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Construction Environmental Management Plan (CEMP)

PRESENTED TO

Reside (Castlepark) Ltd.
Section 32B LRD Application, Castlelands, Mallow, Co. Cork

DATE

October 24

Environmental Consultancy Services

DOCUMENT CONTROL SHEET

Client	Reside (Castlepark) Ltd.
Project Title	Section 32B LRD Application, Castlelands, Mallow, Co. Cork.
Document Title	Construction Environmental Management Plan (CEMP)

Rev.	Status	Author(s)	Reviewed by	Approved by	Issue Date
00	Draft for Internal Review	Paul Nolan *Environmental Consultant*	Charlotte Lawler-Greene *Principal Consultant*	Charlotte Lawler-Greene *Principal Consultant*	01/10/2024
01	Draft for Client Review	Paul Nolan *Environmental Consultant*	Charlotte Lawler-Greene *Principal Consultant*	Catherine Sheridan Technical Director	02/10/2024
02	Final for Client Issue	Paul Nolan *Environmental Consultant*	Charlotte Lawler-Greene *Principal Consultant*	Catherine Sheridan Technical Director	09/10/2024

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1 INTRODUCTION

Enviroguide Consulting (hereafter referred to as EGC) was retained by Reside (Castlepark) Ltd. (hereafter referred to as the Client) to prepare a Construction Environmental Management Plan (hereinafter CEMP) for the construction works of the Large-Scale Residential Development (LRD) at Castlelands, Mallow, Co. Cork (hereafter referred to as the Site). A planning application for Phase 1 of this LRD has been submitted separately.

This CEMP describes the proposed works and defines the measures that shall be implemented to manage, minimise, or mitigate potential environmental impacts that may arise from the Construction Phase of the Proposed Development at the Site.

A detailed description of the Proposed Development is provided in Section 2.

The CEMP is an integral part of the Project's Health, Safety, Environmental and Quality Management System (HSEQMS). The CEMP is subject to the requirements of the Site Quality Management System (QMS) with respect to documentation control, records control, and other relevant measures.

The primary distribution list for this document includes the following personnel.

- Construction Director.
- Construction Manager.
- Construction Management Team (CMT).
- Environmental Manager.
- Site Supervisors; and
- Other relevant personnel including authors of reports submitted with the planning application.

1.1 Objective and Purpose

The purpose of this CEMP is to provide effective, site-specific procedures and mitigation measures to monitor and control environmental impacts throughout the Construction Phase of the project and ensure that construction activities do not adversely impact the environment.

The objective of this document is to set out and communicate the procedures, standards, management responsibilities and key environmental obligations that apply to the Main Contractor and sub-contractors to address and prevent environmental effects that may arise from the Construction Phase of the Proposed Development.

This CEMP is to be read in conjunction with the Resource & Waste Management Plan (RWMP) (Enviroguide Consulting, 2024) prepared for the Proposed Development.

1.2 Scope of CEMP

This CEMP defines the approach to environmental management during implementation and roll-out of the Construction Phase of the project.

Compliance with the CEMP, procedures, work practices and controls is mandatory and must be adhered to by all personnel and contractors employed on the Construction Phase of the Proposed Development. This CEMP seeks to promote best environmental practices on-site for the duration of the Construction Phase.

This CEMP will provide a framework to:

- Comply with current environmental and waste legislation, codes of best practice and guidelines.
- Provide a plan for achieving and implementing construction related measures identified in design drawings and documents
- Ensure that environmental risks are identified and will be appropriately mitigated to ensure any adverse effects are minimised during construction and
- Outline the procedures for reporting and communicating on environmental aspects of the Project.

1.3 Live document

This is a 'live' document which will be continually reviewed and updated throughout the Construction Phase by the Construction Management Team (CMT). Updates to this CEMP may be necessary due to any changes in environmental management practices and/or contractors. Any further mitigation measures that may be identified as part of detailed design will be included. Any conditions of planning permission will be included in this CEMP, once granted.

As detailed in the later sections, the procedures agreed in this CEMP will be audited throughout the project roll-out phase to ensure compliance.

2 PROJECT DESCRIPTION

2.1 Site Location and Description

The Site of the Proposed Development comprises a greenfield site located at Castle Park in the townland of Castlelands, Mallow, County Cork. The Site lies just east of Mallow town centre and is situated 26km northeast of Cork City. The Site currently comprises several agricultural fields and associated vegetated boundaries. The national road N20 runs ca.1km to the west of the Site, connecting the cities of Cork and Limerick, with St. Joseph's (L1220) local road present to the north. The Site is bound by agricultural fields to the northeast, east, residential lands to the north and west, and a school to the north. The Site connects a public park which runs adjacent to the Blackwater River to the south. To the west of the Site, there is an existing housing estate which provides an access point into the scheme via Kingsfort Avenue. St. Joseph's local road will provide a second access point to the scheme further north.

The Site of the Proposed Development is located within Land Use Zoning consisting of residential zoned land parcel MW-R-01, 'Existing Residential/Mixed Residential and Other Uses' zoned land and 'Green Infrastructure' zoned Land within the Cork County Development Plan 2022-2028.

The Proposed Development location is presented in Figure 2-1.

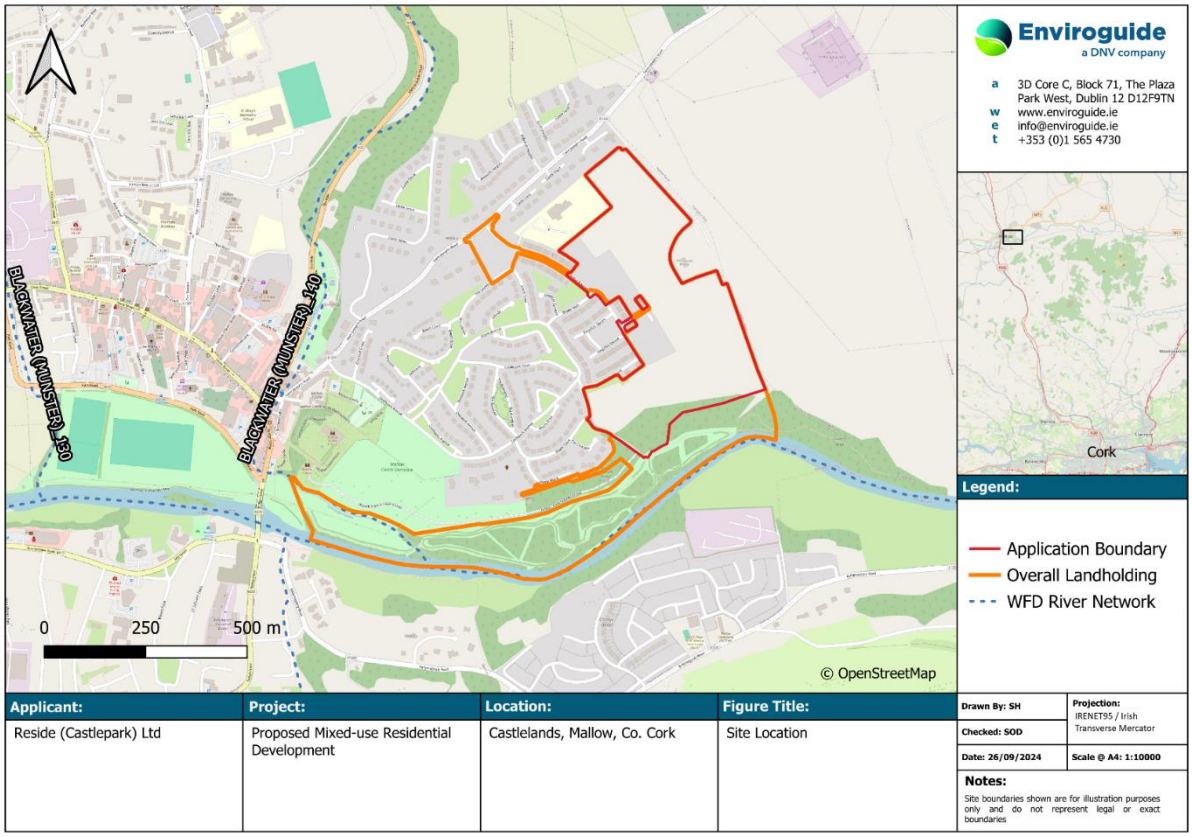

Figure 2-1 Site Location

2.1.1 Geology and Hydrogeology

The Site of the Proposed Development is situated on the Mitchelstown groundwater body (IE_SW_G_082), which is classified as having “Good” status (WFD Status 2016-2021). The aquifer type in the area is Regionally Important Aquifer-Karstified (Diffuse) (Rkd). The underlying bedrock is mapped by GSI and is classified as ‘Pale-grey massive mud-grade limestone’ to the north and ‘Massive unbedded lime-mudstone’ to the south (New Codes: CDHAZE/CDWAUL) (GSI, 2023).

The subsoil beneath the Site is Shale and Sandstone Till (Namurian) with Bedrock at or Close to the Surface to the east (EPA, 2023). The SIS National Soils data classifies the Site as Urban (GSI, 2023). According to the Teagasc soil maps the soils beneath the Proposed Development Site consist of Deep well drained mineral soils (GSI, 2023). Corine (2018) land cover at the Site comprises ‘Agricultural Areas’ with ‘Urban Areas’ extending west from the Site, and ‘Agricultural Areas’ extending east from the Site.

