan is in place to deal with any spill. Refuelling must not take place in significant risk locations – i.e. within 10m of a watercourse. This shall be in accordance to the Construction Environmental Management Plan.

Drip Trays/Spill Kits and Other Precautionary Measures

Drip trays will be used under small static plant to control minor leaks otherwise bunds must be used. Oils, fuels and harmful substances are stored in appropriate containers in suitably bunded areas. Spill kits are placed as close as possible to where they may be required, in a clearly marked container. They are available at fuel storage or refuelling areas. The mobile bowser contains a spill kit and the appropriate PPE.
It is important to know the location of spill kits. This shall be in accordance to the Construction Environmental Management Plan.

17. Other Information & Comments:

Briefing Arrangements

Briefing Responsibility
The site agent/engineer and foreman will be responsible for ensuring the contents of this method statement is understood by all operatives involved in this task.

	How is understanding confirmed All operatives, after the briefing will sign the Method Statement Briefing sheet attached to the back of this method statement The briefing sheet will be filled on the project common data environment system (ACC). <u>Programme</u> Works are scheduled to commence in June 2024 and continue through the project duration.

All work will be undertaken by qualified competent persons with experience of the type of work described above, and in all cases in full accordance with safety procedures specified in the company's Health and Safety Statement and the Project Health & Safety Plan.

Items Attached:	Yes	No
Specific Risk Assessments	✓	
Sketches / drawings / Photos etc.	✓	
All relevant Safety Data Sheets		✓
Briefing Sheet	✓	

Appendix A

Risk Assessments

Appendix B

Environmental Risk Assessments

Appendix C

Emergency Procedures

(Link to Emergency Procedures in H+S Plan to be inserted here)

Appendix D

Inspection and test plan
(See attachments)

(Task)					
Operation	**frequency**	**Contractual Document**	**Responsibility Bam**	**Responsibility DLRC**	**Veyifying Document**
Material Approval	Prior to Commencement	MAR Form	Hold Point	Monitor	Cert
Setting out - Batter rails/profiles	Post Topsoil strip	Survey Record Book	Hold Point	Monitor	Survey Check Sheet
Subgrade level - prior to filling	ongoing	Construction Drawings	Hold Point	Monitor	HWP
Testing of materials	As required/App 1/5	Laboratory Cert	Hold Point	Monitor	Test certificate
Inspection prior to filling abandoned watercourses	As required	Construction Drawings	Hold Point	Monitor	HWP
Inspection of cut slopes prior to top soiling	Prior to top soiling	Construction Drawings	Hold Point	Monitor	HWP
Inspection of sub formation prior to capping and laying geotextile/geogrid	As required	Construction Drawings	Hold Point	Monitor	HWP
Inspection of formation prior to laying subbase	As required	Construction Drawings	Hold Point	Monitor	HWP

Appendix E

Briefing Sheet

METHOD STATEMENT BRIEFING SHEET

Method Statement Title: Earthworks

Method Statement No.: MS-006 earthworks

We (the undersigned) have read and understood the attached method statement and will comply with the specified requirements and control measures. If the work activity changes or deviates from that originally envisaged, we will seek further advice and request an amended method statement.

Name (Print)	Signature	Company	Date

Briefed By: _____ Date: _____

Appendix F

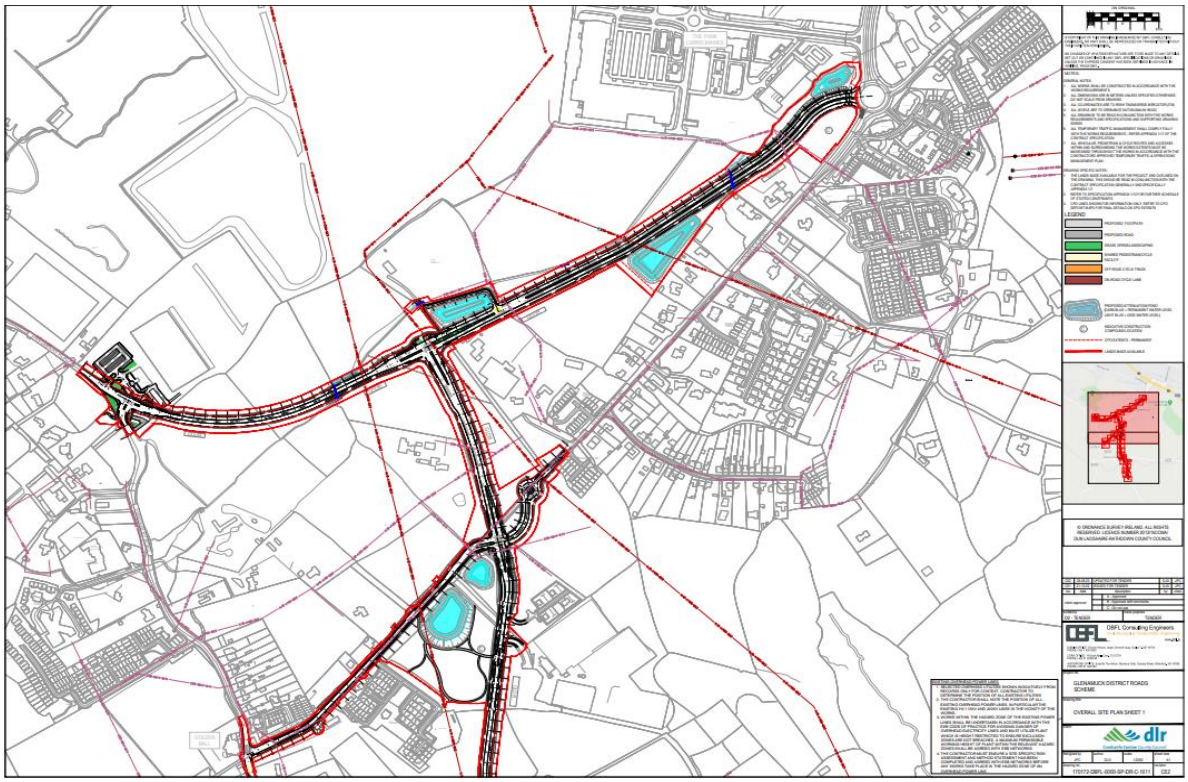
Method Statement Amendment Form

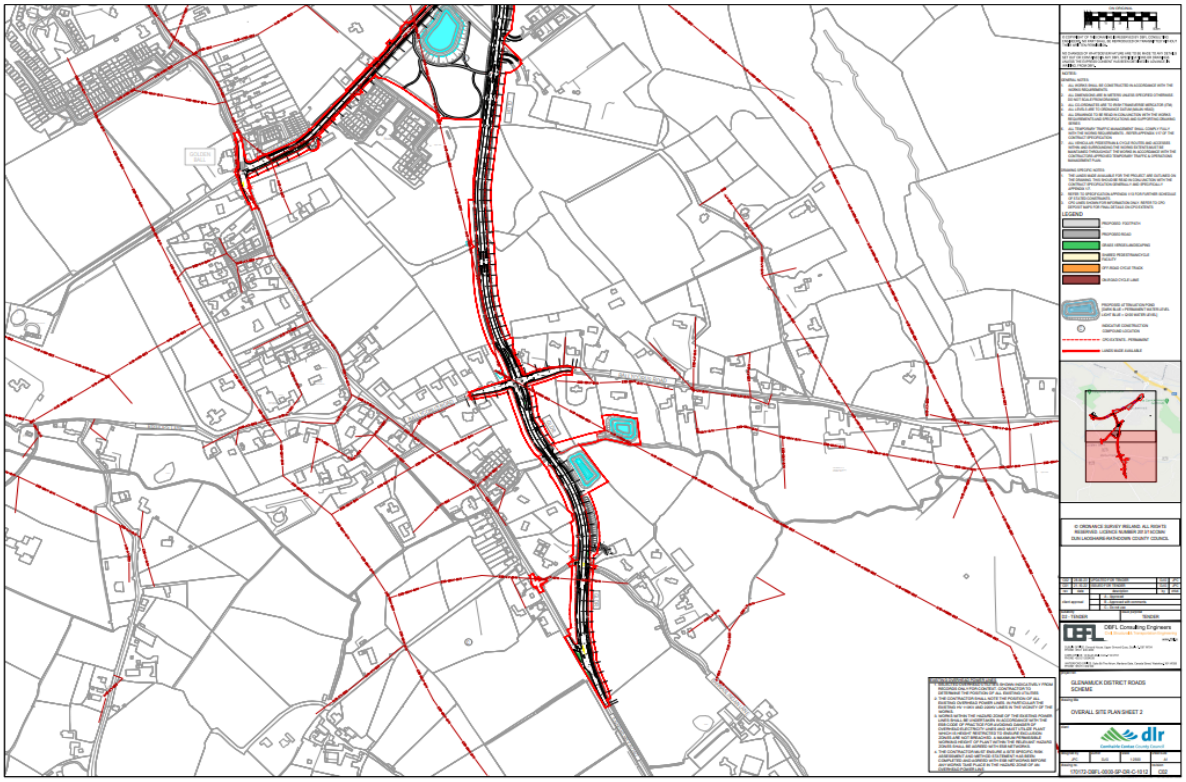
On Site Amendments to Prescribed Method Statement					
M.S. No.:		**Date:**			
Section of M.S. to be amended:					
Details of change in methodology:					
Reason for change:					
Briefed By:		**Date:**		**Time:**	
We (the undersigned) have read and understood the attached method statement amendment and will comply with the specified requirements and control measures. If the work activity changes or deviates again, we will seek further advice and request an amended method statement.					

Name (Print)	Signature	Company	Date

Appendix G

Drawings





Date of Risk Assessment/Review			27/05/2024											
Risk Assessment/Review Revision			2											
Conducted by			M.Duffy											
					Initial Risk no controls						Residual Risk controls in place			
No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	Control Measures	Consequence	Likelihood	Score	Responsible Person
####	Traffic	Road Washing	Working on Wet Roads Freezing temp and ice Slippery surfaces Pedestrians Water flowing Drowning Re-filling Flooding small areas	Public road interfaces	Major	Likely	21	Eliminate	In freezing temperatures avoid using water and power hoses to clean roads Brush and water to be used to remove stubborn muck. Flagman to be in place at all times during the operation Washing of roadways to be carried out with extreme care to ensure that large amounts of water and or materials do not flow onto or impede live trafficked areas Care is to be taken while washing roads near pedestrians to avoid wetting them or putting them at risk of flying particles etc. When filling Bowser or road sweeper tanks from water tanks care is to be taken. When filling from hydrants ensure that valves are not opened to extreme and are shut off once re-filling operation is complete. Road sweepers are left hand drives therefore their visibility is restricted. Only use hydrants or other water sources as instructed by supervisor.	Major	Rare	10	Project Manager Foremen
####	All	Safe use of Concrete Trucks	Unit sited on uneven ground causing instability Persons in the vicinity Contact with over head high tension cables causing electrocution Possibility of being hit by road traffic Untrained operators / unauthorised use. Reversing without assistance. Limited visibility Pinch points – Concrete chutes	All Locations	Significant	Possible	#N/A	Isolate	All drivers to receive a site safety induction on site Obey the haul rd rules Max speed on site is 30km/hr and must be obeyed at all times Segregation of plant & pedestrians is in operation on site where possible, drive only on the designated roads provided Safe access and egress from the truck at all times, 3 points of contact , face the cab at all times Only drive trucks on haul roads designed for the loads carried Only the concrete driver is permitted to open and close the chute on the truck Gloves to be worn at all times Reversing alarm to be fitted to the truck and in good working order Eye protection to be worn at all times on site Concrete wash out area to be used by all concrete drivers when washing out 100% fall protection to be in place at all times when washing out trucks Accessing sites through the access provided. OH lines goalposts are erected and access to locations are only permitted through these. NO works permitted within the Hazard Zone. ALWAYS CHECK FIRST DON'T RISK IT. All units to have flashing beacons Experienced, trained, authorised operatives only – Must hold the relevant licence. Ensure the ground is compacted, firm and level. Operators of lorries to carry out daily pre-use checks of their vehicles and report any defects noticed	Significant	Unlikely	9	Section Foreman
####	Deliveries	Offloading Pipes/Rebar on Site from a Flat Bed Trailer	Trapped hands/fingers Heavy Lifts Fall from heights – lorry Slips, trips & falls Manual handling Machine overturn Lifting gear failure Falling objects O/H services Unstable ground conditions	All delivery areas and set down points	Major	Possible	13	Engineering	All lifting gear is certified – 6 Monthly Cert Certs to be checked and copied prior to operation. Good Housekeeping measures in place to reduce the risk of slips, trips and falls. Care to be taken when offloading the pipes with regard to manual handling. All persons involved required to carry out manual handling to be trained. Ensure the machine is capable of lifting what is required – checked in the appointed persons checklist. Lifting gear to be certified and inspected prior to use. No lifting items by tie wires; lift items by wrapping in straps or from underneath the load itself. Safe access and egress to the lorry by means of a ladder. Ensure it is at an angle of 1:4 and it is tied off with rope. Guide ropes used when lifting the pipes where required Crane co-ordinator, Banksman and Machine Driver to complete the appointed persons checklist prior to the lift. No unloading in the vicinity of any O/H cables. Operatives to be aware of load positioning, surfacing conditions, trailer conditions etc. Safe Work Plan to be completed for all work prior to start Stand clear when the trailer is being unloaded No unloading on unstable ground Assess the height and carry out R.A. to confirm what fall protection is required Stand clear when releasing racket straps Rebar should be separated by timber skids, if not send it back to the company. Check weights of steel bundles (its written on the tag) and ensure the chains are strong enough (SWL of chains stamped on chain rings) Use pipe lifters to offload pipes, ensure chains are capable of lifting weight (a 4 leg 6Tonne set of chains can only lift 1.5 T on each individual leg so if you use only 2 legs you can only lift 3 Tonnes. Pipes to be chocked on both sides, if not send it back to the company. CSCS card for Banksman and Machine Driver Training for Manual Handling operation O/H lines highlighted with goalposts, bunting etc as per guidelines Set up crane with jib pointing away from distant OH wires	Major	Unlikely	14	General Foreman
####	All	Fuel and Chemical Storage	Storage of fuels, chemcials and hazardous materials causing soil and groundwater contamination	Compounds	Significant	Possible	22	Engineering	Hazardous Chemcials and Storage Procedure Bunded Sealed Container.	Significant	Unlikely	9	Section Foreman
1	All	Slip, trips & Falls	Slipping on wet / muddy surfaces Tripping over debris Poor housekeeping Slipping when entering / exiting plant Falling into excavations Fallling through open manholes	All Locations	Significant	Possible	21	Engineering	Operatives to be aware of their surroundings at all times Extra care to be taken on wet / frosty days when surfaces may be slippy Clean as you go policy to ensure housekeeping across project is of a continually high standard Only permitted access points to be used when accessing excavations or elevated work areas All opes an manholes to be covered as soon as is reasonably practicable, in addition to covers they must be barriered off to prevent falls Operatives entering and exiting plant to ensure shoes / boots dont have excess materials on the sole which may affect the grip when accessing and egressing plant Footpaths and other pedestrian access points to be maintained in a good condition this is especially important during inclement and cold weather Where footpaths and other pedestrian access points are blocked due to ongoing works suitable alternatives must be provided	Significant	Unlikely	10	General Foreman

2	All	Contact Dematitis	Skin contact with chemicals resulting in such conditions as dermatitis, burns and skin ulcers	All Locations	Minor	Possible	22	PPE	Hypo Allergenic barrier creams to be provided where necessary. Gloves to be worn,(PVC Gloves) hypo allergenic if required Do not leave resins, glue, concrete, etc, harden on your hands. Do not wear contaminated clothing, Keep your workplace clean and tidy, Always wash your hands after handling materials. Do not use petrol, diesel thinners etc… to clean hands. Always wear long sleeves when working with wet concrete. Always wear knee pads while kneeling on concrete. Always wear Wellingtons when working with concrete Procure and comply with SDS for the products used All hazardous substances to be clearly labelled and stored in a separate location under lock and key Provide all necessary information, training and instructions to employees using substances- circulate SDS to personnel and explain PPE requirements and first aid supplies required. All dust and fumes must be regarded as a hazard and the appropriate respiratory protective equipment must be worn where required. Provide PPE and enforce its' use to those working with hazardous substances SDS required from sub-contractor prior to work commencing on site where materials are provided by sub-contractor	Minor	Unlikely	15	Engineer
4	All	Working over/ near water	Risks of workers or general public drowning in sedimentation ponds during general earthworks	All Locations	Catastrophic	Possible	24	Isolate	Fencing or safety netting Security patrols Audits Rescue equipment Protective equipment Close down procedure during holiday periods	Catastrophic	Rare	15	General Foreman
5	All	Working over/ near water	Risks associated with working over / near water e.g. drainage, piling, sedimentation pond construction or maintenance and bridgeworks	All Locations	Catastrophic	Possible	13	Engineering	Procedures for working over water PPE Securing equipment Design in safety systems Adequate anchorage points Buddy system Adequate rescue system Alarm system First aid trained personnel Ensure personnel can swim Method Statement Trained and competent staff Subcontractor selection Appropriate equipment use Fences, barriers and fall arrest systems to be installed and used Training in use of PFDs and rescue equipment is provided	Catastrophic	Rare	15	General Foreman
6	Traffic	Access into & Out of Site	Risks associated with congested site and staging of activities or interfacing trades	Public road interfaces	Significant	Likely	13	Administration	Risk assessment conducted by Project Manager or delegate to ensure that capacity exists to safely accept incoming plant and materials Ensure that a VMP is prepared to direct the driver to the unloading location and supervisors give clear and concise directions	Significant	Possible	9	General Foreman
7	All	Mobile Plant & Equipment	Risks associated with loading and unloading of plant and equipment	All Locations	Significant	Possible	24	Administration	Appropriately trained personnel Method Statement Defined lay down regions Traffic design and management Supplier management of loading activities Loading and unloading procedure Utility locations identified Load & unload from level ground	Significant	Unlikely	15	Section Foreman
8	All	Electricity	Risks arising from the use of site electrical facilities such as distribution and sub boards and portable power tools	All Locations	Major	Possible	8	Isolate	Risk assessment to be conducted taking into account: -The environment of work - Level of protection available Proximity to work site of supply -Type of appliance to be used All portable generators are to have RCDs fitted set to trip at 30mA	Major	Rare	5	Section Foreman
9	Traffic	Access into & Out of Site	Risk to services during delivery and set up of large plant	Public road interfaces	Significant	Likely	24	Isolate	Risk assessment conducted by Project Manager or delegate to ensure that capacity exists to safely accept incoming plant and materials As part of the risk assessment all known services are to be identified, marked and assessed for adequate clearance before permitting the transporter to enter the site	Significant	Rare	15	Engineer
10	All	Mobile Plant & Equipment	Risk or personnel being crushed from agitator operation during shotcrete application	All Locations	Major	Possible	13	Isolate	Method Statement s developed All personnel trained in Method Statement All new personnel inducted in Method Statement Sign off conducted for all with ongoing monitoring All personnel to wear high visibility long-sleeved shirts / tops Plant design Procedures Management plan Lighting Guards over pumps Clean work areas Trained operators and spotters	Major	Rare	6	Section Foreman
11	Traffic	Access into & Out of Site	Risk of unauthorised access to site and fall into open excavations or sedimentation ponds	Public road interfaces	Major	Likely	22	Isolate	Risk assessment conducted to identify sites and conditions at risk. Fences or barriers erected around open excavations. Robust covers placed and secured over open penetrations, pits, holes and piling works. Work procedures and Method Statement's developed Competent supervision engaged to manage risks	Major	Rare	15	Section Foreman

12	All	Traffic	Risk of transport of over dimension units (both plant and components) to site	Public road interfaces	Minor	Possible	13	Engineering	Traffic controllers manage access and egress to / from site where required Traffic manager to be advised of all oversize deliveries and ensure traffic protocols are followed.	Minor	Rare	9	Engineer
13	All	Traffic	Risk of traffic incidents	Public road interfaces	Significant	Possible	13	Administration	Establish Detour routes to eliminate conflicts Barriers installed along the length of some construction zones Traffic management plans and traffic guidance schemes to be developed in acordance with code of practice for traffic management	Significant	Rare	9	Engineer
14	Traffic	Access into & Out of Site	Risk of traffic accident associated with restricted site access or egress for large trucks and plant	Public road interfaces	Catastrophic	Likely	13	Eliminate	Risk assessment conducted by Traffic Manager and Project Manager to proof check the capacity of each site access / egress against the design Left-In / Left Out policy - **if possible**	Catastrophic	Rare	9	General Foreman
15	All	Maintenance	Risk of temporary works maintenance not adequate	All Locations	Significant	Possible	18	Administration	Conduct periodic inspections of the temporary works to ensure that an ongoing functionality is being maintained Develop appropriate work procedures / work method statements for the work activity Apply the same OHS Management processes to temporary works that would be applied to permanent works Method Statement for task	Significant	Rare	10	Engineer
16	All	Standards of Work	Risk of temporary works being inadequate and do not meet safety standards	All Locations	Significant	Possible	21	Administration	Conduct a risk assessment of the work prior to start Develop appropriate work procedures / work method statements for the work activity. Provide drawings for all temp works Apply the same OHS Management processes to temporary works that would be applied to permanent works	Significant	Rare	10	Engineer
17	All	Traffic	Risk of speed zones in the construction site not being complied with	Public road interfaces	Significant	Likely	21	Administration	Observation by traffic controllers and other site staff in recording times Locations and registration numbers of vehicles observed behaving inappropriately	Significant	Unlikely	14	Section Foreman
18	Security	Unapproved or permitted access	Risk of security of site facilities, plant & equipment from unauthorised access & possible interference	Public road interfaces	Significant	Possible	17	Administration	Risk assessment conducted to identify sites & conditions at risk Fences or barriers erected around sites Signage erected warning construction site keep out + security company signage & Site Contact Number Work procedures and Method Statement's developed Competent supervision engaged to manage risks	Significant	Rare	9	Engineer
19	All	Traffic	Risk of road users not recognising traffic staging and traffic switching during construction	Public road interfaces	Major	Likely	7	Engineering	Continue to coordinate all traffic switches with community team to ensur e effective dissemination of information to the community Use high visability siganage for prewarning on all major traffic switchs road Audit to Be conducted following main traffic switches	Major	Unlikely	4	General Foreman
20	All	Traffic	Risk of restriction of access	Public road interfaces	Insignificant	Likely	13	Administration	Consultation with local land owners during paving runs will be required to mitigate any adverse impacts to access Early works local roads packages will also mitigate this issue Property Access Agreements	Insignificant	Possible	6	Engineer
21	All	Subcontractor Management	Risk of reliability of sub-contractor's quality in safety plans and Method Statement's	All Locations	Minor	Possible	7	Administration	Sub contractor selection to be in accordance with IMS procedure to ensure their capability in this area Project & Site Induction to be completed Project supervision on site Monitor and assess performance BAM Method Statement review & checklist	Minor	Unlikely	4	Engineer
22	All	Hazardous Substances	Risk of regulations and permits for hazardous substances and dangerous goods not in place on site	Compounds	Minor	Possible	25	Administration	Hazardous substances to be stored in accordance with manufacturers recommentations Hazardous substances on site to be used and controlled in accordance with legislation & SDS	Minor	Unlikely	24	Engineer
24	All	Traffic	Risk of poor design of traffic flow and operations of the work sites	Public road interfaces	Significant	Possible	4	Administration	Monitor the operation all new installations for a 2 week period post completion	Significant	Unlikely	2	Section Foreman
25	All	Access	Risk of poor access/egress when working at heights, in deep excavations or caissons	All Locations	Significant	Likely	25	Engineering	Staircase / Steps Platform Ladder Familiarisation of site by emergency services Working at Heights Procedure Work procedures and Method Statement's to consider in detail access requirements Emergency extraction is to be considered and implemented for all access ways	Significant	Unlikely	15	Section Foreman
26	All	Mobile Plant & Equipment	Risk of personnel entanglement in mechanical plant & equipment	All Locations	Major	Likely	8	Isolate	Plant risk assessment completed Demarcation zones for pedestrians Trained and competent operators Isolation procedures	Major	Rare	3	Section Foreman