The Proposed Development is located on a regionally important gravel aquifer – Karstified diffuse (EPA, 2023). The groundwater vulnerability across the Site is mapped as having ‘Extreme’ vulnerability to contamination from human activity, with ‘High’ vulnerability to the west at the existing Castlelands estate, and ‘Rock at or near Surface or Karst’ in the east and south of the Site (GSI, 2023).

The quaternary sediments beneath the majority of the Site are mapped as Till derived from Namurian sandstones and shales, while the subsoil beneath the eastern boundary of the Site is mapped as Bedrock outcrop or subcrop (Rck) (GSI, 2023).

2.2 Proposed Development Description

The Proposed Large Scale Residential Development comprises the construction of 469 no. residential units, a creche, an interpretive centre/café and all associated site development works at Castlepark, Castlelands (townland), St Joseph’s Road, Mallow, Co. Cork. The Proposed Development also includes the demolition and removal of a small portion of the existing former lodge.

The Proposed Site layout is presented in Figure 2-2 (See Appendix A):

Figure 2-2 Site Layout

3 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT

3.1 Programme

The programme for the Construction Phase of the development is approximately 96 months.

Prior to any site works commencing, the Main Contractor will investigate/ identify the exact location of and tag all existing services and utilities around and through the site with the assistance of the relevant technical divisions of Cork County Council and utility companies.

The Health and Safety Authority's (HSA) *Code of Practice for Avoiding Danger from Underground Services* will be adhered to during excavation work, and when any other work involving underground services, is carried out. The Code of Practice aims to reduce the incidence of damage to underground services. Electricity cables, gas pipes, water pipes and sewers, if damaged, may pose a direct danger to personnel who are working on the site, and may also pose a pollution risk to the surrounding environment. If an electricity cable, telecommunications cable, gas pipeline or water main suffers any impact or any damage, however slight, the incident must be reported to the network operator without any undue delay (HSA, 2016).

3.2 Working Hours

For the duration of the Construction Phase, it is envisaged that the maximum working hours shall be 08:00 to 18:00 Monday to Friday (excluding bank holidays) and 08:00 to 14:00 Saturdays. It is not anticipated that work will take place on Sundays & Bank Holidays.

Should there be a requirement, in exceptional circumstances, for works outside of the normal site working hours a written submission seeking authorisation will be made to Cork County Council.

Works will take account of any restrictions identified in the grant of planning.

3.3 Site Construction Compound

All construction support related activities will be contained within the Site Compound (See Figure 3-1). The site compound will consist of:

- Offices
- Welfare Facilities

All cabins will be brought to site in good condition and will be maintained in good order throughout the project. Double stacking of cabins may be required, with safe stairs and walkways provided to the upper levels of offices.

A power supply from ESB Networks to power both the compound and the construction site will be applied for by the Main Contractor. The size of supply will be calculated to ensure it is sufficient to power both the site compound and construction site activities. In the event of any delays securing the required power supply to power offices and cranes, generators may be required. Diesel generators will have sound enclosures and will be regularly serviced to

prevent noise and odour pollution, and setup in a spill tray to prevent any spillage contaminating the ground. Temporary site lighting will be installed to provide safe and well-lighted walkways around the site compounds, and task lighting to the construction sites.

Water and drainage will be required to service the site welfare facilities. The Main Contractor will carry out a site survey to identify the locations of the water and foul drainage connections to the site. It will be the Main Contractor's responsibility to apply to Irish Water for connections to the water main and foul drain, ideally utilising existing connections.

Materials handling and storage areas, including waste segregation and storage areas (including waste segregation and storage, chemical, fuel and oil stores), will be contained within the boundary of the Site. The required size for the site compound and waste storage areas will be specified by the Main Contractor. All waste storage areas will be identified by clear legible signage and recorded on a site layout drawing which will be maintained on-site.

Information notices located at the site entry, site compound and appropriate locations throughout the site will identify the site-specific PPE requirements and the potential risks associated with entering a live construction environment.

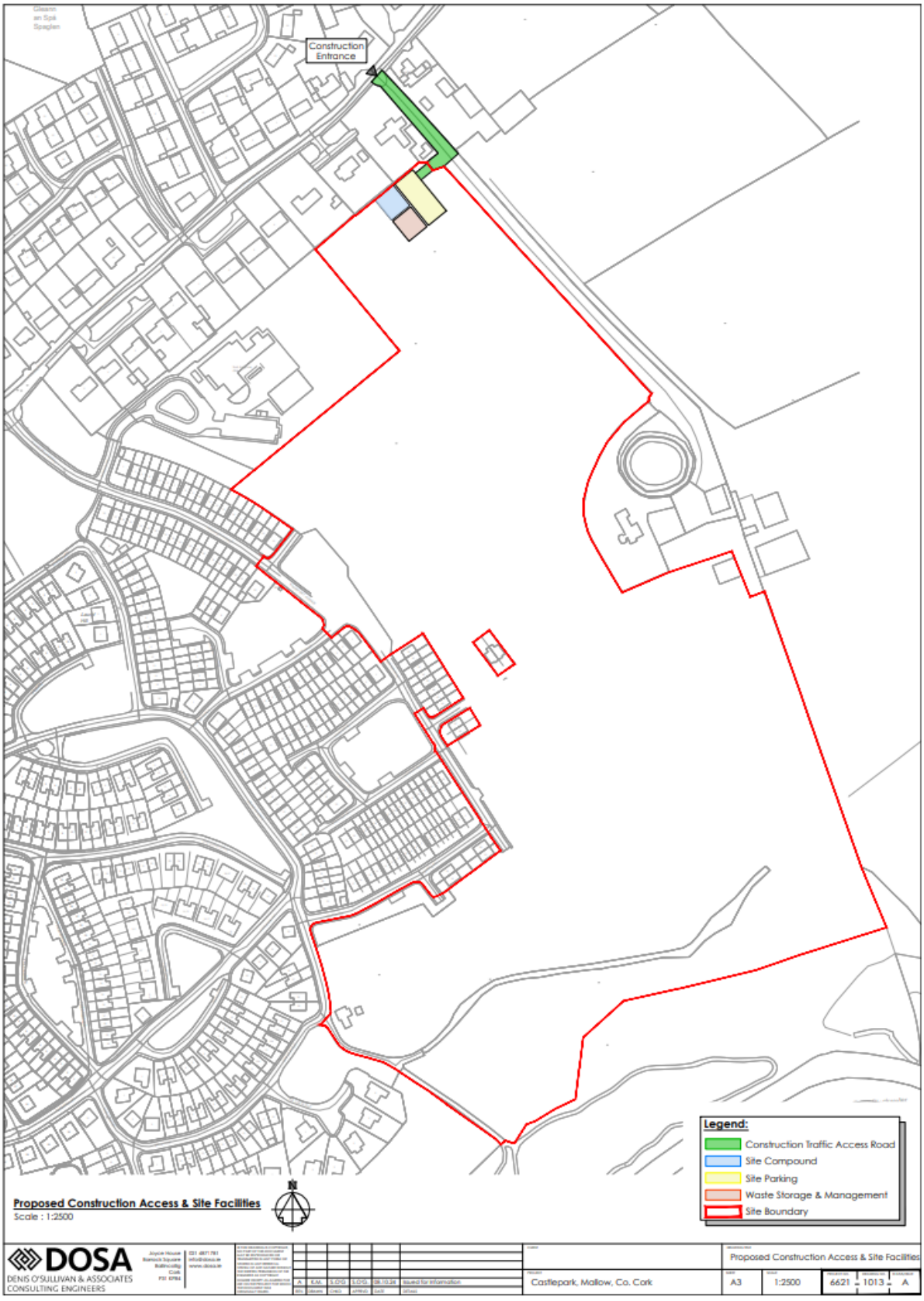

Figure 3-1 Site Facilities, Access, Waste Storage Area, and Parking

3.4 Traffic

During the Construction Phase of the Proposed Development, there will be a number of high activity periods where construction related traffic will be significant. The most intensive of these periods are likely to be the Demolition and Construction Phase. The nature of the construction process is such that the traffic generated will comprise of short periods of intense activity interspersed with longer periods with relatively low level of truck movements into and out of the site over the Construction Phase.

An Outline Construction Traffic Management Plan (OCTMP) has been prepared for the Proposed Development (Punch Consulting Engineers, September 2024). The Proposed Development is located within lands at St Joseph's Road which is used by local traffic, pedestrians and cyclists accessing existing housing estates, as well as some through traffic from the N72 to Mallow Town Centre.

The Main Contractor will be responsible for site access/works activity and depending on construction sequencing must ensure the continued safe operation of the existing housing estate roads in the vicinity. It is proposed that construction vehicles will access the site from the N72 at Oliver's Cross and enter via a temporary access location away from the existing residential and school access, utilising the existing access to Castlepark House and utilising agricultural lands to access the site. Construction traffic will use this route in order to minimise HGVs along the more densely populated stretch of St Joseph's Road and to minimise construction traffic accessing the N72 at the junctions in the town centre. It is intended that construction traffic will travel along the existing housing estate roads for as little time as possible in order to minimise potential conflict with residents in the area.