27	All	Traffic Control	Risk of personal injury and vehicle damage on site	All Locations	Major	Possible	18	Isolate	Traffic Management Plan (internal & external) Nature and duration of the work Traffic control devices to be installed on both sides of the activity including signage, speed limits, barrier boards and cones In times of poor visibility install portable lighting and limit traffic movements	Major	Rare	10	General Foreman
28	All	Traffic	Risk of personal injury and vehicle damage on site	All	Major	Possible	8	Engineering	Traffic Management Plan (internal & external) Supervisor to advisek of the location Nature and duration of the work Traffic control devices to be installed on both sides of the activity including signage, speed limits, barrier boards and cones In times of poor visibility install portable lighting and limit traffic movements Method Statement to be developed	Major	Unlikely	5	General Foreman
30	Safety Dept	Training	Risk of inadequate site awareness training by BAM	Compounds	Minor	Possible	8	Administration	Extensive Project / Site Induction provided Site Induction revised and communicated as work scope changes Weekly toolbox talks conducted with all persons employed on the project to keep the information provided current	Minor	Unlikely	5	Engineer
32	Traffic	Access into & Out of Site	Risk of inadequate access for incoming materials i.e. parking, unloading, working at heights and manual handling	Public road interfaces	Significant	Likely	17	Engineering	Risk assessment conducted by Project Manager or delegate to ensure that capacity exists to safely accept incoming plant and materials Implement the BAM Working at Heights procedure and Manual Handling procedure when unloading materials from suppliers Ensure that a VMP is prepared to direct the driver to the unloading location and supervisors give clear and concise directions	Significant	Unlikely	6	Section Foreman
33	All	Traffic	Risk of impact on parking	Public road interfaces	Insignificant	Possible	23	Administration	Provision of ample parking on construction compound / zone office sites	Insignificant	Unlikely	10	Engineer
34	All	Traffic	Risk of impact of temporary modification to property access	Public road interfaces	Insignificant	Likely	11	Administration	Temporary arrangements will be minimised wherever possible through the construction of local roads as early works packages Community manager to liaise with stakeholders Conflict points to be lit up	Insignificant	Possible	4	Engineer
35	All	Hazardous Substances	Risk of exposure to hazardous substances and dangerous goods	All Locations	Significant	Likely	18	Isolate	Hazardous substances to be stored in accordance with Manufacturers instructions Hazardous substances on site to be used and controlled in accordance with legislation & SDS All containers to be appropriate for the substance and are labelled correctly	Significant	Unlikely	14	Section Foreman
36	All	Traffic	Risk of delay and inconvenience to road users during construction of the works	Public road interfaces	Insignificant	Almost Certain	17	Administration	Project wide travel time surveys will continue for the period of the project construction program	Insignificant	Possible	9	Engineer
37	All	Services	Risk of damage/ injury from unknown utilities Overhead & Underground Services	All Locations	Major	Almost Certain	13	Isolate	Use spotters or hand dig Engage service locators to discover / detect any services Complete the Permit to Excavate process Train personnel in procedures in working close to underground services in accordance with Scottish power COP Use goal posts Survey height of utility Visual markers & signage Working near to underground or overhead services and obstructions procedure (BAM)	Major	Rare	9	Section Foreman
38	All	Traffic	Risk of construction under heavy traffic volumes	Public road interfaces	Significant	Possible	13	Administration	Historic data available to determine seasonal traffic volume trends .No lane closures to occur during peak periods	Significant	Rare	9	Engineer
39	All	Community	Risk of complaints from the stakeholders and or members of the public including noise complaints from stakeholders	All Locations	Minor	Almost Certain	18	Administration	BAM Project Management Plan Quackers used for reverse alarms Including the Community Involvement Plan	Minor	Possible	14	Section Foreman
41	All	Traffic	Risk of breaching speed limits	Public road interfaces	Significant	Possible	16	Administration	Involvement of Gardai in active enforcement campaigns across the project. Install variable message signs, Reporting of drivers who speed and, put traffic controllers in danger	Significant	Unlikely	8	Section Foreman
42	All	Traffic	Risk involving passage of emergency vehicles getting to site in heavy traffic	Public road interfaces	Significant	Possible	17	Administration	BAM Emergency Response Plan in place Emergency Services briefed to site arrangements and provided with gate plans Routine meetings with local emergency service authorities and community and safety team scheduled Hard Shoulders to be provided for emergency Access	Significant	Unlikely	9	Section Foreman
43	All	Public Access	Risk from accidental or deliberate actions by the public during construction or operation and maintenance activities Falling into excavations, sedimentation ponds, poisons	Public road interfaces	Catastrophic	Almost Certain	13	Administration	Competent subcontractor engage to install / repair sheds Engage the same subcontractor to perform ongoing shed/container relocations Method Statement and correct equipment PPE Mandatory Work at Heights Training	Catastrophic	Likely	6	Section Foreman
45	All	Weather Change	Risk associated with extreme weather and or from ground water	All Locations	Significant	Possible	17	Administration	Monitor the predictions of upcoming weather patterns through Met Eireann or similar for inclement weather Schedule works so as trenching, or excavation is closed / backfilled as far as practicable before any rain event If an area is subject to flash flooding, monitor water flow levels to determine if abnormal conditions are occurring Install escape routes Establish dewater sumps and pumps Direct dirty water to sedimentation ponds or other suitable area. Develop work procedure including flooding provisions and transfer risk controls to Method Statement	Significant	Unlikely	9	Section Foreman
46	All	Fuel and Chemical Storage	Refuelling activities causing soil and groundwater contamination	All Locations	Significant	Possible	22	Engineering	Hazardous Chemcials and Storage, Procedure Refueling Procedure.	Significant	Unlikely	9	Section Foreman
47	Traffic	Traffic Management	Public Vehicles being struck by site vehicles Pedestrians being struck by site vehicles Site Workers being struck by site vehicles Site workers being struck by public vehicles Limiting disruption to flow of public traffic	Public road interfaces	Catastrophic	Almost Certain	8	Isolate	TMP to be drawn up and approved before setting up the system on public roads vulnerable groups must be accommodated by the plan SLG training to be completed Temporary Traffic Operations Supervisor (TTOS) to be appointed A competent person holding a CSCS card in 'Signing, lighting and guarding on roads' (this person is also referred to as the 'Temporary Traffic Operations Supervisor') is present to supervise the works	Catastrophic	Rare	5	General Foreman
48	All	Site Access	Public Vehicles being struck by site vehicles Pedestrians being struck by site vehicles Site Workers being struck by site vehicles Site workers being struck by public vehicles Collision of vehicles on site or in Site grounds Limiting disruption to flow of public traffic	Public road interfaces	Catastrophic	Possible	20	Engineering	Site access signs to be posted in advance of the site entrance. Site speed limit signs posted and adhered to Warning signs are to be posted on the approach to the site entry point. Ensure there is enough space for vehicles to safely pass each other. All Vehicles to be road worthy Under no circumstances are machine drivers to use a mobile phone while operating machinery	Catastrophic	Rare	15	General Foreman
49	All	Mobile Plant & Equipment	Plant movement on site Collision Crushing	All Locations	Significant	Possible	17	Isolate	Mobile Plant Procedure Traffic Management Procedure Lighting	Significant	Unlikely	6	Section Foreman
50	All	Manual Handling	Personal Injury when handling materials, equipment & Plant	All Locations	Significant	Likely	13	Administration	Ensure all packaged materials are supplied in containers that can safely be handled Where manual handling is to be a significant part of the works, conduct a manual handling risk assessment in consultation with workers involved Plan the work site and lay down areas to enable materials, plant and equipment can be easily accessed from open non-congested areas	Significant	Rare	6	Engineer
52	All	Mobile Plant & Equipment	Operation in congested areas Collision with people/plant	All Locations	Significant	Possible	18	Isolate	Use of appropriate plant and equipment Spotters / Banksman / Flagman as required All personnel to wear high visibility tops or vest	Significant	Unlikely	10	Section Foreman
54	Traffic	Maintenace & Erection of Traffic Cones and signage	Manual Handling Working near live traffic Obstructions to traffic flow Incorrect set up of TMP	Public road interfaces	Catastrophic	Likely	13	Eliminate	SLG course to be completed All operatives to be trained in Manual handling. All operatives to wear hi – visibility vests Where works impinge on traffic it must be carried out during off peak times where possible Cones and signage is to be cleaned on an on-going basis Mop and brush to be used where it is impractical to use power hose system	Catastrophic	Possible	9	Project Manager
55	All	Hazardous Substances	Major or Minor spill of hazardous substance	All Locations	Significant	Possible	18	Isolate	Minimise quantities kept on site If Possible use unhazardous Substance Store substances as per SDS Only trained personnel to handle substances Follow Incident & Emergency Response Plan	Significant	Rare	6	Engineer

57	Traffic	Flagman Duties	Live Public Traffic General Public Site Traffic Working at Night	Public road interfaces	Catastrophic	Possible	17	Administration	Correct Signage to be erected i.e. flagman signs in conjunction with the required traffic management signs as per traffic management plan and drawings. Flagmen should be trained in their duties. Flagman training is given prior to the flagman starting on site. Flagman are issued with STOP/GO signs prior to start Flagmen are issued with hi-vis clothing i.e. hi-viz vest, which must be worn at all times. Hi-viz trousers must be worn in dark conditions. The flagmen must ensure their PPE is kept in good clean condition at all times. Good lighting is required where flagmen are operating out on public roads early in the morning and late in the evening after daylight hours. Flash lamps are issued to flagmen and they must use them where required; Public traffic to be stopped for as little time as possible - no longer than 5 mins if possible A safe work plan will be completed prior to starting work on site and renewed on a weekly basis.	Catastrophic	Rare	13	General Foreman
63	All	Mobile Plant & Equipment	Faulty plant & equipment used on site inclusive of inspection and or repair of plant and equipment	All Locations	Significant	Possible	21	Administration	Daily pre-start checks Tickated operator / competent	Significant	Unlikely	10	Section Foreman
66	Deliveries	Unloading & Placing Concrete Pipes	Failure of lifting gear Mechanical Failure Collapse of the pipes Pipes rolling Trapped by an object Trapped fingers Trench Collapse Coming into contact with plant Coming into contact with personnel Fall into water Electrocution from use of portable tools	All delivery areas and set down points	Significant	Possible	22	Isolate	card All machines to be certified. All certs to be copied and kept in the register Driver to check that the machines are in good order prior to use. All machines to have flashing beacon, convex mirrors or CCTV and reversing beeper. All machines to lift using the S.W.L.I. All machine drivers to have relevant CSCS card . Copy of cards to be kept in the CSCS register. When pipes are being transported, ensure they are secure and chocked. When pipes are being stored on the ground ensure they are stacked correctly and in a safe position, ensure they are chocked on either end and re-chocked as they are lifted put of the storage area. All persons not required for task to keep clear while pipes are being transported and placed. Gloves to be worn by all operatives. All persons to signal to the driver that they wish to pass the machine and wait for their signal to ensure that it is safe to do so. All personnel to have the required PPE i.e. hard-hat, vest, safety boots and safety glasses. Ensure the trench is supported i.e. stepped, battered or supported. Foreman or Engineer to complete the Excavation Register. Ensure safe access and egress to and from the excavation. Ensure spill kit is in the area in the event of spill kit. All portable tools to be operated at 110v and in good order prior to use.	Significant	Rare	6	Engineer
68	All	Use of mini excavators (diggers)	Entrapment of people on slewing Working in a confined space. Contact with buried services or overhead services Contact with pedestrians, other plant, fixed objects when tracking or slewing Overturning due to Instability or overloading, working on slopes (Mechanical failure (e.g. unintentional release of quick hitch buckets) Mechanical, fluid pressure, electrical hazards from power transmission Slips/falls when climbing in or out of a cab Noise and vibration	All Locations	Catastrophic	Possible	13	Eliminate	**PLATFORM.** Flashing Beacon to be used when excavator is in use Passengers must not be carried inside or outside the machine. Allow clearance distance for slewing - barricade danger areas off if necessary Do not slew bucket or load directly over personnel Slow working cycle down when working on slopes to reduce bucket reach Mini diggers are unstable on slopes over 10 degrees. Banksman to be in attendance with all excavation work. A permit to dig to be in place before any excavation work commences. Only CSCS card holders to operate mini diggers Do not lift excavator by cab use the lifting eyes provided. When used in confined areas measures are to be taken to ensure that there is not a build-up of fumes from engine The engine is not to be left left running when machine is not operating. Operators to enter and exit the machine using the steps and handholds provided as per the CSCS training/other training No machine to be left ticking over while the operator is out of the cab. Keys to be removed when operator is out of the machine Tool Box talk to be carried out prior to work starting - Dangers Working Near Mobile Plant Ensure statutory and company test, examination and inspection procedures are implemented. Ensure that excavators are used only by certified trained persons Ensure that the rules relating to authorised use of plant and equipment are made clear to all personnel at induction Schedule 6 of the construction regulations to be complied with, this lists the Auxiliary Devices and Visual Aids required on all plant	Catastrophic	Rare	9	General Foreman
70	All	Emergency Response	Emergency response plan inadequate/ services not catered for	All	Significant	Almost Certain	13	Administration	Emergency Response Plan assessed by client Representative and other parties with comments sought	Significant	Rare	9	
71	All	Working near & around water	Drowning	All Locations	Catastrophic	Likely	13	Isolate	Specific risk assessment and Method Statement for task				Project Manager
73	All	Use of Diesel	Diesel is classified as a class 3 carcinogen, Contact Dermatitis Sensitiser of skin Headaches from inhalation of diesel fume Potential for fire in extreme cases	All Locations	Significant	Likely	18	Administration	SDS for Diesel to be available for inspection and reference Diesel to be stored in correctly labelled containers Storage areas to be bunded and away from sources of ignition Gloves to be worn when handling diesel containers and refuelling Correct fire extingushers to be located on machines and storag areas (dry powder) Spill kits to be available in storage areas Disposal facilities to be correctly licensed and located away from rivers and streams	Significant	Unlikely	10	General Foreman
78	All	Mobile plant	Brake failure leading to collision or overturning Slips/ falls when climbing into or out of a cab Overturning due to excessive speed bad ground, sudden braking & environmental factor Poor visibility from operating position Contact with overhead wires when tipping Unauthorised use People being crushed or hit while loading or operating Entrapment of people on slewing Large excavators travelling in a confined space Contact with other plant, fixed objects when tracking or slewing Overturning due to overloading, working on slopes Mechanical, fluid pressure, electrical hazards from power transmission Noise and vibration	All Locations	Major	Possible	13	Eliminate	No passengers to be carried in cab (unless a seat supplied by the manufacturer has been fitted in the cab). Traffic rules to be drawn up and followed Drivers are not permitted to operate mobile phones when driving plant CCTV cameras or convex mirror or combination of both to be fitted to all mobile plant to allow vision from driver's seat of all points >1m high and in from the machine and at the rear of the driver Company procedures for inspection and maintenance must be fully implemented, particularly with regard to braking systems. {This must include daily checks by the operator}. Consideration should be given to open edge safety protection where required Pedestrians must be segregated from haul roads and loading/unloading areas as far as is possible. One way systems should be adopted where possible Operators to enter and exit the machine using the steps and handholds provided as per the CSCS training/other training No machine to be left ticking over while the operator is out of the cab. Keys to be removed when operator is out of the machine Conduct regular Tool-box talks on the subject of working near mobile plant. Ensure that the rules relating to authorised use of plant and equipment are made clear to all personnel at induction. Statutory forms to be completed for all machinery	Major	Unlikely	9	General Foreman
81	All	Vehicle Incident / Plant Roll Over	A vehicle incident or plant roll over	All Locations	Major	Possible	13	Isolate	Obey speed limits Always wear a seat belt When operating mobile plant on batters stay perpendicular to slope Set up windrows/ barriers, or safe distance from edge of batters / slopes Operators to be competent and ticketed	Major	Unlikely	14	General Foreman
83							#N/A					#N/A	

					Initial Risk no controls					Residual Risk controls in place			
No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
1	All	Water Impacts	Release of unfiltered water Release of chemicals into water Excavation work Water pollution Loss of aquatic life Damage to river beds Surface water pollution Ground water pollution	All Locations	Major	Likely	21	Isolate	Wash out in safe, lined area Remove excess to predetermined waste control areas All equipment used to Bentonite storage is inspected daily and records maintained. Bentonite plant erected on a bunded area. Drip trays used for all plant and equipment No water to be released to any water course without treatment and permission Filtration measure to be set up where necessary No concrete wash water to be released untreated No releases to groundwater without permission and treatment Where groundwater is suspected to be polluted – stop works and contract Project management Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman
2	All	Land Impacts	Realise of chemicals or fuels to land Storage of fuels and equipment Surface water pollution Groundwater pollution Land pollution Flora and fauna damage	All Locations	Major	Likely	21	Isolate	Traffic Management Plan to be in place Use of hard standing areas / jet washers for vehicles and road sweepers where appropriate Drip trays used at all times for mobile plant Use of refuelling procedure, emergency procedure. Bunded storage used to store fuels and hazardous substances Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman
3	All	Noise and Vibration	The use of un-silenced equipment Use of faulty equipment Pumping excavations Noise pollution Property damage Distress to animals	All Locations	Major	Likely	21	Engineering	Noise / Vibration monitoring in compliance with project requirements Dust Monitroing by foremen engineers Rivers and Stream to be monitored on an ongoing basis for potential sources of pollution from the project Communication with neighbours and appropriate local authority Ensure all plant and equipment is well maintained Installation of hoarding and other noise baffling equipment where deemed necessary by risk assessment Works to take place during agreed times only Low vibration and well maintained equipment used to undertake piling Condition surveys, baseline and on-going construction phase monitoring in sensitive locations as and when required Adoption of appropriate work plan to minimise vibration in sensitive areas	Major	Unlikely	14	General Foreman
4	All	Waste disposal (including hazardous)	Cross contamination of waste Incorrect disposal of hazardous waste Storage of materials Land contamination from leaks Water pollution from leaks fire	All Locations	Major	Possible	18	Administration	Effective planning for waste minimisation through site waste management plan Effective segregation and reuse onsite into four streams General waste Wood and cardboard Metal Hazardous. Recycle and reuse to take precedence over disposal Follow waste hierarchy and mitigation measures Compliance with the provision of the Hazardous Waste Regulations. The removal and disposal will be conducted under a strict consignment notes system Disposal sites to be licensed or permitted with EPA or Local Authority respectively Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman

					Initial Risk no controls					Residual Risk controls in place			
No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
5	All	Emissions to air	Vehicles speeding on site Movements of vehicles Use of faulty equipment Air pollution Local nuisance Crop damage Properties in air	All Locations	Significant	Possible	13	Engineering	Mitigation measures specified in project requirements to be adhered to Dust suppression to include using water during significant windy and dry periods, sheeting of vehicles and stockpiles etc. Use of wheel cleaners and road sweepers where necessary. Planning works to avoid dust generating activities in notably unfavourable wind conditions. Monitoring where required and agreed with Client, Clients Rep etc. Drivers required to switch off their vehicle's engine when stationary to prevent exhaust emission and noise. Use of well-maintained plant only Dust suppression techniques employed when dust is generated Provision of dust and air quality monitoring if/where required	Significant	Unlikely	9	Section Foreman
6	All	Habitat & Species (SAC / SPA)	Working without permission Tree, plant removal Disturbance of rare species/ habitat The spread of invasive plants Accidental injury to species	All Locations	Significant	Possible	13	Administration	All licences to be in place before any works which may impinge on trees, hedges or any other protected species. Liaison with Client, Clients Rep and Local Authority to be encouraged before works start. If invasive plants are to be moved, contact Department of Arts, Heritage and Gaeltact (DAHG) for permission and licences	Significant	Unlikely	9	Section Foreman
8	All	Archaeology	Working without archaeologist of adequate supervision Damage to archaeological remains Interference with historic features	All Locations	Minor	Likely	12	Administration	All archaeology licences and permits to be in place before works commence. Licenced Archaeologist will be on site as per contract specifications. If any materials or remains are encountered after these archaeological digs, all works must stop until permission is given to proceed	Minor	Unlikely	5	Engineer
10	Piling	Siltation of watercourses	Build up of Silt in water courses which coud result in Fish Kills or other enviromental issues	All Locations	Major	Likely	21	Engineering	Surface runoff from all areas of site will be monitored. Visual monitoring of receiving water bodies will be undertaken. Where necessary, silt mitigation measures will be implemented. These may include minimisation methods, filtration, silt settlement, mechanical treatment or chemical dosing, depending of severity.	Major	Unlikely	14	General Foreman
11	Piling	Water Impacts	Release of unfiltered water Release of chemicals into water Excavation work Water pollution Loss of aquatic life Damage to river beds Surface water pollution Ground water pollution		Major	Likely	21	Isolate	Wash out in safe, lined area Remove excess to predetermined waste control areas All equipment used to Bentonite storage is inspected daily and records maintained. Bentonite plant erected on a bunded area. Drip trays used for all plant and equipment No water to be released to any water course without treatment and permission Filtration measure to be set up where necessary No concrete wash water to be released untreated No releases to groundwater without permission and treatment Where groundwater is suspected to be polluted – stop works and contract Project management Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman
12	Piling	Land Impacts	Realise of chemicals or fuels to land Storage of fuels and equipment Surface water pollution Groundwater pollution Land pollution Flora and fauna damage		Major	Likely	21	Isolate	Traffic Management Plan to be in place Use of hard standing areas / jet washers for vehicles and road sweepers where appropriate Drip trays used at all times for mobile plant Use of refuelling procedure, emergency procedure. Bunded storage used to store fuels and hazardous substances Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman

					Initial Risk no controls					Residual Risk controls in place			
No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
13	Piling	Contact with contaminated water or waste.	Weill's' disease – bacterial infection from contact with contaminated water or rodent urine through the eyes, mouth, nose or open cuts on the skin. Symptoms include flu-like, headache and chills.	tion	Major	Likely	21	Administra-	Wash your hands thoroughly before eating, drinking or smoking or using toilet facilities; - Cover cuts, abrasions and any open wounds with waterproof plasters; - Overalls should be worn at all times when operating in contaminated areas, and if exposure has been extensive; they should be sprayed with a disinfectant; - To prevent means of entry, pants should be tucked into socks or safety boots before the overalls are put on; - Wear gloves when working near drains or underground cavities or waste materials; - When putting on gloves, pull the cuff of the glove over the wrist cuff your overalls; - When removing gloves, they must be pulled off from the cuff or wrist downwards towards the fingers, leaving the glove inside out when removed and disposed of immediately; - Disposable gloves, overalls and ear buds are to be used only once and disposed of immediatly in the correct skip or bin; - Gloves to be EN420, EN388, EN374 approved; - Always check safety boots for leaks or cracks and replace immediately if they are inadequate to prevent contact with the water;	Major	Rare	10	Section Foreman
15	Piling	Hazardous substances running into watercourses.	Pollution of waterways.		Major	Possible	18	Administration	Do not refuel beside watercourses/waterways. Keep at least 10m away from any watercourse/ waterway when refueling/ changing oil.	Major	Rare	10	Section Foreman
16	Piling	Environmental Noise.	Noise in a sensitive community can cause disruption to local residents.		Minor	Likely	12	Administration	- Working hours to be agreed with the main contractor prior to commencing works; - Piling foreman to inform the main contractor if they receive any complaints from local residents;	Minor	Unlikely	5	Engineer
17	Piling	Adjacent trees and other structures.	Damage to nearby trees or structures		Minor	Possible	8	Isolate	Avoid unnecessary tracking alongside existing structures and trees, any damage to be reported to the foreman; Area has been cleared of all trees, however some trees may be on haul roads so care to be taken when driving alongside them	Minor	Rare	3	Engineer
18	Piling	Working on or near water. Incl. Standing Water	Falling into water/ drowning /contamination.		Catastrophic	Unlikely	19	Isolate	All works shall be carried out in accordance with current Legislation. Prior to works commencing: Daily Safe Plan of Action to be completed. Approved activity specific method statement to be in place and briefed to all concerned. Refer to working at Height Risk Assessment Adequate barrier system, safety nets and edge protection to be in place to prevent falls. Where required harness' to be provided. Life buoys / life belts to be in position and certified to AF4 (if required). Adequate rescue procedures to be developed and briefed to	Catastrophic	Rare	15	General Foreman
19	Piling	Dust	Damage to plants & wildlife. May enter neighbour's property. May enter operatives eyes and airways.		Minor	Possible	8	Engineering	Dust suppression required where it is excessive. Water supply to be set up next to the piling area. Were possible use the power hose to suppress the dust in the temporary casing before the boring tool is brought up to ground level. Dust masks to be worn if dust is excessive.	Minor	Rare	3	Engineer

					Initial Risk no controls					Residual Risk controls in place			
No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
21	Piling	Hazardous Substances - such as hydraulic oil, WD40, concrete, engine oil, petrol	Injury/ illness to operatives, pollution to water or ground		Significant	Possible	13	Administration	Chemical risk assessment based on the safety data sheet, required for all hazardous substances and to be on site; - Operatives to be briefed on the safe use of hazardous substances; - Good personal hygiene practice to be adhered to; - Suitable PPE to be made available – gloves, safety goggles, full face visor, wellington boots; - All containers and drums on site to be clearly labelled and stored in bunded containers, on drip trays or plant nappy's as appropriate;	Significant	Rare	6	Section Foreman
22	Piling	Handling and placing of concrete.	Injury/death of operative. Impact with moving plant. Dermatitis. Eye injuries. Pollution of watercourse with unset concrete		Major	Possible	18	Engineering	Only competent person to carry out this task; Only persons directly involved in the activity to be in proximity of the works; High level of housekeeping to be maintained; Ground conditions to be examined prior to concrete delivery; Suitable PPE to be available; boots, gloves, eye protection, waterproof clothing; All concrete splashes to be washed off the skin immediately; Concrete delivery driver to be briefed on hazards on site; Concrete washout areas to be protected with silt fence / fabric to prevent pollution	Major	Rare	10	Section Foreman

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Date **05/06/2024**	**Glenamuck DRS**	**MS 007** **Rev. No. : 00**

Method Statement for Drainage and Foul Sewer installation

Rev	Date	Issue/Revision Record	By	Approved by
0	05/06/2024	First issue	MD	FP

COMPILED BY	APPROVED BY
Signed Mick Duffy **Date 05/06/2024**	**Signed Fiachra Page** **Date 11/06/24**
Project Manager	**Contracts Manager**

SECTION	CONTENTS	Page / Reference
1	Scope of Work	
2	Responsibility & Supervision	
3	Training Details	
4	Key Plan , tools & equipment	
5	Risk assessments	
6	Operational method statement	
7	Permit to work	
8	Temporary works	
9	Access & Egress	
10	Working at height	
11	Hazardous materials	
12	PPE	
13	Emergency Procedures	
14	Monitoring & Inspection Requirements	
15	Traffic management requirements	
16	Environmental Controls	
17	Other information & comments	
Appendices		
Appendix A	Safety Risk Assessment	
Appendix B	Environmental Risk Assessment	
Appendix C	Emergency Plan	
Appendix D	Inspection & Test Plan	
Appendix E	Briefing Sheet	
Appendix F	Method statement amendment form	
Appendix G	Drawings	

1. Scope of Works

This method statement outlines the methodology and procedures to be followed whilst installing surface water and foul sewer drainage on the Glenamuck DRS.

2. Responsibility & Supervision

The individuals responsible for the works concerned under this method statement will be Pat O' Sullivan (General Foreman) , Mick Duffy (Project Manager) and the site engineering team (TBC).