In advance of construction works commencing onsite, the appointed Main Contractor will prepare a detailed Construction Traffic Management Plan (CTMP) taking account of the particulars of the grant of planning and in consultation with Cork County Council where necessary in advance of construction works commencing onsite. The plan will detail all information regarding the traffic management required to complete the project works, inclusive of:

- Traffic management plans.
- Implementation phases of the project.
- and Risk assessment for the works.

Advance warning signage for the Site entrance will be provided at 75m and 50m from the entrance on both sides.

All traffic management measures will be implemented, maintained, and removed by competent personnel holding CSCS (Construction Skills Certification Scheme) Signing, Lighting and Guarding certification.

A gate attendant with appropriate training and qualifications will be appointed to control maneuvers and traffic flows at the site gates.

It is not envisaged that road closures will be required during the construction phase however, if required, applications to Cork County Council for permits and approval for road restrictions will be made.

Materials will be ordered and delivered to site on an “as needed” basis in order to prevent over supply. Deliveries will be managed upon arrival and systems will be put in place to avoid any queuing of delivery vehicles. Measures will be adopted to avoid damage to the infrastructural services of the adjoining roads over which vehicles servicing the Proposed Development will traverse. All delivery vehicles will be coordinated by the flagman on duty at the main entrance, as required.

It is proposed that all contractor vehicles will park within the development site area (See Figure 3-1 for location of site parking). There will be no parking permitted on the surrounding road network by the CMT or Site Operatives

3.5 Site Security, Public Health and Safety and Site Access and Egress

It is proposed that construction vehicles will access the site from the N72 at Oliver’s Cross and enter via a temporary access location away from the existing residential and school access, utilising the existing access to Castlepark House and utilising agricultural lands to access the site. Construction Traffic will exit the development at the same point. Construction Traffic will use this route to minimise HGVs along the more densely populated stretch of St Joseph’s Road and to minimise construction traffic accessing the N72 at the junctions in the town centre. Construction Traffic will travel along existing housing estate roads for as little time as possible to minimise potential conflict with residents in the area.

Warning signs will illustrate the required PPE and risks associated when entering the construction site.

Hoarding will be required to secure the entire site boundary. The hoarding will reach a height of approximately 2.4m and will be secure and non-climbable. No stored material will be stacked against hoarding and no storage will be allowed adjacent to public trafficked areas.

It is envisioned that vehicle gates with barriers will be accommodated at a security hut to control pedestrian and vehicle access.

Security of the site is an important issue with respect to restricting site entry to personnel solely involved in the construction process during working hours and preventing unauthorised access out of hours. Site access for all personnel and visitors will be strictly controlled and all visitors will report to the site offices prior to entering the construction area.

Safety and ease of access to the site are to be provided for by the Main Contractor when planning the works. Separation of vehicular and heavy plant traffic from pedestrians and operatives will be implemented as far as is practical when considering the layout of the site infrastructure and access points.

Regular inspections of the hoarding will be undertaken to ensure that the safety of any vehicles or pedestrians is not compromised.

Where a site access crossing is required over a pavement this will require a dedicated pedestrian management setup to ensure there are no incidents of crossovers between pedestrians and site vehicles. This may require a turtle-gate barrier in addition to semi-permanent barriers along the kerb edge, flagmen to control barriers and flagmen to watch truck movement and pedestrians.

In addition to the perimeter hoarding at the site, the following security measures will be adopted by the Main Contractor:

- A dedicated site security team with 24hr access to the site and direct contact with the local An Garda Síochána station.
- The Contractor will know who is on site at all times.
- There will be a site CCTV system which may be extended to cover the footpaths and roads around the site (depending on the GDPR regulations).
- Motion sensor hoarding lighting on short (1min) timers will be incorporated to increase the general illumination levels around the site, apart from boundaries to residential gardens and houses. Additionally, all lighting installed at the site will comply with the controls listed in Section 6.4. of this CEMP.

Siting the cabins behind the hoarding with windows overlooking the streets will provide a greater degree of natural surveillance to the area to prevent anti-social behaviour.

3.6 Communication & Consultation

The Main Contractor will appoint a Project Communications Officer who will undertake any required third-party communication and liaise directly with landowners/ local authorities/ members of the public, and all other stakeholders as required by the project.

3.6.1 Managing Enquiries and Complaints

All complaints and requests for information from members of the public will be handled appropriately and efficiently in compliance with the complaints and corrective action procedures to be developed by the Main Contractor. All follow up actions on the construction site will be managed by the CMT.

A record will be maintained on site of all complaints detailing the following as a minimum:

- Name and address of complainant (if provided).
- Time and date the complaint was made.
- Date, time, and duration of incident.
- Nature of the complaint (e.g., noise nuisance, dust nuisance etc.).
- Characteristics, such as noise, dust etc.
- Likely cause or source of incident.
- Weather conditions, such as wind speed and direction.
- Investigative and follow-up actions; and
- Root cause analysis and preventive actions.

All personnel working on the Proposed Development Site will be inducted into the complaints handling procedure and will be aware that complaints are to be directed immediately to the

CMT.

All enquiries and complaints received will be investigated by the CMT. Where appropriate corrective and preventative actions will be implemented as required to ensure that the complaint is effectively dealt with and to prevent a recurrence of the incident which led to the complaint being received. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

3.6.2 Advance Works Notice

The CMT will be responsible for regular consultation and public communications activities required during the construction works and will include all contact details for relevant project personnel, public bodies, and emergency services.

3.7 Maintenance of Roads

The Main Contractor will ensure that on-site control measures will be established and maintained at the Site to prevent any nuisance and debris associated with the construction works on public roads adjoining the Site. The main consideration will be to combat mud and dust at source so as not to let it adversely affect the surrounding areas. The objective will be to contain any mud or dust within the site, which is large enough for comprehensive control measures. This issue will be controlled by the following designated and operational measures:

- Designated hard routes through the Site to work front.
- Each departing vehicle will be checked by the banksman.
- Wheel wash facility at egress point and the channeling of departing vehicles through the wheel wash.
- Sweeping of public streets adjacent to egress from site, as necessary.
- Provision and facilities to cover lorry contents, as necessary.
- Where applicable, controlled loading of excavated material to minimise risk of spillage of contents.
- Facility to clean local roads if mud or spillage occurs.
- Ongoing monitoring during working hours.

4 PROJECT ROLES AND RESPONSIBILITIES

The Main Contractor appointed to the project will have overall responsibility for the implementation of the CEMP and appointing the following roles and responsibilities within the Construction Management Team (CMT).

Table 4-1: Project Roles & Responsibilities

Role	Responsibilities
Construction Director	Overall responsibility for the implementation of the CEMP Ensuring adequate resources are available to ensure the implementation of the CEMP Management review of the CEMP for suitability, adequateness, and effectiveness Setting out the focus of environmental policy, objectives, and targets for the Main Contractor
Construction Manager	Responsible for reporting to the Construction Director on the on-going performance of the CEMP Discharging his/her responsibilities as outlined in the CEMP Supporting the CMT and the Environmental Officer through the provision of adequate resources and facilities to ensure the implementation of the CEMP Providing Contractors with precise instructions as to their responsibility to ensure correct working methods where risk of environmental damage exists Where appropriate, ensuring Contractor's method statements include correct waste disposal methods Co-ordinating of environmental planning of CMT activities to comply with environmental authorities' requirements and with minimum risk to the environment
Environmental Manager	Ensuring that the requirements of the CEMP are developed and environmental system elements (including procedures, method statements and work instructions) are implemented and adhered to with respect to environmental requirements Reviewing the Environmental responsibilities of all sub-contractors in scoping their work and during their contract tenure Ensuring that advice, guidance, and instruction on all CEMP matters is provided to all managers, employees, construction contractors and visitors on site Reporting to the Construction Manager on the environmental performance of Line Management, Supervisory Staff, Employees and Contractors Advising site management on environmental matters and delegating responsibility to sub-contractors, where necessary Being aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management. Ensuring that all waste is managed accordingly, is recorded, and the materials/waste register is completed Maintenance of records of all necessary documentation including contractor waste collection permits, waste destination consents, waste transfer documents and waste management facility gate receipts in the waste management file and any environmental related documentation
Project Communications Officer	Conducting all public liaison associated with the Construction Phase of the project Responding to any concerns or complaints raised by the public in relation to the Construction Phase of the project Liaising with the Environmental Manager on community concerns relating to the environment Ensuring the Environmental Manager is informed of any complaints relating to the environment Keeping the public informed of project progress and any construction activities that may cause inconvenience to the local community Receive training on environmental sensitivities and SAC Conservation Objectives and mitigation measures in place

Role	Responsibilities
Site Supervisors	Read, understand, and implement the CEMP when it is fully developed, and receive adequate training on environmental constraints Being knowledgeable of the requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance Ensuring that environmental matters are considered at all times Being aware of any potential environmental risks relating to the site, plant, or materials to be used on the premises and bring these to the notice of the appropriate management Ensuring that any plant is environmentally suited to the task in hand
Site Personnel	Co-operation with the CMT and the Environmental Manager in the implementation of the CEMP at the site To conduct all their activities in a manner consistent with regulatory and best environmental practice To participate fully in the environmental training programme and provide management with any necessary feedback to ensure effective environmental management at the site Adhere fully to the requirements of the site environmental rules
Project Environmental Consultant (as required)	An Environmental Consultant may be engaged on an ad-hoc basis if required. The appointed Environmental Consultant will be competent, qualified, and experienced in the field of environmental management; with expertise in the areas of contaminated land, water and waste management, and will be responsible for producing all environmental reporting procedures. Preparation of any environmental control plans and supporting procedures Advising the site management on environmental matters as appropriate Carrying out environmental surveys (data logging (noise, water, dust, etc.)) as required Generating reports when required to show environmental data trends and incidents Advising on the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce as required Investigating incidents of significant, potential, or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence
Project Archaeologist Clerk of Works (as required)	A Project Archaeologist Clerk of Works may be engaged on an ad-hoc basis if required. The appointed Project Archaeologist Clerk of Works will be competent, qualified, and experienced. Advising on all archaeological monitoring activities, conducting watching briefs and distributing information relevant to monitoring. Monitoring of all ground disturbance works associated with the construction of the development Ensuring the appropriate course of action is taken in the event that archaeological material is discovered during the works Liaison with the CMT throughout the Construction Phase of the project Liaison with the Department Applications Unit, National Monuments Service, Department of Arts, Heritage and Gaeltacht and the Local Authority archaeologist as required. Liaise fully with the Ecological Clerk of Works on the safe management of archaeological investigations, and Provide Method Statements to the Environmental Clerk of works for any archaeological investigations to be transcribed and managed through the SOWOR system
Project Ecological Clerk of Works (ECCOW)	The services of a suitably qualified ECCOW with experience in freshwater pearl mussel ecology will be obtained for the duration of the project. The ECCOW must be independent of the contractor, and it will be the responsibility of the Employers Representative to employ the ECCOW. The ECCOW will report to the Employers Representative and is responsible for the protection of sensitive habitats and species encountered during the Construction Phase of the project. The ECCOW role is of critical importance and will be shared between at least 2 ecologists. The senior ECCOW will have at least 5 years' experience as a senior ecologist and will have expertise in freshwater pearl mussel ecology. As the ECCOW role must be on site at all times (until various monitoring activities are complete and construction surface water management measures decommissioned – see first bullet point below for full details), the senior ECCOW can deputise to a more junior ecologist at times where all the works planned

Role	Responsibilities

	are low risk. The junior ecologist must have comprehensive freshwater pearl mussel and SOWOR training. The ECCOW will:
	• Be present on site at all times until:
	  ○ monitoring for each construction element listed on the SOWOR (i.e., for which a method statement exists) is no longer required and has been signed off by the ECCOW and Employers Representative.
	  ○ the construction phase Water Management System is no longer operational and has been safely decommissioned/removed from the Site (i.e., all silt fencing and settlement tanks etc. removed).
	  ○ ecological monitoring for any other element of the construction phase is no longer required.
	• Undertake training in SOWOR management
	• Assess the proposed works.
	• Review the proposed mitigation measures.
	• Outline any additional precautionary measures which should be adopted.
	• Provide input to the induction training programme
	• Provide training and toolbox talks to all site personnel
	• Undertake monitoring in advance of and throughout the construction phase.
	• Retain monitoring records.
	• Supervise key construction activities.
	• Provide specialist input and supervision where necessary of critical construction activities in relation to habitats and species and any specified protection measures.
	• Liaise with the producers of all Method Statements to transfer them as risk assessed numbered work actions to the SOWOR spreadsheet.
	• Maintain the Schedule of Works Operations Record (SOWOR).
	• Have the authority to instruct the cessation of works when agreed abandonment triggers within the SOWOR at met.
	• Provide specialist advice on ecological monitoring and site inspections and surveys as required.
	• Liaise with the National Parks and Wildlife Service (NPWS), Inland Fisheries Ireland (IFI) and other relevant stakeholders.

5 PROJECT ENVIRONMENTAL POLICY

Reside (Castlepark) Ltd. recognises and seeks to minimise the impacts of its business on the environment. The appointed contractor will be obliged to:

- Carry out the Project in full compliance with all applicable environmental regulations and to other requirements to which we subscribe.
- Implement good environmental practice as part of designs, e.g., carry out design reviews, risk assessments, etc. on all relevant projects.
- Prevent pollution from activities through a system of operational controls that include written instructions and staff training appropriate to the environmental requirements of their work.
- Continually improve Project environmental performance by setting objectives and targets and implementing them through an environmental programme.
- Informing all project employees about Environmental Policy and explaining what they are required to do to protect the environment.
- Comply fully with the Schedule of Work Operations Record (SOWOR) prepared for the project (see below); and
- Implement this Policy through the successful operation of the CEMP.

This policy will be reviewed periodically, considering current and potential future business issues.

5.1 Site Environmental Awareness

The following Site Environmental Rules will apply. These general rules will be communicated to all site personnel via the site induction training, and they will be posted across the Site at strategic locations, such as the Site entrance, canteen and near the entrances to buildings.

5.1.1 General Site Environmental Rules

- Report any signs of pollution or environmental damage, no matter how small, to the construction manager, Environmental Manager, or site supervisor.
- Report any spills, incidents or near misses that occur on site immediately to the site supervisor.
- Refuel using bunded mobile bowsers or static bunded tanks in designated, impermeable areas equipped with spill kits.
- Oil or lubricant changes and maintenance work will be carried out offsite.
- All waste must be sent to the designated site waste management areas for interim storage pending compliant removal from site. Do not dispose of anything into a drain, watercourse or onto land.
- Do not throw litter, all waste must be sent to site Waste Management Contractor.
- As best-practice, all construction-related waste on site e.g., plastic sheeting, netting etc. must be kept in a designated area on site and kept off ground level to protect fauna from entrapment and death.
- Do not drive plant or machinery outside the authorised working boundaries of the site; and
- If in doubt, ask the contracted Site Supervisor and/ or Environmental Manager for further

information.

The CMT will develop Environmental Procedures to control the potential impacts from the Construction Phase of the development. These procedures together with the site Environmental Policy will be made available in the main offices and in the main EHS information points at the site.

The training of site construction staff is the responsibility of the CMT. All personnel working on site will be trained in pollution incident control response. An environmental training programme will be organised for onsite personnel to outline the CEMP and to detail the site environmental policy.

A summary of the main points of this CEMP will be incorporated into the site induction course.

Contractors shall verify the competency of all plant and equipment operators including those employed by sub-contractors.

An environmental audit and inspection programme will be developed by the Main Contractor to ensure compliance with the compliance measures identified in the CEMP.

5.2 Managing Environmental Incidents

All environmental incidents and complaints from members of the public / third parties will be handled appropriately, efficiently in compliance with the incidents and corrective action procedures to be developed by the Main Contractor. All follow up actions on the construction Site will be managed by the CMT.

An environmental incident may include but is not limited to the following:

- Spillage of chemical, fuel or oil
- Fire
- Release of any contaminant to surface water, groundwater, air or soil
- Exceedance of noise limits
- Exceedance of dust limits
- Exceedance of abandonment triggers downstream of the development Site, as outlined in the SOWOR.

A record will be maintained on site of all incidents detailing the following as a minimum:

- Date, time, and duration of incident.
- Nature of the complaint/ incident (e.g., noise nuisance, dust nuisance etc.).
- Characteristics.
- Likely cause or source of incident.
- Weather conditions, such as wind speed and direction.
- Investigative and follow-up actions; and
- Root cause analysis and preventive actions.

All incidents will be investigated by the Environmental Manager and reported to the Construction Manager. Corrective and preventative actions will be implemented as required

to ensure that the incident is effectively dealt with and to prevent a recurrence of the incident. Staff will be informed by toolbox talk of corrective and preventative actions implemented as relevant to their role or overall operations.

5.3 The Schedule of Work Operations Record (SOWOR)

The Schedule of Work Operation Record (SOWOR) method of undertaking project construction and operation was developed to provide a standard of excellence in practice, documentation and compliance that can achieve the aim of safe removal of construction risk, improvement of the knowledge base for future applications, and for construction companies to demonstrate that they are safe and reliable partners in good conservation practice.

A protocol has been developed and implemented by Evelyn Moorkens Associates (EMA) to manage project construction to include all the mitigation measures conditioned, and to maintain a documented record, in the form of a spreadsheet, of all work items that can be used for compliance reporting purposes.

It is in the interest of the employer and of the contractor to be able to demonstrate that mitigation measures being implemented at the Site are working. This is done through clear documentation of the SOWOR, and through physical data from upstream and downstream in-situ water quality sondes, water quality sampling and analysis, and handheld turbidity measurements undertaken by the ECCOW.

The SOWOR will be run by the ECCOW, who is, or will be, trained to implement the process. The ECCOW will be required to work closely with the developer's contract team and their environmental managers and expert advisors.

The contracting team with their Environmental Manager will provide the numbered Method Statements for the SOWOR. There is normally an Employer's Representative with environmental expertise to agree the final lines as transferred to the SOWOR. Together with the ECCOW, environmental triggers for safe undertaking of the high-risk work items are agreed between the contractor, employer's representative along with any other experts or technical specialists needed for high-risk aspects of the project. The commissioning team (employer / developer) cannot delegate all responsibility to the contractor, nor can the contractor put responsibility for good practice in the hands of the ECCOW. While the responsibility for safe practice rests with the contractor in agreement with the developer / employer, the ECCOW will have the power to stop any works where the SOWOR is in danger of demonstrating a failure to properly implement the planning conditions and mitigation measures. This way they can assist with the role of the contractor and employer in delivering compliance. The ECCOW is responsible for monitoring and reporting compliance, not for delivering it.