3. Training Details

- Bam Site Induction
- Safe Pass
- LUGS
- Mobile Plant
- Manual Handling
- Relevant plant CSCS tickets
- Relevant driving licence for tractor and trailer
- Registered gas Installer

4. Key Plant , Tools and Equipment

Plant/Tools

- Tractor & trailer
- 360' Excavator
- Tractor and Low-loader
- A25/A40 articulated dump trucks
- 6T/9T Dumpers
- Rotating grade laser
- Pipe Laser

	• Compactor /Roller/Wacker plate • Dewatering pumps • Lifting gear — Chains, slings, shackles • CAT Scanner • Portable Hand tools, • Trench box - Support sides of excavation.

5. Risk Assessments

Refer to the Health & Safety Plan for the relevant Risk Assessments

		Refer to the Appendix A

6. Operational Method Statement

Before Works Start:

All operatives to receive a site induction prior to commencing on site. They will also be briefed on the Method Statement and Risk Assessment, and will be required to sign the briefing sheet to acknowledge they have understood its contents.Operatives will sign onto a safe work plan for the works.

A permit to dig will be raised for each section, and plant operators will sign up to this to acknowledge existing services etc that require consideration when carrying out works. All plant GA1s are to be provided prior to coming to site.

Environmental and Ecological requirements will be implemented in accordance with the Construction Environmental Management Plan. Silt mitigation control measures shall be put in place prior to commencement of any excavation on Site to allow sediment to settle out and reach neutral PH before clarified water is released to the watercourse or drainage system or allowed percolate into the ground**.**

Drainage and Fouls Sewer Installation:

The drainage will be laid in accordance with the project specification and drawings 17012-DBFL-0500-SP-DR-C-1001 to 17012-DBFL-0500-SP-DR-C-1012.

Pipe Laying

The line of the proposed pipeline will be set out from offsets supplied by the Designer.

The trench will be excavated to required design level and the formation level will be checked and witnessed by the ER/RE team.

All excavations greater than 1.2m deep shall be stepped / battered back to a safe angle to allow works to proceed. If site specific scenario arise that it is too

deep or room is an issue a trench box will be used. If the trench becomes a confined space a separate RA will be developed to manage the same. All trenches will be backfilled as soon as the pipe is placed.
All arisings shall be stockpiled at least 2 – 3m away from open excavations.

Authorised personnel will gain access to the trench using ladders.

If soft spots or rock crops are encountered the corrective procedure will be agreed on site with the ER/RE team.
If required a suitable approved geotextile membrane (as per the MAR process) shall be laid on the formation level and to the sides of the excavation.
Approved (as per the MAR process) pipe bedding material Cl 503 shall then be laid to the required depth to allow the pipe work to be installed.
Installation of pipes will be carried out using certified pipe laser set at the required design gradient. Pipe will be laid as per manufactures requirements.
The invert levels of the pipes will be checked at regular intervals.

The pipeline will be air tested per the requirements of Appendix 1/5, where required, at regular intervals; this test will be witnessed by the ER/RE team.

If it is a filter drain the geotextile membrane will be wrapped over the top of the Cl 505 filter material and held closed with a layer of filter material which will later be removed prior to topping up drains if required.
When the drain is ready for topping up the sacrificial layer of filter stone is removed. The geotextile membrane is reopened and the drainage is topped up with Cl 505 material.

All pipes will be lifted with certified slings, chains, lifting eyes and shackles.

If redundant pipes are encountered the ER/RE team will be notified and the way forward agreed prior to proceeding.

Manholes/Catchpits

The invert level of the proposed manhole will be set out using information supplied by the Designer. The manhole will be excavated to formation level and a concrete channel constructed between pipes and the manhole rings dropped into place. Concrete channel will be formed by hand.
The rings will then be placed with seals in between.

The biscuit and lid will be placed as per project specification. The manholes and piping will then be backfilled as per the project specification. Benching, chains and steps will be undertaken as per the project standard drainage details.

Gullies

Gully tails will be positioned before the commencement of any adjacent drainage to avoid conflicts with other drain runs.
The invert level and position of the proposed gully will be set out using information supplied by the Designer.
The gully will be excavated to formation level. The gully pot will be placed and surrounded in concrete after the concrete kerb has been placed. Upon completion of the binder course the gully pot will be raised with a riser and the gully grate will be installed.

The gully will be placed as per project specification

A section of the carrier pipe will be cut out to allow for the gully connection, this will be sealed after with an approved saddle.
Pipework Connections – In all cases, ensure that the outlet pipework level is maintained for correct operation. The connecting pipework should be pushed into the socket. Ensure that the seal is secure and watertight before backfilling the pipe.

Headwall

The headwalls will be precast units.

They will be lifted into place with a suitable excavator on a bed of approved material.

Soft spots

If soft spots are encountered, they will be removed and replace after consultation with the ER/RE team on the agreed method.

Abandoned services

If abandoned services are encountered, they will be removed, maintained or replaced after consultation with the ER/RE team.

Petrol Interceptor (PI) Installation

The petrol interceptor (PI) installation shall take into account the manufactures guidelines regarding installation. In general the following method will be followed:
Excavate a hole for the PI to a sufficient length and width to accommodate the tank and a minimum 225mm concrete surround and to a depth which allows for the burial depth of the unit plus concrete base slab and haunch. Construct a concrete base slab 200mm thick. Ensure sides of excavation are adequately battered back and appropriate edge protection is in place. Ensure that the slab is flat and level. When the concrete base slab has set enough to support the installed load, a concrete haunch will be poured so as to provide additional support and then lower the unit onto the haunch using suitable webbing slings and lifting equipment. Pour no more than 300 mm depth of clean water into the unit, avoiding shock loads. For units with more than one chamber, add water to each chamber simultaneously. DO NOT OVERFILL; the unit is not designed to hold water whilst unsupported. Place concrete backfill to approximately 300mm depth under and to the sides of the tank ensuring good compaction to remove voids. DO NOT use vibrating pokers. Continue adding concrete backfill, simultaneously keeping the internal water level no more than 200 mm above the backfill level at all times, until the backfill is just below the underside of the outlet drain, giving sufficient room to connect the inlet and outlet pipework. Connect inlet and outlet drains and vent pipes when the excavation has been backfilled and safe access can be gained.

Foul Sewer Installation:

The installation of the new foul sewer works will be carried out in accordance with drawings 17012-DBFL-0500-SP-DR-C-1001 to 17012-DBFL-0500-SP-DR-C-1012.

The manholes and pipeline will be set out with the GPS and the pipes level and falls controlled using a pipe laser. The laying and backfilling will be as per the carrier pipe methods noted above.

As built surveys of the new lines and manholes will be undertaken using the GPS survey equipment which will record the coordinates of the manholes and their invert levels. All the information will then be transferred onto the as-built drawings in the format in accordance with Irish Water's requirements.

Materials:

Polysewer PVCu thermoplastic structured wall gravity sewer pipes and fittings will be used for the new wastewater lines. The pipe is classified as a flexible pipe that withstands ground movement. Flexible pipes do not require a rocker pipe as noted in the Code of Practice for Wastewater Infrastructure.

Watertight manhole rings and cover slabs, as supplied by Tracey Concrete, will be used in the construction of all new manholes.

Marker tape will be laid 300mm above the crown of the sewer pipe.

Testing:

Testing of the gravity sewer will be by an air test in accordance with the requirements of IS EN 752 as noted in the Code of Practice for Wastewater Infrastructure.
The new sewer line will be tested as the works progress with a final test being undertaken on completion of each line between manholes prior to backfilling.
A further test will be undertaken once backfilling is completed.
The air test will be conducted in the presence of an Irish Water Field Engineer or their appointed agent (ie. ER/RE team).

7. Permit To Work

Please tick if required: ✓ / X	Excavation	Hot Work	Confined Space	Roof Work	Ladder	ESB	Areas of Ecological Importance	Live Carraigeways	
	✓	**X**	**X**	**X**	**X**	**X**	✓	**X**	

8. Temporary Works	
	At present it is envisaged that all works will be undertaken in open cut excavation with the sides suitably battered back. If trench boxes/manhole boxes are required then the works at that location will be stopped and an appropriate temporary works design obtained prior to works recommencing.
9. Access and Egress	
	Access to site shall be from the compound at Golf roundabout, Glenamuck road, Ballychorus road, De La Salle rugby club car park and Barnaslingan lane
10. Working at Height (Fall Protection Measures)	
	N/A
11. Hazardous Materials	

Hazardous Substances: (Attach SDS if required)	 **Acute Toxic**	 **Health Hazard**	 **Corrosive**	 **Explosive**	 **Oxidising**	 **Highly Flammable**	 **Dangerous to the environment**
Please Tick: ✓/X	**X**	**X**	**X**	**X**	**X**	**X**	**X**

12. Personnel Protective Equipment							
Please tick PPE if required: ✓ / X	 **Safety Boots** ✓	 **Hard Hats** ✓	 **Safety Gloves** **As required**	 **Hearing Protection** **As required**	 **Eye Protection** **As required**	 **Respiratory Protection** **As required**	 **Hi-Vis Clothing** ✓
Other :	**A life buoy will be present during all works adjacent to deep watercourses. For streams deeper than 500mm operatives to wear life jackets/buoyancy aides**						

13. Emergency Procedures	
	See Appendix C **Emergency Team Numbers**
14. Monitoring / Inspection Requirements	
	N/A
15. Traffic Management Requirements	

	TM plans at site access points
16. Environmental Controls	
	Pollution / Environmental Control Measures during Construction Works **Siltation Control** The watercourse will be protected from site run off by means of constructing silt traps, settlement ponds and bunds where required. Bam shall ensure that no pollution occurs as a result of the works and shall install and maintain the silt traps/settlement ponds/bunds as required. This shall be in accordance with the Construction Environmental Management Plan. **Waste** Materials will be reused on site where possible. Waste that can be recycled or disposed of off-site will only be collected by a contractor that has an appropriate Waste Collection Permit. The waste contractor will provide, collect and replace skip bins on the site. The Waste Collection Contractor must provide copies of their Collection Permits and the Waste Permits or Licenses for the sites where the waste will be deposited. All permits / licenses will be attached to the WMP. Skip bins will be clearly labelled to show the type of waste that can be placed in them. This shall be in accordance with the Construction Environmental Management Plan. **Hazardous Substances (storage, removal and end disposal sites where known)** The site SHE officer will be notified of any hazardous waste or suspected hazardous waste coming onto site. Hazardous waste will not be mixed with other categories of hazardous or with non-hazardous waste. All containers that are used are clearly and correctly labelled and stored properly and securely. Liquid wastes containers will be stored in a bunded area. Hazardous waste will be removed off-site by an appropriately licensed waste contractor. Adequately contained storage space will be available prior to delivery of chemicals. Individual containers will be clearly labelled and the SDS will be available in the canteen. Damaged or unsuitable containers will be immediately repaired or removed from site, with their contents transferred to another suitable container. Do not locate storage areas within 10m of a watercourse All drums and containers of hazardous substances will be kept in a lockable chemical store. The designated storage area will be bunded. Emergency spill kits are available on site at all times, with adequate stock of absorbent materials and any PPE required and employees are informed of their correct use and disposal. In the event of an incident the spill procedure will come into effect. This shall be in accordance with the Construction Environmental Management Plan. **Dust** The generation of dust particles shall be minimised on site through the implementation of the following measures: ▪ Minimising the area of disturbed ground and the time for which ground is

disturbed.
- Damping down haul roads with water bowsers as required during windy and/or dry conditions;
- Limiting plant and vehicle movement to designated haul roads;

Employing road sweepers to remove dust from public roads where required.
This shall be in accordance with the Construction Environmental Management Plan.

Noise and Vibrations

The working hours and the duration of work will be planned with consideration for the effects of noise/vibration on any noise sensitive receiver. Road surfaces will be maintained to reduce vehicle noise. The least noisy plant suitable for the activity will be used. Simultaneous use of noisy equipment will be avoided where reasonably practicable. Plant and equipment that is used intermittently will be shut down or throttled down to a minimum between work periods. Plant known to emit noise in one direction will be located so that the noise is directed away from the work area. Plant and equipment will be maintained as per the manufacturers' instructions. This shall be in accordance with the Construction Environmental Management Plan.

Refuelling & Fuel storage

Tanks will be positioned so there is easy access for plant and equipment to refuel. Regular inspections of tanks and bunds are carried out. All refuelling of plant must take place in the designated refuelling area. A drip tray is sufficient when refuelling small plant. Emergency spill kits are available on site at all times, with adequate stock of absorbent materials. Employees are trained in their correct use. An emergency plan is in place to deal with any spill. Refuelling must not take place in significant risk locations – i.e. within 10m of a watercourse. This shall be in accordance with the Construction Environmental Management Plan.