The SOWOR is run as a spreadsheet with 21 columns and the number of rows that constitute the number of work items in the construction project. The spreadsheet can be divided into 3 steps, which are detailed overleaf.

Step 1: Detailed Method Statements are numbered into sequential work items. Each numbered work item forms a line in the SOWOR spreadsheet.

The work items should be clear and understandable, and agreed between the construction contractors and the developer / employer and understood and transferred to a spreadsheet by the ECCOW.

An example of a transferred set of work items is given in Table 5-1.

Table 5-1 Example of Transferred Work Items (Columns 1-5).

1. Activity	2. Work item	3 Detailed Method Statement No.	4. Planned commencement date	5. Expected Duration
1	Confirm the absence of freshwater mussels	MS01	TBC	1 day
2	Exclusion fencing with sediment control	MS02	TBC	3 days
3	Delivery of Site Compound units	MS02	TBC	1 day
4	Materials delivery	MS02	TBC	1 day
5	Temporary Fencing and Signage	MS02	TBC	1 day
6	Delivery of Silt Settlement Units	MS03	TBC	1 day
7	Set up of emergency sediment response	MS03	TBC	2 days
8	Excavation of pipe trench	MS04	TBC	3 days
9	Pipe laying	MS04	TBC	1 day
10	Backfill of pipe trench	MS04	TBC	3 days
13	Concrete pour	MS05	TBC	1 day
14	Removal of temporary shuttering	MS05	TBC	1 day
15	Siltation checks	MS06	TBC	1 day
16	Removal of Silt settlement units	MS06	TBC	1 day
17	Removal of compound materials and signage	MS07	TBC	2 days
18	Silt fence check	MS08	TBC	1 day
19	Silt fence and temporary fence removal	MS08	TBC	2 days

Step 2: Each numbered line has a risk value associated with it, leading to a hold point and proceed point that are usually linked to triggers such as rainfall levels, turbidity levels, weather forecasts and river flow levels.

The risk values and triggers should be agreed between the construction contractors and the developer / employer and understood and transferred to a spreadsheet by the ECCOW. An experienced ECCOW may assist with determining these values, but the responsibility rests with the developer / employer. In terms of the water quality monitoring triggers, it will be necessary to establish a preconstruction baseline to get an understanding of levels and variability in water quality, e.g. turbidity levels, this is particularly the case where absolute thresholds are being set. Given that the main channel is designated for the protection of *Margaritifera margaritifera (Freshwater pearl mussel)* habitat it is important that this baseline is established to ensure that the trigger levels are appropriate and representative of the conditions in the river. For rainfall intensity triggers the rainfall return periods should be reviewed for the location, these are available form Met Eireann on request (https://www.met.ie/climate/services).

The triggers must be very clearly defined. Examples are given in Table 5-2.

Table 5-3 shows an example of commencement and abandonment triggers inserted into a SOWOR spreadsheet. Columns 1 and 2 are included, and the spreadsheet is shown for an example of each type of risk level in a work item.

Table 5-2 Example of Triggers Used in A SOWOR

Trigger	Definition	In advance of work items	During work items	Trigger 1 Very high risk	Trigger 2 Intermediate Risk	Trigger 3 Low risk
1 Weather Forecast	Weather forecast information for rain, wind and storm will be obtained from at least two reliable sources namely Met Eireann and AccuWeather.com. The most pessimistic forecast will be used initially until a picture of which forecast is the more accurate for the area is established.	Longer term 5- and 10-day forecasts for work activity planning	Shorter term 12hr, 24hr and 3-day forecasts during construction (rainfall forecasts updated every 3hours.)	1 hour rainfall > 2mm 6-hour rainfall > 8mm 12-hour rainfall >12mm 24-hour rainfall >15mm	1 hour rainfall > 4mm 6-hour rainfall > 12mm 12-hour rainfall >18mm 24-hour rainfall >25mm	1 hour rainfall > 6mm 6-hour rainfall > 20mm 12-hour rainfall >30mm 24-hour rainfall >40mm
2 Weather on the ground	This is a check that the weather on the ground is no worse than the forecasted weather	Not applicable	If ground conditions are worse than expected be cautious about proceeding	Check ground Conditions match forecast	Check ground Conditions match forecast	Check ground Conditions match forecast
3 Turbidity measurements	Depending on the project, turbidity will be measured at least twice daily via handheld readings upstream and downstream of pathway to the river, or turbidity will be continuously measured by loggers upstream and downstream of pathway to the river, with alarm triggers. A 20% rise in Turbidity should always trigger an investigation. An exact turbidity level also needs to be decided above which works are suspended for investigation and remedial action. The example shows a trigger of 5NTU, as most *Margaritifera* waters have an NTU of <1	Check upstream and downstream turbidity match and there are no outside sources of sediment between the monitoring locations	At least twice daily during Trigger 2 and 3 items, at least hourly during Trigger 1 items	Turbidity 20% above upstream levels: Amber warning - Investigation by EcCOW and Contractor Turbidity above 5 NTU: red warning - suspension of works and immediate corrective actions	Turbidity 20% above upstream levels: Amber warning - Investigation by EcCOW and Contractor Turbidity above 5 NTU: red warning - suspension of works and immediate corrective actions	Turbidity 20% above upstream levels: Amber warning - Investigation by EcCOW and ContractorTurbidity above 5 NTU: red warning - suspension of works and immediate corrective actions
4 Soil conditions on the ground	This Trigger checks that the soils in the works area are not so saturated that they could result in slippage, soil movement, or overland flow of contaminated water.	No overland flow pathways for water. Very wet areas outside the main works can be managed using further silt fencing	If wet, check soil saturation levels regularly during the day	Wet conditions: amber warning for corrective measures Overland flow: suspension of works until soil is dry enough to continue	Wet conditions: amber warning for corrective measures Overland flow: suspension of works until soil is dry enough to continue	Wet conditions: amber warning for corrective measures Overland flow: suspension of works until soil is dry enough to continue

Table 5-3 Examples of Triggers Inserted into SOWOR Spreadsheet.

			Commencement Triggers				Abandonment Triggers			
1 Activity	**2 Work item**	**6 Risk Level 1: very high 2: intermediate 3: low risk**	**7 Commencement trigger 1**	**8 Commencement trigger 2**	**9 Commencement trigger 3**	**10 Commencement trigger 4**	**11 Abandon trigger 1**	**12 Abandon trigger 2**	**13 Abandon trigger 3**	**14 Abandon trigger 4**
1	Confirm the absence of freshwater mussels	3 – not construction work, survey only if survey licence conditions are met	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Exclusion fencing with sediment control	2	1 hour rainfall < 4mm 6-hour rainfall < 12mm 12-hour rainfall <18mm 24-hour rainfall <25mm	Weather conditions on the ground is no worse than the forecast	Turbidity <20% above upstream levels Turbidity < 5 NTU	Overland flow: No commencement until soil is dry enough to continue	1 hour rainfall > 4mm 6-hour rainfall > 12mm 12-hour rainfall >18mm 24-hour rainfall >25mm	Weather conditions are worse that the forecast and are equivalent to abandon trigger 1	Turbidity levels higher than agreed trigger of total value	Overland flow is occurring or imminent
3	Delivery of Site Compound units	3	1 hour rainfall < 6mm 6-hour rainfall < 20mm 12-hour rainfall <30mm 24-hour rainfall<40mm	Weather conditions on the ground are no worse than the forecast	Turbidity <20% above upstream levels Turbidity < 5 NTU	Overland flow: No commencement until soil is dry enough to continue	1 hour rainfall > 6mm 6-hour rainfall > 20mm 12-hour rainfall >30mm 24-hour rainfall>40mm	Weather conditions are worse that the forecast and are equivalent to abandon trigger 1	Turbidity levels higher than agreed trigger of total value	Overland flow is occurring or imminent
8	Excavation of pipe trench	1	1 hour rainfall < 2mm 6-hour rainfall < 8mm 12-hour rainfall <12mm 24-hour rainfall <15mm	Weather conditions on the ground are no worse than the forecast	Turbidity <20% above upstream levels Turbidity < 5 NTU	Wet conditions: amber warning for corrective measures before commencement Overland flow: No commencement until soil is dry enough to continue	1 hour rainfall > 2mm 6-hour rainfall > 8mm 12-hour rainfall >12mm 24-hour rainfall >15mm	Weather conditions are worse that the forecast and are equivalent to abandon trigger 1	Turbidity levels higher than agreed trigger of total value	Overland flow is occurring or imminent

6 ENVIRONMENTAL IMPACTS AND CONTROLS

The environmental control measures that will be implemented during the Construction Phase are detailed in the following sections.

6.1 Potential Impacts of the Development

The CEMP is designed to implement mitigation measures to control impacts relating to:

- Biodiversity
- Land, Soil and Geology
- Hydrology and Hydrogeology
- Air Quality and Climate
- Noise and Vibration
- Landscape and Visual
- Archaeology and Cultural heritage
- Material Assets: Waste, Utilities and Traffic

This CEMP is to be read in conjunction with the relevant design drawings and reports relating to the Proposed Development.

The CEMP outlines the measures that will be implemented to prevent and mitigate any potential environmental issues that may arise during the Construction Phase.

6.2 Legal and Other Requirements

Where relevant obligations are identified, these will be adopted into the procedures, forms, plans etc. of the CEMP prepared by the Main Contractor.

For construction sites, any additional requirements of planning consents, statutory authorities and the client are identified and documented in the CEMP.

Where compliance obligations have been assessed and recorded, they will be reviewed when personnel become aware of relevant changes that impact directly on operations, or as a minimum quarterly where obligations have changed or where there have been significant changes in work type.

The CEMP prepared by the Main Contractor is regulated by a number of documents:

- Planning Conditions
- Environmental screening reports and mitigation measures
- Resource Waste Management Plan (RWMP) (Enviroguide Consulting, 2024)
- Appropriate Assessment (AA) Report (Enviroguide Consulting, 2024)
- Natura Impact Statement (NIS) (Enviroguide Consulting, 2024)
- Ecological Impact Assessment Report (EcIA) (Enviroguide Consulting, 2024)

As with the CEMP, these documents specify the requirements that will be fulfilled during the construction of the project. All contractors involved in the project must comply with these documents and the SOWOR.

6.2.1 Conditions of Planning Permission

This CEMP will be updated with any conditions of planning once granted.

6.3 Implementation of Control Measures

The CMT will be responsible for the implementation of control measures as identified in Section 6.4. The Main Contractor and all sub-contractors will comply with the requirements of the CEMP to document and seek approval for Method Statements, Permits and other site-generated documentation as requested.

This CEMP will form part of tender and contract documentation for each works contract. Requirements and responsibilities will be reviewed with each Contractor at inception meetings and at progress update meetings.

Any Contractor submitting a tender for the project must declare any legal proceedings with a regulatory authority, including the Environmental Protection Agency (EPA) or environmental agencies or competent authorities from other jurisdictions.

The Main Contractor shall ensure that all sub-contractors are supplied with a copy of the CEMP, receive sufficient environmental training and are aware of the environmental obligations of the project.

Environmental requirements will be controlled as follows:

- Procedures, including reference to the SOWOR, and control measures as set out in this CEMP.
- Approved Method Statements and Risk Assessments from Contractors which shall address all potential environmental impacts for the specific task.
- Detailed contractor plans for specific environmental aspects.
- Emergency response plans; and
- Specific induction training before commencing work.

In summary, it is expected that all Contractors will follow good environmental practice throughout all activities.

6.3.1 Communication & Training - Construction Personnel

In addition to Contractor provided site induction, CMT are obliged to conduct safety meetings / toolbox talks on relevant Environmental Health and Safety (EHS) topics for all employees in their care on a weekly basis. Details of all safety meetings / toolbox talks, including topics and attendees must be submitted to the CMT.

6.3.2 Keeping of Records

Records pertaining to all aspects of the construction environmental management procedures outlined in this document will be maintained in the onsite Environmental Management File. Information stored in the Environmental Management File will include:

- Records of induction training for operatives, drivers, workers, and visitors.
- Attendance by site personnel and visitor logs
- The location of waste storage areas on site.
- The details of environmental incidents and near misses including incident investigation and corrective and preventative measures implemented.
- Records of environmental inspections completed during the Construction Phase to ensure compliance with the CEMP control measures.
- Copies of Safety Data Sheets (SDS)
- Complaints register.
- Records of the movement and recovery/disposal of all waste generated during the Construction Phase of the project to include date removed from site, waste type, quantities, waste carrier and off-site destination.
- Records of the SOWOR and all associated monitoring

All records will be made available to the Client and if requested, Cork County Council and the EPA.

6.3.3 Monitoring, Audits, and Inspections

The Main Contractor will undertake regular inspection and monitoring of construction activities to ensure that the recommended mitigation measures are being correctly implemented and are having the desired effect. This is to ensure adequate environmental protection is afforded to the receiving environment by identifying potential issues, non-conformances, and the necessary corrective action at an early stage to reduce the likelihood of significant effects on human health or the environment.

The appointed Contractor will undertake inspections to address environmental issues including groundwater, surface water, impacts on biodiversity, dust, litter, noise, traffic, waste management and general housekeeping. These will be carried out on both scheduled and random intervals as agreed with the Client.

Monitoring required as a condition of any consent for discharges or water supply will be the responsibility of the appointed Contractor. The appointed Contractor will also be responsible for any additional monitoring that may be required by the Client.

The Client and/or an independent auditing consultant may undertake environmental audits at random intervals to ensure that all procedures, monitoring and recording/ reporting are being undertaken by the appointed Contractor as outlined in the CEMP. The findings of these audits, inspections and monitoring results will also be recorded in the CEMP.

Environmental auditing procedures must also take account of the SOWOR, and where auditing identifies that improvements to the SOWOR are necessary then the required amendments must be implemented.

6.3.4 Non-Conformance and Corrective and Preventative Action

Corrective Action Requests (CARs) will be issued by the CMT or the ECCOW/employers' representative to those responsible for the implementation of corrective and preventative actions to ensure effective resolution of deviations from the CEMP requirements, including

the SOWOR, or to address environmental issues identified.

CARs may be raised as a result of:

- An internal or external communication such as a complaint.
- Internal audit.
- A regulatory audit or inspection.
- A suggestion for improvement; and
- An incident or near miss.

All corrective action requests will be numbered and logged and tracked to ensure completion.

6.4 Construction Operation Controls

A list of key questions to be addressed on the nature of the development during its planning and construction stages, extracted from Guidance on Assessment and Construction Management in *Margaritifera* Catchments (Atkinson et al, 2023a), and how each question is addressed in this CEMP is provided in Table 6-1 below.

Table 6-1 Key Questions to Be Addressed on The Nature of The Development During Its Planning and Construction Stages[1],

Key Questions	Response	How has this been addressed in the CEMP?
Planning		
Is the project or plan to be completed in phases?	Yes	All phases of the construction are addressed as a whole in this CEMP.
Is the project or plan part of a larger strategy or series of work packages?	No	The mitigation measures as outlined in this CEMP, will be sufficient to protect the *Margaritifera* population in the Munster Blackwater during the construction phase of the entire Proposed Development.
Does the plan or project require access through a *Margaritifera* catchment?	Yes – The Site is located within a *Margaritifera* catchment	No instream works are proposed. The Proposed Development occurs 0.15km north of the Blackwater River, with the existing public park providing an intervening buffer. Construction works to be managed as per a SOWOR. Vehicles transporting material with potential for dust emissions to an off-site location will be enclosed or covered with a tarpaulin at all times to restrict the escape of dust.
Site Characteristics in a Construction Context		
Is the proposed development adjacent to a river, stream or lake?	No	The Site is located 0.15km north of the Blackwater River, an SAC designated for the protection of Fresh Water Pearl Mussel (*Margaritifera*) and other protected aquatic/semi-aquatic species such as Otter, lamprey, and salmon. Thereby occurring within proximity to this river, with the potential to influence the hydrological regime of same, as such, it's importance for protection cannot be understated. The topography of the Proposed Development Site slopes steeply along its southern end towards the Blackwater River. Although a buffer in the form of the existing public park to the Site, which intervenes the Site and this river is noted. Detailed mitigation measures to manage sediment laden surface water run-off and construction activities, as well as materials to be used for the bridge construction have been included in this CEMP and will serve to protect all species of the Blackwater River, as well as *Margaritifera*.

[1] Extracted From Guidance On Assessment And Construction Management In *Margaritifera* Catchments (RPS, 2023)

Has a detailed audit of the drainage network indicated significant risk to the *Margaritifera* and its habitat through drainage pathways?	No	A desk-based audit of the drainage network has been undertaken. While no drains are present within the Proposed Development Site, the subject lands are drained naturally and have the benefit of direct access to the public stormwater network in the existing residential estate located adjacent (west) to the Site. The lands directly abut a stormwater network already laid within the existing estate along Kingsfort Avenue, Maple Square and Maple Avenue which outfalls directly into the River Blackwater. As a result, direct links to the Munster Blackwater *Margaritifera* population are present via this stormwater network and any surface water drainage leading to it from the Site. As a result, it will be necessary for the EcCOW to undertake an inspection of the sewerage network in advance of works commencing.

6.4.1 Biodiversity

All works will be undertaken in accordance with the procedures outlined in this CEMP to ensure the protection of local ecology or on any designated nature conservation sites associated with the Construction Phase of the Proposed Development.

The following construction mitigation measures will be implemented in relation to the protection of biodiversity (habitats and sensitive species and other key ecological receptors)

6.4.1.1 Protection of Fox

Although Foxes are not afforded legal protection in Ireland, care should be taken when disturbing the den and the area around it. Foxes are protected from a variety of hunting/extermination techniques as per the Wildlife Acts 1976 to 2012; and from acts of cruelty as per the Animal Health and Welfare Act 2013.

The dens should not be disturbed during the breeding/rearing season, which typically lasts from March to June. If destroying the den at other times, care should be taken to allow the occupant to escape.

6.4.1.2 Protection of Small Mammals

As best practice, all construction-related waste on Site e.g., plastic sheeting, waste, wires, bags, netting in which animals can become entangled etc. will be kept in a designated area and kept off ground to prevent small mammals such as hedgehogs from entrapment and death.