Drip Trays/Spill Kits and Other Precautionary Measures

Drip trays will be used under small static plant to control minor leaks otherwise bunds must be used. Oils, fuels and harmful substances are stored in appropriate containers in suitably bunded areas. Spill kits are placed as close as possible to where they may be required, in a clearly marked container. They are available at fuel storage or refuelling areas. The mobile bowser contains a spill kit and the appropriate PPE.
It is important to know the location of spill kits. This shall be in accordance with the Construction Environmental Management Plan.

17. Other Information & Comments:

Briefing Arrangements

Briefing Responsibility
The site agent/engineer and foreman will be responsible for ensuring the contents of this method statement is understood by all operatives involved in this task.

How is understanding confirmed
All operatives, after the briefing will sign the Method Statement Briefing sheet attached to the back of this method statement
Bam Site Safety Advisor will receive a copy of briefing sheet and retain on file

	Programme Works are scheduled to commence in July 2024 and will be ongoing over the duration of the project.

All work will be undertaken by qualified competent persons with experience of the type of work described above, and in all cases in full accordance with safety procedures specified in the company's Health and Safety Statement and the Project Health & Safety Plan.

Items Attached:	Yes	No
Specific Risk Assessments	✓	
Sketches / drawings / Photos etc.	✓	
All relevant Safety Data Sheets		✓
Briefing Sheet	✓	

Appendix A

Risk Assessments

Appendix B

Environmental Risk Assessments

Appendix C

Emergency Procedures

Refer to the Project Health & Safety Plan.

Appendix D

Inspection and test plan
(See attachments)

(Task)					
Operation	**frequency**	**Contractual Document**	**Responsibility Bam**	**Responsibility DLRC**	**Veyifying Document**
Material Approval	Prior to Commencement	MAR Form	Hold Point	Hold point	MAR
Setting out	Post Topsoil strip	Survey Record Book	Hold Point	Monitor	Survey Check Sheet
Air testing of pipe runs	As required/App 1/5	Laboratory Cert	Hold Point	Monitor	Test results
Mandrell/flushing/CCTV	As required	Construction Drawings	Hold Point	Monitor	Test Results
Inspection of pipe bed and surround	As required	Construction Drawings	Hold Point	Monitor	HWP

Appendix E

Briefing Sheet

METHOD STATEMENT BRIEFING SHEET

Method Statement Title:

Method Statement No.: MS-007 Drainage and Foul Sewer installation
We (the undersigned) have read and understood the attached method statement and will comply with the specified requirements and control measures. If the work activity changes or deviates from that originally envisaged, we will seek further advice and request an amended method statement.

Name (Print)	Signature	Company	Date

Briefed By: _____ Date: _____

Appendix F

Method Statement Amendment Form

On Site Amendments to Prescribed Method Statement					
M.S. No.:		**Date:**			
Section of M.S. to be amended:					
Details of change in methodology:					
Reason for change:					
Briefed By:		**Date:**		**Time:**	
We (the undersigned) have read and understood the attached method statement amendment and will comply with the specified requirements and control measures. If the work activity changes or deviates again, we will seek further advice and request an amended method statement.					

Name (Print)	Signature	Company	Date

Appendix G

Drawings

The drainage (surface & foul) will be laid in accordance with the project specification and drawings 17012-DBFL-0500-SP-DR-C-1001 to 17012-DBFL-0500-SP-DR-C-1012.

All the above drawing can be found on the project common data environment (ACC).

Date of Risk Assessment/Review	05/06/2024						C6053 Glenamuck													
Risk Assessment/Review Revision	2																			
Conducted by	M.Duffy																			
					Initial Risk no controls						Residual Risk controls in place									
No	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	Control Measures	Consequence	Likelihood	Score	Responsible Person	Target Action Date	Actual Action Date	Monitoring Response Required	Review Emergency Arrangements	Review Risk Control Measures			
###	Traffic	Road Washing	Working on Wet Roads Freezing temp and ice Slippery surfaces Pedestrians Water flowing Drowning Re-filling Flooding small areas	Public road interfaces	Major	Likely	21	Eliminate	In freezing temperatures avoid using water and power hoses to clean roads Brush and water to be used to remove stubborn muck. Flagman to be in place at all times during the operation Washing of roadways to be carried out with extreme care to ensure that large amounts of water and or materials do not flow onto or impede live trafficked areas Care is to be taken while washing roads near pedestrians to avoid wetting them or putting them at risk of flying particles etc. When filling Bowser or road sweeper tanks from water tanks care is to be taken. When filling from hydrants ensure that valves are not opened to extreme and are shut off once re-filling operation is complete. Road sweepers are left hand drives therefore their visibility is restricted. Only use hydrants or other water sources as instructed by supervisor.	Major	Rare	10	Project Manager Foremen								
###	All	Safe use of Concrete Trucks	Unit silted on uneven ground causing instability Persons in the vicinity Contact with over head high tension cables causing electrocution Possibility of being hit by road traffic Untrained operators / unauthorised use. Reversing without assistance. Limited visibility Pinch points – Concrete chutes	All Locations	Significant	Possible	#N/A	Isolate	All drivers to receive a site safety induction on site Obey the haul rd rules Max speed on site is 30km/hr and must be obeyed at all times Segregation of plant & pedestrians is in operation on site where possible, drive only on the designated roads provided Safe access and egress from the truck at all times, 3 points of contact , face the cab at all times Only drive trucks on haul roads designed for the loads carried Only the concrete driver is permitted to open and close the chute on the truck Gloves to be worn at all times Reversing alarm to be fitted to the truck and in good working order Eye protection to be worn at all times on site Concrete wash out area to be used by all concrete drivers when washing out 100% fall protection to be in place at all times when washing out trucks Accessing sites through the access provided. OH lines goalposts are erected and access to locations are only permitted through these. NO works permitted within the Hazard Zone. ALWAYS CHECK FIRST DON'T RISK IT. All units to have flashing beacons Experienced, trained, authorised operatives only – Must hold the relevant licence. Ensure the ground is compacted, firm and level. Operators of lorries to carry out daily pre-use checks of their vehicles and report any defects noticed	Significant	Unlikely	9	Section Foreman								
###	Deliveries	Offloading Pipes/Rebar on Site from a Flat Bed Trailer	Trapped hands/fingers Heavy Lifts Fall from heights – lorry Slips, trips & falls Manual handling Machine overturn Lifting gear failure Falling objects O/H services Unstable ground conditions	All delivery areas and set down points	Major	Possible	13	Engineering	All lifting gear is certified – 6 Monthly Cert Certs to be checked and copied prior to operation. Good Housekeeping measures in place to reduce the risk of slips, trips and falls. Care to be taken when offloading the pipes with regard to manual handling. All persons involved required to carry out manual handling to be trained. Ensure the machine is capable of lifting what is required – checked in the appointed persons checklist. Lifting gear to be certified and inspected prior to use. No lifting items by tie wires; lift items by wrapping in straps or from underneath the load itself. Safe access and egress to the lorry by means of a ladder. Ensure it is at an angle of 1:4 and it is tied off with rope. Guide ropes used when lifting the pipes where required Crane co-ordinator, Banksman and Machine Driver to complete the appointed persons checklist prior to the lift. No unloading in the vicinity of any O/H cables. Operatives to be aware of load positioning, surfacing conditions, trailer conditions etc. Safe Work Plan to be completed for all work prior to start Stand clear when the trailer is being unloaded No unloading on unstable ground Assess the height and carry out R.A. to confirm what fall protection is required Stand clear when releasing racket straps Rebar should be separated by timber skids, if not send it back to the company. Check weights of steel bundles (its written on the tag) and ensure the chains are strong enough (SWL of chains stamped on chain rings) Use pipe lifters to offload pipes, ensure chains are capable of lifting weight (a 4 leg 6Tonne set of chains can only lift 1.5 T on each individual leg so if you use only 2 legs you can only lift 3 Tonnes. Pipes to be chocked on both sides, if not send it back to the company. CSCS card for Banksman and Machine Driver Training for Manual Handling operation O/H lines highlighted with goalposts, bunting etc as per guidelines Set up crane with jib pointing away from distant OH wires	Major	Unlikely	14	General Foreman								
1	All	Slip, trips & Falls	Slipping on wet / muddy surfaces Tripping over debris Poor housekeeping Slipping when entering / exiting plant Falling into excavations Falliing through open manholes	All Locations	Significant	Possible	21	Engineering	Operatives to be aware of their surroundings at all times Extra care to be taken on wet / frosty days when surfaces may be slippy Clean as you go policy to ensure housekeeping across project is of a continually high standard Only permitted access points to be used when accessing excavations or elevated work areas All opes an manholes to be covered as soon as is reasonably practicable, in addition to covers they must be barriered off to prevent falls Operatives entering and exiting plant to ensure shoes / boots dont have excess materials on the sole which may affect the grip when accessing and egressing plant Footpaths and other pedestrian access points to be maintained in a good condition this is especially important during inclement and cold weather Where footpaths and other pedestrian access points are blocked due to ongoing works suitable alternatives must be provided	Significant	Unlikely	10	General Foreman								
2	All	Contact Dematitis	Skin contact with chemicals resulting in such conditions as dermatitis, burns and skin ulcers	All Locations	Minor	Possible	22	PPE	Type Allergenic/barrier creams to be provided where necessary. Gloves to be worn,(PVC Gloves) hypo allergenic if required Do not leave resins, glue, concrete, etc, harden on your hands. Do not wear contaminated clothing, Keep your workplace clean and tidy, Always wash your hands after handling materials. Do not use petrol, diesel thinners etc… to clean hands. Always wear long sleeves when working with wet concrete. Always wear knee pads while kneeling on concrete. Always wear Wellingtons when working with concrete Procure and comply with SDS for the products used All hazardous substances to be clearly labelled and stored in a separate location under lock and key Provide all necessary information, training and instructions to employees using substances- circulate SDS to personnel and explain PPE requirements and first aid supplies required. All dust and fumes must be regarded as a hazard and the appropriate respiratory protective equipment must be worn where required. Provide PPE and enforce its' use to those working with hazardous substances SDS required from sub-contractor prior to work commencing on site where materials are provided by sub-contractor	Minor	Unlikely	15	Engineer								
3	All	Serious Injury	Serious injury to one or multiple workers	All Locations	Major	Possible	21	Administration	Occupational first aiders on site	Major	Unlikely	14	General Foreman								
4	All	Working over/ near water	Risks of workers or general public drowning in sedimentation ponds during general earthworks	All Locations	Catastrophic	Possible	24	Isolate	Fencing or safety netting Security patrols Audits Rescue equipment Protective equipment Close down procedure during holiday periods	Catastrophic	Rare	15	General Foreman								
5	All	Working over/ near water	Risks associated with working over / near water e.g. drainage, piling, sedimentation pond construction or maintenance and bridgeworks	All Locations	Catastrophic	Possible	13	Engineering	Procedures for working over water PPE Securing equipment Design in safety systems Adequate anchorage points Buddy system Adequate rescue system Alarm system First aid trained personnel Ensure personnel can swim Method Statement Trained and competent staff Subcontractor selection Appropriate equipment use Fences, barriers and fall arrest systems to be installed and used Training in use of PFDs and rescue equipment is provided	Catastrophic	Rare	15	General Foreman								