Trenches/pits must be either covered when not in use/at the end of each working day with caps (especially at night) or include a means of escape for any animal falling in and getting stuck. If this is not possible, then a strategically placed plank or object should be placed in the corner of an excavation to enable animals to safely escape (Badgers will continue to use established paths across a Site even when construction work has started).

Any temporarily exposed open pipe system should be capped in such a way as to prevent badgers from gaining access as may happen when contractors are off-site.

6.4.1.3 Protection of Otter

It was noted that the Blackwater River provides suitable habitat for Otter and various aquatic species, as noted in the Blackwater River Cork/Waterford SAC (00217) Conservation Objectives. There are no waterbodies present within the Development Site, and so there is no habitat present within the Site capable of supporting Otter. As a result, there was no evidence of otter activity recorded within the Development Site during any of the site survey visits undertaken in 2024, and thus direct impacts are not anticipated.

However, owing to the proximity of the Site to the Blackwater River (0.15km) the following mitigation measures are recommended for protection of the otter in line with the following best practice guidance document ‘Guidelines for Treatment of Otters Prior to the Construction of National Road Schemes’ (TII, 2008)’:

- A pre-construction survey for otter should be carried out by a suitably qualified ecologist prior to the commencement of any works to search for signs of otter activity in the vicinity of the works, in particular any breeding and/or resting sites. Otter breeding may take place at any season of the year, so breeding activity at holts will need to be determined on a case-by-case basis.
- Where potential holts are identified, a period of monitoring over several days (e.g., five or more days of checking activity at the holt either with sticks or with sand pads to identify footprints) may be required to determine whether holts are active, inactive or disused. Otters do not tolerate disturbance at or near holts that are in active use.
- If a period of time has elapsed between the recommended pre-construction survey and commencement of the works, a further inspection of the development area, immediately prior to the works, should be carried out to ensure that no new holts have been created in the intervening period and to check if any of the previously identified holts are in active use by breeding females or have otter cubs present.

With regards to site works in the vicinity of active otter holts (where identified):

- No works should be undertaken within 150m of any holts at which breeding females or cubs are present. Following consultation with NPWS, works closer to such breeding holts may take place provided appropriate mitigation measures are in place, e.g., screening and/or restricted working hours on site.
- No wheeled or tracked vehicles (of any kind) should be used within 20m of active, but nonbreeding, otter holts. Light work, such as digging by hand or scrub clearance should also not take place within 15m of such holts, except under licence.
- The prohibited working area associated with otter holts should, where appropriate, be fenced with temporary fencing prior to any possibly invasive works. Appropriate awareness of the purpose of the enclosure should be conveyed through notification to site staff and sufficient signage should be placed on each exclusion fence. All contractors or operators on site should be made fully aware of the procedures pertaining to each affected holt.
- Where holts are present near invasive construction works but are determined not to require destruction, construction works may commence once recommended alternative mitigation measures to address otters have been complied with.

6.4.1.4 Protection of Bats

To protect bats from lighting associated with the Construction Phase of the Proposed Development, the following have been considered when choosing luminaires and are incorporated into the lighting design where appropriate. This is taken from the most recent BCT Lighting Guidelines (BCT, 2018):

- All luminaires used will lack UV/IR elements to reduce impact.
- LED luminaires will be used because they are highly directional, lower intensity, good colour rendition and dimming capability.
- A warm white spectrum (<2700 Kelvins will be used to reduce the blue light component of the LED spectrum).
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Only luminaires with an upward light ratio of 0% and with good optical control will be

used.

- Luminaires will be mounted on the horizontal, i.e., no upward tilt.
- Any external security lighting will be set on motion-sensors and short (1min) timers.
- Accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed.
- All luminaires shall have a Luminous Intensity Classification of between G4 and G6 to IS EN 13201- 2:2003(E)/BS 5489-1:2013 and recommendations of Institution of Lighting Professionals and Bat Conservation Trust 'Bats and Lighting in the UK' documentation and Bat Conservation Ireland Guidance Notes for Planners, Engineers, Architects and Developers December 2010.

Any Construction Phase external lighting should strictly follow the above guidelines.

The proposed external lighting scheme will be designed using LED fittings with high performance optics to provide visual comfort. The external lighting scheme will specifically respond to the landscape treatment and be sensitively designed to ensure minimum light pollution. Luminaires will be selected to ensure that when installed there shall be zero direct upward light emitted to the sky (all output shall be at or below 90° to the horizontal) to help prevent sky glow from light pollution in the night sky. The light emitted from these fittings shall have no photo biological risk and shall be categorised as 'Exempt Group' in relation to emissions of blue light, Infrared and Ultraviolet Radiation in accordance with EN 62741:2008.

6.4.1.5 Protection of Birds

Any clearance of vegetation will be carried out outside the main breeding season, i.e. 1st March to 31st August, in compliance with the Wildlife Act 2000. Should any vegetation removal be required during this period, the NPWS will be consulted, and instructions taken from them.

6.4.1.6 Protection of Aquatic Species

In addition to the water quality protection measures outlined in section 6.4.3 below, including the engagement of a suitably qualified EcCOW and management of construction activities through a SOWOR, the following mitigation measures are proposed to ensure water quality protection of the Blackwater River SAC and it's Qualifying Interest (QI) habitats and species, including the Freshwater Pearl Mussel.

Site hoarding will be erected to prevent access to the river by Site workers and vehicles. Thus, ensuring there is no encroachment from construction activities, personnel, or machinery outside of the designated works area, upon same. Machinery will not operate or be stored outside of delineated works areas.

The Site compound will not be located within the Blackwater River SAC boundary, or within 50m of any watercourse.

Silt-fencing will be installed along the southern extent of the Site between the extent of the works at Site and the Blackwater River. All silt-fencing will double layered (comprising of 2 layers) with the bottoms buried in the soil.

A natural vegetative buffer of tall grass etc., (a minimum of 5m or as much as possible) will be located between the silt-fencing and the Site, as an additional layer of filtration.

6.4.1.7 Protection of Retained Trees

Protective tree fencing in compliance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' will be erected prior to any Construction works being undertaken to prevent damage to the canopy and root protection areas of existing trees at the Site. The fencing will be signed off by a qualified arborist prior to Construction to ensure it has been properly erected. No ground clearance, earthworks, stockpiling or machinery movement will be undertaken within these areas.

Should the removal of any trees be required, this must take place in accordance with BS 5837:2012 if required.

6.4.1.8 Timing of Vegetation Clearance

Table 6-1 provides guidance for when vegetation clearance and instream works are permissible. Information sources include the British Hedgehog Preservation Society's *Hedgehogs and Development* and *The Wildlife (Amendment) Act, 2000*.

The preferred period for vegetation clearance is within the months of September and October. Vegetation will be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., Hedgehog). Where this seasonal restriction cannot be observed, a check for active roosts and nests, as well as signs of amphibians, will be carried out immediately prior to any Site clearance by an appropriately qualified ecologist and repeated as required to ensure compliance with legislative requirements.

Table 6-1 Seasonal restrictions on vegetation removal. Red boxes indicate periods when clearance/works are not permissible.

Ecological Feature	*January*	*February*	*March*	*April*	*May*	*June*	*July*	*August*	*September*	*October*	*November*	*December*
Breeding Birds	Vegetation clearance permissible		Nesting bird season No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.						Vegetation clearance permissible			
Hibernating mammals (namely Hedgehog, excluding bats)	Mammal hibernation season No clearance of vegetation or works to relevant structures per- mitted unless confirmed to be devoid of hibernating mammals by an ecologist.			Vegetation clearance permissible							Mammal hibernation season No clearance of vegetation or works to relevant structures permitted un- less confirmed to be devoid of hibernating mammals by	

			an ecologist.
Bats	Tree felling to be avoided	Preferred period for tree- felling	Tree felling to be avoided

6.4.1.9 Biosecurity

A Site Visit was carried out by Enviroguide Consulting in July 2024.

Two Invasive Alien Plant Species (IAPS) were recorded on Site, namely butterfly bush (*Buddleja davidii*), and New Zealand flax (*Phormium tenax*). Butterfly bush was observed growing on areas of hardstanding/artificial surfaces to the west of the Site, while New Zealand flax was observed growing behind a rear garden, to the west of the Site, just behind a dense willow tree canopy.

The following measures are recommended to control the spread of the identified IAPS, and the introduction of any other IAPS's on-site:

- The Proposed Development Site is located 0.15km north of the Blackwater River, and, while no works along the riparian zone or within the River are proposed as part of this Development. However, it is noted that ecological monitoring of the Blackwater River by the EcCOW/SOWOR during the project are planned. As a result, steps should be taken in order to ensure that no IAPS are introduced into the Blackwater River. As White-Clawed Crayfish occur within the Blackwater System the Inland Fisheries Ireland (IFI) Check, Clean, and Dry protocol should be implemented. (Where completed drying is not possible, then the equipment should be completely disinfected, prior to use).
- An IAPS specialist will be instructed to treated and eradicate the Butterfly Bush on Site per TII Technical Guidance on: 'The Management of Invasive Alien Plant Species on National Roads' published in December 2020, and per the methods outlined in the CEMP report.
- To reduce the likelihood of invasive species (IAPS) being introduced to the Site from construction works on other sites, all soils/materials being introduced to the Site will be sourced from a certified invasive flora-free source Site, to ensure no introduction of invasive plant materials to the Site occurs. All plant and equipment will be visually inspected before being permitted on Site.
- Vehicular movements will be restricted to the footprint of the Proposed Development. Construction plant and vehicles will not encroach onto areas that are not permitted for the development.
- All vehicles leaving the Site and/or transporting infested IAPS soil/materials must be thoroughly pressure-washed with clean water in a designated wash-down area before being used for other work. Mud and organic debris will not be allowed to accumulate on tyres, wheels or under wheel arches. Any machinery or equipment returning from a different construction Site will be cleaned, steam washed and visually inspected again before re-entering the Site.
- Material handling systems and Site stockpiling of materials will be designed and laid out to minimise exposure to wind.
- Water misting or sprays will be used on stockpiles as required if particularly dusty activities are necessary during dry or windy periods to prevent seed dispersal of IAPS.