6	Traffic	Access into & Out of Site	Risks associated with congested site and staging of activities or interfacing trades	Public road interfaces	Significant	Likely	13	Administration	Risk assessment conducted by Project Manager or delegate to ensure that capacity exists to safely accept incoming plant and materials Ensure that a VMP is prepared to direct the driver to the unloading location and supervisors give clear and concise directions	Significant	Possible	9	General Foreman								
7	All	Mobile Plant & Equipment	Risks associated with loading and unloading of plant and equipment	All Locations	Significant	Possible	24	Administration	Appropriately trained personnel Method Statement Defined lay down regions Traffic design and management Supplier management of loading activities Loading and unloading procedure Utility locations identified Load & unload from level ground	Significant	Unlikely	15	Section Foreman								
8	All	Electricity	Risks arising from the use of site electrical facilities such as distribution and sub boards and portable power tools	All Locations	Major	Possible	8	Isolate	Risk assessment to be conducted taking into account: -The environment of work - Level of protection available Proximity to work site of supply -Type of appliance to be used All portable generators are to have RCDs fitted set to trip at 30mA	Major	Rare	5	Section Foreman								
9	Traffic	Access into & Out of Site	Risk to services during delivery and set up of large plant	Public road interfaces	Significant	Likely	24	Isolate	Risk assessment conducted by Project Manager or delegate to ensure that capacity exists to safely accept incoming plant and materials As part of the risk assessment all known services are to be identified, marked and assessed for adequate clearance before permitting the transporter to enter the site	Significant	Rare	15	Engineer								
10	All	Mobile Plant & Equipment	Risk or personnel being crushed from agitator operation during shotcrete application	All Locations	Major	Possible	13	Isolate	Method Statement's developed All personnel trained in Method Statement All new personnel inducted in Method Statement Sign off conducted for all with ongoing monitoring All personnel to wear high visibility long-sleeved shirts / tops Plant design Procedures Management plan Lighting Guards over pumps Clean work areas Trained operators and spotters	Major	Rare	6	Section Foreman								
11	Traffic	Access into & Out of Site	Risk of unauthorised access to site and fall into open excavations or sedimentation ponds	Public road interfaces	Major	Likely	22	Isolate	Risk assessment conducted to identify sites and conditions at risk. Fences or barriers erected around open excavations. Robust covers placed and secured over open penetrations, pits, holes and piling works. Work procedures and Method Statement's developed Competent supervision engaged to manage risks	Major	Rare	15	Section Foreman								
14	Traffic	Access into & Out of Site	Risk of traffic accident associated with restricted site access or egress for large trucks and plant	Public road interfaces	Catastrophic	Likely	13	Eliminate	Risk assessment conducted by Traffic Manager and Project Manager to proof check the capacity of each site access / egress against the design Left-In / Left Out policy - **if possible**	Catastrophic	Rare	9	General Foreman								
16	All	Standards of Work	Risk of temporary works being inadequate and do not meet safety standards	All Locations	Significant	Possible	21	Administration	Conduct a risk assessment of the work prior to start Develop appropriate work procedures / work method statements for the work activity. Provide drawings for all temp works Apply the same OHS Management processes to temporary works that would be applied to permanent works	Significant	Rare	10	Engineer								
18	Security	Unapproved or permitted access	Risk of security of site facilities, plant & equipment from unauthorised access & possible interference	Public road interfaces	Significant	Possible	17	Administration	Risk assessment conducted to identify sites & conditions at risk Fences or barriers erected around sites Signage erected warning construction site keep out + security company signage & Site Contact Number Work procedures and Method Statement's developed Competent supervision engaged to manage risks	Significant	Rare	9	Engineer								
25	All	Access	Risk of poor access/egress when working at heights, in deep excavations or caissons	All Locations	Significant	Likely	25	Engineering	Staircase / Steps Platform Ladder Familiarisation of site by emergency services Working at Heights Procedure Work procedures and Method Statement's to consider in detail access requirements Emergency extraction is to be considered and implemented for all access ways	Significant	Unlikely	15	Section Foreman								
26	All	Mobile Plant & Equipment	Risk of personnel entanglement in mechanical plant & equipment	All Locations	Major	Likely	8	Isolate	Plant risk assessment completed Demarcation zones for pedestrians Trained and competent operators Isolation procedures	Major	Rare	3	Section Foreman								
30	Safety Dept	Training	Risk of inadequate site awareness training by BAM	Compounds	Minor	Possible	8	Administration	Extensive Project / Site Induction provided Site Induction revised and communicated as work scope changes Weekly toolbox talks conducted with all persons employed on the project to keep the information provided current	Minor	Unlikely	5	Engineer								
32	Traffic	Access into & Out of Site	Risk of inadequate access for incoming materials i.e. parking, unloading, working at heights and manual handling	Public road interfaces	Significant	Likely	17	Engineering	Risk assessment conducted by Project Manager or delegate to ensure that capacity exists to safely accept incoming plant and materials Implement the BAM Working at Heights procedure and Manual Handling procedure when unloading materials from suppliers Ensure that a VMP is prepared to direct the driver to the unloading location and supervisors give clear and concise directions	Significant	Unlikely	6	Section Foreman								
37	All	Services	Risk of damage/ injury from unknown utilities Overhead & Underground Services	All Locations	Major	Almost Certain	13	Isolate	Use spotters or hand dig Engage service locators to discover / detect any services Complete the Permit to Excavate process Train personnel in procedures in working close to underground services in accordance with Scottish power COP Use goal posts Suney height of utility Visual markers & signage Working near to underground or overhead services and obstructions procedure (BAM)	Major	Rare	9	Section Foreman								
47	Traffic	Traffic Management	Public Vehicles being struck by site vehicles Pedestrians being struck by site vehicles Site Workers being struck by site vehicles Site workers being struck by public vehicles Limiting disruption to flow of public traffic	Public road interfaces	Catastrophic	Almost Certain	8	Isolate	TMP to be drawn up and approved before setting up the system on public roads vulnerable groups must be accommodated by the plan SLG training to be completed Temporary Traffic Operations Supervisor (TTOS) to be appointed A competent person holding a CSCS card in 'Signing, lighting and guarding on roads' (this person is also referred to as the 'Temporary Traffic Operations Supervisor') is present to supervise the works	Catastrophic	Rare	5	General Foreman								
48	All	Site Access	Public Vehicles being struck by site vehicles Pedestrians being struck by site vehicles Site Workers being struck by site vehicles Site workers being struck by public vehicles Collision of vehicles on site or in Site grounds Limiting disruption to flow of public traffic	Public road interfaces	Catastrophic	Possible	20	Engineering	Site access signs to be posted in advance of the site entrance. Site speed limit signs posted and adhered to Warning signs are to be posted on the approach to the site entry point. Ensure there is enough space for vehicles to safely pass each other. All Vehicles to be road worthy Under no circumstances are machine drivers to use a mobile phone while operating machinery	Catastrophic	Rare	15	General Foreman								
49	All	Mobile Plant & Equipment	Plant movement on site Collision Crushing	All Locations	Significant	Possible	17	Isolate	Mobile Plant Procedure Traffic Management Procedure Lighting	Significant	Unlikely	6	Section Foreman								
50	All	Manual Handling	Personal Injury when handling materials, equipment & Plant	All Locations	Significant	Likely	13	Administration	Ensure all packaged materials are supplied in containers that can safely be handled Where manual handling is to be a significant part of the works, conduct a manual handling risk assessment in consultation with workers involved Plan the work site and lay down areas to enable materials, plant and equipment can be easily accessed from open non-congested areas	Significant	Rare	6	Engineer								
51	Mobile Cranes	Incorrect Lifting Operations	Overturning due to overloading or unsuitable ground Fall of load due to failure of lifting equipment or accessories	All Locations	Catastrophic	Likely	#N/A	Isolate	Read and apply the BAM Standard on Cranes and Lifting. Capacity and type of crane determined in advance by the Appointed Person for Lifting Operations.	Catastrophic	Rare	#N/A									
52	All	Mobile Plant & Equipment	Operation in congested areas Collision with people/plant	All Locations	Significant	Possible	18	Isolate	Use of appropriate plant and equipment Spotters / Banksman / Flagman as required All personnel to wear high visibility hive or vest	Significant	Unlikely	10	Section Foreman								
56	All	Fire	Major or Minor fire or explosion	All Locations	Catastrophic	Possible	13	Engineering	All hot works to have fire fighting equipent in immediate area Hot works permits Correct storage of fuels and flammable substances as per SDS	Catastrophic	Rare	15	General Foreman								

57	Traffic	Flagman Duties	Live Public Traffic General Public Site Traffic Working at Night	Public road interfaces	Catastrophic	Possible	17	Administration	Correct Signage to be erected i.e. flagman signs in conjunction with the required traffic management signs as per traffic management plan and drawings. Flagmen should be trained in their duties. Flagman training is given prior to the flagman starting on site. Flagman are issued with STOP/GO signs prior to start Flagmen are issued with hi-vis clothing i.e. hi-viz vest, which must be worn at all times. Hi-viz trousers must be worn in dark conditions. The flagmen must ensure their PPE is kept in good clean condition at all times. Good lighting is required where flagmen are operating out on public roads early in the morning and late in the evening after daylight hours. Flash lamps are issued to flagmen and they must use them where required; Public traffic to be stopped for as little time as possible - no longer than 5 mins if possible A safe work plan will be completed prior to starting work on site and renewed on a weekly basis.	Catastrophic	Rare	13	General Foreman								
58	Traffic	Use and erection of Lighting Towers	Lights blinding drivers and pedestrians Incorrect positioning Incorrect erection Theft Pinching / crushing of fingers Contact with hot exhaust	All Locations	Significant	Possible	18	Engineering	Lighting towers not to be positioned in a manner in which they can cause blindness to approaching traffic or pedestrians Lighting towers are to be positioned inside work areas or protected from unauthorised tempering by fencing. Persons erecting lighting towers to be aware of operation procedures Do not touch hot exhaust Correct manual handling procedures to be employed when moving. Only use engine powered lighting stands in well ventilated areas. Ensure that no obstructions are overhead erection position Keep hands clear of pinch points during erection and lowering of lighting towers Safe work plan to be carried out. Foreman to identify best position of lighting stands and consult with traffic manager as to suitability	Significant	Unlikely	14	Section Foreman								
63	All	Mobile Plant & Equipment	Faulty plant & equipment used on site inclusive of inspection and or repair of plant and equipment	All Locations	Significant	Possible	21	Administration	Daily pre-start checks Tickshet operators / competent	Significant	Unlikely	10	Section Foreman								
66	Deliveries	Unloading & Placing Concrete Pipes	Failure of lifting gear Mechanical Failure Collapse of the pipes Pipes rolling Trapped by an object Trapped fingers Trench Collapse Coming into contact with plant Coming into contact with personnel Fall into water Electrocution from use of portable tools	All delivery areas and set down points	Significant	Possible	22	Isolate	CSCS card All machines to be certified. All certs to be copied and kept in the register Driver to check that the machines are in good order prior to use. All machines to have flashing beacon, convex mirrors or CCTV and reversing beeper. All machines to lift using the S.W.L.L. All machine drivers to have relevant CSCS card . Copy of cards to be kept in the CSCS register. When pipes are being transported, ensure they are secure and chocked. When pipes are being stored on the ground ensure they are stacked correctly and in a safe position, ensure they are chocked on either end and re-chocked as they are lifted put of the storage area. All persons not required for task to keep clear while pipes are being transported and placed. Gloves to be worn by all operatives. All persons to signal to the driver that they wish to pass the machine and wait for their signal to ensure that it is safe to do so. All personnel to have the required PPE i.e. hard-hat, vest, safety boots and safety glasses. Ensure the trench is supported i.e. stepped, battered or supported. Foreman or Engineer to complete the Excavation Register. Ensure safe access and egress to and from the excavation. Ensure spill kit is in the area in the event of spill kit. All portable tools to be operated at 110v and in good order prior to use.	Significant	Rare	6	Engineer								
68	All	Use of mini excavators (diggers)	Entrapment of people on slewing Working in a confined space. Contact with buried services or overhead services Contact with pedestrians, other plant, fixed objects when tracking or slewing Overturning due to Instability or overloading, working on slopes (Mechanical failure (e.g. unintentional release of quick hitch buckets) Mechanical, fluid pressure, electrical hazards from power transmission Slips/falls when climbing in or out of a cab Noise and vibration	All Locations	Catastrophic	Possible	13	Eliminate	**PLATFORM.** Flashing Beacon to be used when excavator is in use Passengers must not be carried inside or outside the machine. Allow clearance distance for slewing - barricade danger areas off if necessary Do not slew bucket or load directly over personnel Slow working cycle down when working on slopes to reduce bucket reach Mini diggers are unstable on slopes over 10 degrees. Banksman to be in attendance with all excavation work. A permit to dig to be in place before any excavation work commences. Only CSCS card holders to operate mini diggers Do not lift excavator by cab use the lifting eyes provided. When used in confined areas measures are to be taken to ensure that there is not a build-up of fumes from engine The engine is not to be left left running when machine is not operating. Operators to enter and exit the machine using the steps and handholds provided as per the CSCS training/other training No machine to be left ticking over while the operator is out of the cab. Keys to be removed when operator is out of the machine Tool Box talk to be carried out prior to work starting - Dangers Working Near Mobile Plant Ensure statutory and company test, examination and inspection procedures are implemented. Ensure that excavators are used only by certified trained persons Ensure that the rules relating to authorised use of plant and equipment are made clear to all personnel at induction Schedule 6 of the construction regulations to be complied with, this lists the Auxiliary Devices and Visual Aids required on all plant	Catastrophic	Rare	9	General Foreman								
70	All	Emergency Response	Emergency response plan inadequate/ services not catered for	All	Significant	Almost Certain	13	Administration	Emergency Response Plan assessed by client Representative and other parties with comments sought	Significant	Rare	9									
71	All	Working near & around water	Drowning	All Locations	Catastrophic	Likely	13	Isolate	Specific risk assessment and Method Statement for task				Project Manager								
73	All	Use of Diesel	Diesel is classified as a class 3 carcinogen, Contact Dermatitis Sensitiser of skin Headaches from inhalation of diesel fume Potential for fire in extreme cases	All Locations	Significant	Likely	18	Administration	SDS for Diesel to be available for inspection and reference Diesel to be stored in correcitly labelled containers Storage areas to be bunded and away from sources of ignition Gloves to be worn when handling diesel containers and refuelling Correct fire extinguishers to be located on machines and storag areas (dry powder) Spill kits to be available in storage areas Disposal facilities to be correctly licensed and located away from rivers and streams	Significant	Unlikely	10	General Foreman								
78	All	Mobile plant	Slips/ falls when climbing into or out of a cab Overturning due to excessive speed bad ground, sudden braking & environmental factor Poor visibility from operating position Contact with overhead wires when tipping Unauthorised use People being crushed or hit while loading or operating Entrapment of people on slewing Large excavators travelling in a confined space Contact with other plant, fixed objects when tracking or slewing Overturning due to overloading, working on slopes Mechanical, fluid pressure, electrical hazards from power transmission Noise and vibration	All Locations	Major	Possible	13	Eliminate	No passengers to be carried in cab (unless a seat supplied by the manufacturer has been fitted in the cab). Traffic rules to be drawn up and followed Drivers are not permitted to operate mobile phones when driving plant CCTV cameras or convex mirror or combination of both to be fitted to all mobile plant to allow vision from driver's seat of all points >1m high and in from the machine and at the rear of the driver Company procedures for inspection and maintenance must be fully implemented, particularly with regard to braking systems. (This must include daily checks by the operator). Consideration should be given to open edge safety protection where required Pedestrians must be segregated from haul roads and loading/unloading areas as far as is possible. One way systems should be adopted where possible Operators to enter and exit the machine using the steps and handholds provided as per the CSCS training/other training No machine to be left ticking over while the operator is out of the cab. Keys to be removed when operator is out of the machine Conduct regular Tool-box talks on the subject of working near mobile plant. Ensure that the rules relating to authorised use of plant and equipment are made clear to all personnel at induction. Statutory forms to be completed for all machinery	Major	Unlikely	9	General Foreman								
79	All	Working in Confined Spaces	Asphyxiating atmosphere (carbon dioxide) Oxygen deficient/rich atmosphere Flooding	All Locations	Catastrophic	Possible	24	Engineering	If an alternative work method is reasonably practicable and entails lowering the overall risk it must be used. Unauthorised entry must be prevented A safe system of work must be designed	Catastrophic	Rare	15	General Foreman								
81	All	Vehicle Incident / Plant Roll Over	A vehicle incident or plant roll over	All Locations	Major	Possible	13	Isolate	Obey speed limits Always wear a seat belt When operating mobile plant on batters stay perpendicular to slope Set up windrows/ barriers, or safe distance from edge of batters / slopes Operators to be competent and ticketed	Major	Unlikely	14	General Foreman								
83							#N/A					#N/A									
84							#N/A					#N/A									
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					Initial Risk no controls					Residual Risk controls in place			
No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
1	All	Water Impacts	Release of unfiltered water Release of chemicals into water Excavation work Water pollution Loss of aquatic life Damage to river beds Surface water pollution Ground water pollution	All Locations	Major	Likely	21	Isolate	Wash out in safe, lined area Remove excess to predetermined waste control areas All equipment used to Bentonite storage is inspected daily and records maintained. Bentonite plant erected on a bunded area. Drip trays used for all plant and equipment No water to be released to any water course without treatment and permission Filtration measure to be set up where necessary No concrete wash water to be released untreated No releases to groundwater without permission and treatment Where groundwater is suspected to be polluted – stop works and contract Project management Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman
2	All	Land Impacts	Realise of chemicals or fuels to land Storage of fuels and equipment Surface water pollution Groundwater pollution Land pollution Flora and fauna damage	All Locations	Major	Likely	21	Isolate	Traffic Management Plan to be in place Use of hard standing areas / jet washers for vehicles and road sweepers where appropriate Drip trays used at all times for mobile plant Use of refuelling procedure, emergency procedure. Bunded storage used to store fuels and hazardous substances Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman
3	All	Noise and Vibration	The use of un-silenced equipment Use of faulty equipment Pumping excavations Noise pollution Property damage Distress to animals	All Locations	Major	Likely	21	Engineering	Noise / Vibration monitoring in compliance with project requirements Dust Monitroing by foremen engineers Rivers and Stream to be monitored on an ongoing basis for potential sources of pollution from the project Communication with neighbours and appropriate local authority Ensure all plant and equipment is well maintained Installation of hoarding and other noise baffling equipment where deemed necessary by risk assessment Works to take place during agreed times only Low vibration and well maintained equipment used to undertake piling Condition surveys, baseline and on-going construction phase monitoring in sensitive locations as and when required Adoption of appropriate work plan to minimise vibration in sensitive areas	Major	Unlikely	14	General Foreman
4	All	Waste disposal (including hazardous)	Cross contamination of waste Incorrect disposal of hazardous waste Storage of materials Land contamination from leaks Water pollution from leaks fire	All Locations	Major	Possible	18	Administration	Effective planning for waste minimisation through site waste management plan Effective segregation and reuse onsite into four streams General waste Wood and cardboard Metal Hazardous. Recycle and reuse to take precedence over disposal Follow waste hierarchy and mitigation measures Compliance with the provision of the Hazardous Waste Regulations. The removal and disposal will be conducted under a strict consignment notes system Disposal sites to be licensed or permitted with EPA or Local Authority respectively Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman

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No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
5	All	Emissions to air	Vehicles speeding on site Movements of vehicles Use of faulty equipment Air pollution Local nuisance Crop damage Properties in air	All Locations	Significant	Possible	13	Engineering	Mitigation measures specified in project requirements to be adhered to Dust suppression to include using water during significant windy and dry periods, sheeting of vehicles and stockpiles etc. Use of wheel cleaners and road sweepers where necessary. Planning works to avoid dust generating activities in notably unfavourable wind conditions. Monitoring where required and agreed with Client, Clients Rep etc. Drivers required to switch off their vehicle's engine when stationary to prevent exhaust emission and noise. Use of well-maintained plant only Dust suppression techniques employed when dust is generated Provision of dust and air quality monitoring if/where required	Significant	Unlikely	9	Section Foreman
6	All	Habitat & Species (SAC / SPA)	Working without permission Tree, plant removal Disturbance of rare species/ habitat The spread of invasive plants Accidental injury to species	All Locations	Significant	Possible	13	Administration	All licences to be in place before any works which may impinge on trees, hedges or any other protected species. Liaison with Client, Clients Rep and Local Authority to be encouraged before works start. If invasive plants are to be moved, contact Department of Arts, Heritage and Gaeltact (DAHG) for permission and licences	Significant	Unlikely	9	Section Foreman
7	All	Environmental Nuisance	Night site lighting Waste disposal (litter) Site noise Unnecessary energy use Light pollution Environmental complaints Disturbance to animal species Depletion of raw materials	All Locations	Minor	Likely	12	Administration	Works to operate primarily during daylight hours Security to switch off lights where practical - use of timers Where task lighting is used ensure this is pointed at the task being undertaken and not polluting other areas or neighbours Use of Traffic Management Plan. Appropriate access location and control. Use of wheel washers / jet washers for vehicles. Investigate use of renewables. Noisy work to take place during agreed times Communication with local residents etc. Site and surrounding area to be well maintained – regular litter picks etc.	Minor	Unlikely	5	Engineer
8	All	Archaeology	Working without archaeologist of adequate supervision Damage to archaeological remains Interference with historic features	All Locations	Minor	Likely	12	Administration	All archaeology licences and permits to be in place before works commence. Licenced Archaeologist will be on site as per contract specifications. If any materials or remains are encountered after these archaeological digs, all works must stop until permission is given to proceed	Minor	Unlikely	5	Engineer
9	All	Invasive species	Spread of Invasive species to other areas not previously found in	All Locations	Major	Likely	21	Eliminate	Surveys have been carried out to identify any invasive species within the site. Where located, areas have been fenced off and signed with no access within the area permitted unless measures are in place to deal with the invasive item. Species will be sprayed whilst in bloom and repeat sprayed as required to kill. Where additional areas of invasive species are identified during works, the project manager will be informed and appropriate action taken to prevent spread and remove the species	Major	Unlikely	14	General Foreman
10	All	Siltation of watercourses	Build up of Silt in water courses which coud result in Fish Kills or other enviromental issues	All Locations	Major	Likely	21	Engineering	Surface runoff from all areas of site will be monitored. Visual monitoring of receiving water bodies will be undertaken. Where necessary, silt mitigation measures will be implemented. These may include minimisation methods, filtration, silt settlement, mechanical treatment or chemical dosing, depending of severity.	Major	Unlikely	14	General Foreman
11	All	Water Impacts	Release of unfiltered water Release of chemicals into water Excavation work Water pollution Loss of aquatic life Damage to river beds Surface water pollution Ground water pollution		Major	Likely	21	Isolate	Wash out in safe, lined area Remove excess to predetermined waste control areas All equipment used to Bentonite storage is inspected daily and records maintained. Bentonite plant erected on a bunded area. Drip trays used for all plant and equipment No water to be released to any water course without treatment and permission Filtration measure to be set up where necessary No concrete wash water to be released untreated No releases to groundwater without permission and treatment Where groundwater is suspected to be polluted – stop works and contract Project management Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman

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No.	Discipline	Hazard Type	Description of Risk(s)	Specific Location on Site	Consequence	Likelihood	Risk Score	HOC	**Control Measures**	Consequence	Likelihood	Score	Responsible Person
12	All	Land Impacts	Realise of chemicals or fuels to land Storage of fuels and equipment Surface water pollution Groundwater pollution Land pollution Flora and fauna damage		Major	Likely	21	Isolate	Traffic Management Plan to be in place Use of hard standing areas / jet washers for vehicles and road sweepers where appropriate Drip trays used at all times for mobile plant Use of refuelling procedure, emergency procedure. Bunded storage used to store fuels and hazardous substances Emergency procedures to be adhered to	Major	Unlikely	14	General Foreman
13	All	Contact with contaminated water or waste.	Weill's' disease – bacterial infection from contact with contaminated water or rodent urine through the eyes, mouth, nose or open cuts on the skin. Symptoms include flu-like, headache and chills.		Major	Likely	21	Administration	Wash your hands thoroughly before eating, drinking or smoking or using toilet facilities; - Cover cuts, abrasions and any open wounds with waterproof plasters; - Overalls should be worn at all times when operating in contaminated areas, and if exposure has been extensive; they should be sprayed with a disinfectant; - To prevent means of entry, pants should be tucked into socks or safety boots before the overalls are put on; - Wear gloves when working near drains or underground cavities or waste materials; - When putting on gloves, pull the cuff of the glove over the wrist cuff your overalls; - When removing gloves, they must be pulled off from the cuff or wrist downwards towards the fingers, leaving the glove inside out when removed and disposed of immediately; - Disposable gloves, overalls and ear buds are to be used only once and disposed of immediatly in the correct skip or bin; - Gloves to be EN420, EN388, EN374 approved; - Always check safety boots for leaks or cracks and replace immediately if they are inadequate to prevent contact with the water;	Major	Rare	10	Section Foreman
14	Piling	Refuelling plant/potential leaks of hazardous substances.	Potential run-off of harmful chemicals used in refuelling and maintenance of the piling rig and equipment, affecting the surrounding ground. Leaking fuel bowsers.		Major	Possible	18	Engineering	Engines must be switched off when refuelling; - Ensure drip trays are used under all plant and materials that could develop a drip/leak of a hazardous substance e.g. fuel bowser, pump etc.; - Clean up any spillages immediately with a spill kit; - Spill kits must be on hand for all plant and equipment that could potentially leak; - The fuel tank is lifted to a location beside the plant using the track machine in attendance to the piling operations; - The end of hose must be covered with a spill kit sheet when placing and extracting it from the tank; - Should a spillage occur, the area is sprayed with detergent; - The contaminated ground is then dug out and put into a designated storage area to be determined; - Clean stone is then used to replace the removed ground and it is compacted to ensure no soft spots are present;	Major	Rare	10	Section Foreman
15	All	Hazardous substances running into watercourses.	Pollution of waterways.		Major	Possible	18	Administration	Do not refuel beside watercourses/waterways. Keep at least 10m away from any watercourse/ waterway when refueling/ changing oil.	Major	Rare	10	Section Foreman
16	All	Environmental Noise.	Noise in a sensitive community can cause disruption to local residents.		Minor	Likely	12	Administration	- Working hours to be agreed with the main contractor prior to commencing works; - Piling foreman to inform the main contractor if they receive any complaints from local residents;	Minor	Unlikely	5	Engineer
17	All	Adjacent trees and other structures.	Damage to nearby trees or structures		Minor	Possible	8	Isolate	Avoid unnecessary tracking alongside existing structures and trees, any damage to be reported to the foreman; Area has been cleared of all trees, however some trees may be on haul roads so care to be taken when driving alongside them	Minor	Rare	3	Engineer

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18	All	Working on or near water. Incl. Standing Water	Falling into water/ drowning /contamination.		Catastrophic	Unlikely	19	Isolate	All works shall be carried out in accordance with current Legislation. Prior to works commencing: Daily Safe Plan of Action to be completed. Approved activity specific method statement to be in place and briefed to all concerned. Refer to working at Height Risk Assessment Adequate barrier system, safety nets and edge protection to be in place to prevent falls. Where required harness' to be provided. Life buoys / life belts to be in position and certified to AF4 (if required). Adequate rescue procedures to be developed and briefed to	Catastrophic	Rare	15	General Foreman
19	All	Dust	Damage to plants & wildlife. May enter neighbour's property. May enter operatives eyes and airways.		Minor	Possible	8	Engineering	Dust suppression required where it is excessive. Water supply to be set up next to the piling area. Were possible use the power hose to suppress the dust in the temporary casing before the boring tool is brought up to ground level. Dust masks to be worn if dust is excessive.	Minor	Rare	3	Engineer