- Where any material containing invasive plant species is collected (e.g., by hand-pulling or cutting), it is important that its disposal does not lead to a risk of further spread. The movement of plant material of any plants listed on the Third Schedule requires a licence from the National Parks and Wildlife Service (NPWS) under Section 49 of the European Communities (Birds and Natural Habitats) Regulations, 2011 (as amended). Invasive species (particularly roots, flower heads or seeds) must be disposed of at licensed waste facilities or composting sites, appropriately buried, or incinerated having regard to relevant legislation. All disposals must be carried out in accordance with the relevant Waste Management legislation.

PPE Measures

- Personnel working on the Site will ensure that all PPE including clothing and footwear brought to the Site is to be clean and dry. All PPE is to be visually inspected, and any attached vegetation or debris removed. Work boots will be dipped in or scrubbed with a disinfectant solution and thoroughly dried afterwards before being used on the Site for the first time, ensuring they are visually free from soil and organic debris, to prevent the inadvertent spread of IAPS material.

Training and Response Plans/Measures

- Construction personnel involved in works are to be trained in basic relevant invasive species identification, prevention, and management.
- Where any IAPS is identified within the footprint of the work, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-Site. Fencing and/or advisory signage is to be erected. Where stands are small, comprising individual plants, the use of signage may suffice.

All IAPS management and control measures implemented on-site during the Construction Phase are to be carried out strictly in accordance with best practice guidance as set out in 'The Management of Noxious Weeds and Non-native Invasive Species on National Roads' (TII (formerly NRA), 2010), 'The Management of Invasive Alien Plant Species on National Roads – Technical Guidance' (TII, 2020) and 'Best Practice Management Guidelines' by Invasive Species Ireland (2008).

6.4.2 Land, Soil and Geology

6.4.2.1 Control of Excavated Soil and Contaminated Soil

Prior to any bulk excavation samples will be taken of the subject area for the excavation to test for contamination and a suitable strategy will be drawn up and submitted to detailing the method of dealing with any contaminated material found.

Any contaminated soils that are encountered during the works will be excavated and disposed of off-site in accordance with the Waste Management Acts, 1996- 2021, and associated regulations and guidance provided in Guidelines for the Management of Waste from National Road Construction Projects published by the National Roads Authority in 2008.

The provision of wheel wash facilities at the construction entrance to the development will

minimise the amount of soil deposited on the surrounding road network.

Measures laid out in Section 6.4.3.1 (Control of Fuel and Chemical Storage) will serve to prevent contamination of the soil from any potential oil and petrol leakages.

6.4.3 Hydrology and Hydrogeology

The following measures will serve to prevent any negative effects occurring in the Blackwater River (Cork/ Waterford) SAC due to Construction Phase surface and groundwater discharges from the Site.

6.4.3.1 Control of Fuel and Chemical Storage

The storage and use of fuel and oils will be kept to a minimum at the Site.

If small quantities of oils and chemicals oils are required at the Site, the use of these will be strictly controlled in accordance with procedures outlined in this CEMP and storage will be avoided where possible. All tank, container and drum storage areas shall be rendered impervious to the materials stored therein. Bunds and storage areas shall be designed to comply with Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004) and Enterprise Ireland Best Practice Guidelines (BPGCS005). All tank and drum storage areas shall, as a minimum, be bunded to a volume not less than the greater of the following:

- 110% of the capacity of the largest tank or drum within the bunded area; or
- 25% of the total volume of substance that could be stored within the bunded area.

Any fuels retained on drip trays, mobile bunds, etc., will be emptied into a secure bunded waste oil drum to await appropriate disposal offsite.

Refueling of plant and machinery during the Construction Phase will be carried out in accordance with standard best practice. Refueling will only be carried out at the designated, impermeable refueling station located onsite with appropriate containment in place. The designated area or areas for fuel storage and refueling will be established according to best practice including the criteria below:

- at least 50 m from a spring or borehole and 10 m from a watercourse or drain.
- on level ground.
- on an impermeable base – concrete slab or other areas of hardstanding.
- under cover to prevent damage from the elements.
- in secure areas.
- well away from moving plant, machinery and vehicles.

This designated area will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response Team will be appointed before the commencement of works at the Proposed Development Site.

Where possible any oil and lubricant changes and maintenance will take place offsite. Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits will be

available on site to ensure that any spills from vehicles are contained and removed offsite. Where oils and chemicals are used and stored on-site, they will be sealed, secured and stored in a dedicated internally bunded chemical storage cabinet unit or inside concrete bunded areas to prevent any seepage to ground. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

An up-to-date inventory of the type of product stored/used and the quantity available on site will be established and maintained by the contractor. The register shall be available at all times and shall include as a minimum:

- Valid safety sheets.
- Health & Safety,
- Environmental controls to be implemented when storing, handling, using and in the event of spillage of materials; emergency response procedures/precautions for each material; the Personal Protective Equipment (PPE) required when using the material.

All personnel working onsite will be trained in pollution incident control response. Emergency silt control & spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident.

Provided that these requirements are adhered to, and site crew are trained in the appropriate refueling techniques, it is not expected that there will be any fuel/oil wastage at the Site.

6.4.3.2 Control of Emissions to Surface Water and Drainage

Works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990.

Silt traps, and silt fences will be provided by the contractor where necessary to prevent silts and soils being washed away by heavy rains during the Construction Phase. It is proposed to provide a Condor Bypass Separator type, or similar approved. Surface water runoff and water pumped from the excavation works will be discharged via a silt trap / settlement pond to the existing foul drainage network where required.

In addition, the following general measures will be undertaken:

- Any drains or sewers which could act as pathways for contamination from the Site will be blocked where required.
- Location of stilling/settling ponds will take into account groundwater vulnerability at the site and will be located in suitable areas.
- Discharge water generated during placement of concrete will be stored and removed off Site for treatment and disposal.
- Wash out of concrete trucks will take place into a container located within a controlled bunded area which will then be emptied into a skip for appropriate compliant removal off-site in accordance with all relevant waste management legislation. Any excess concrete is not to be disposed of onsite.
- Run-off from the working site or any areas of exposed soil will be channeled and intercepted at regular intervals for discharge to silt-traps or lagoons with over-flows

directed to land rather than to a drain.

- Silty water generated on site will be treated using silt traps/settlement ponds and temporary interceptors and traps will be installed until such time as permanent facilities are constructed.
- Storm drains inlets which could receive stormwater from the project will be protected throughout the Construction Phase.
- A regular review of weather forecasts for heavy rainfall will be conducted, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible.
- Any imported materials will, as much as possible, be placed on Site in their proposed location and double handling will be avoided. Where this is not possible designated temporary material storage areas will be used.
- These temporary storage areas will be surrounded with silt fencing to filter out any suspended solids from surface water arising from these materials.
- Temporary hydrocarbon interceptor facilities will be installed and maintained where Site Works involve the discharge of drainage waters to nearby drains.
- All containment and treatment facilities will be regularly inspected and maintained.
- All personnel working on site will be trained in pollution incident control response.
- All associated wastes from portaloos and/ or containerised toilets will be removed from site by a licensed waste disposal contractor.
- The development's road network will be finished with tarmac or asphalt surface which will discharge runoff to a piped drainage system, and surface water drains will be installed in roads and streets and in pre-determined wayleaves adjacent to building structures.
- All car parking and refuel areas at the Site will be located on substrate underlain with an impermeable liner to prevent contaminant leaching to groundwater.

Under no circumstances will any untreated wastewater generated onsite (from equipment washing, road sweeping etc.) be released into nearby drains.

6.4.3.2.1 Strategy for Management of Surface Water on Site

Mitigation or control measures for surface water management will be dependent on appropriate implementation and local site conditions (including factors like soil type, slope, drainage, terrestrial habitat, landscape features and characteristics of the receiving environment). The following outlines a strategy for the management of surface water on site, and the individuals responsible for delivery of same.

Step 1: Site Conditions

In the first instance it is necessary to establish the nature of local site conditions.

Based on topographic surveys undertaken at the Site, the existing topography is relatively flat in areas but falls to a steep slope towards the southern portion of the Site as it connects to the existing public park. As a result, the Site, which slopes naturally to the south, drains freely towards the Blackwater River, which abuts the southern extent of the existing public park. Ground elevations range from 87.5 meters above Ordnance Datum (mOD) in the north of the

Site to 43mOD to the south of the Site. The Proposed Development Site (where residential units are to be constructed) is separated from the Blackwater River by the existing public park to the south, which provides a natural vegetative buffer between same, and, based on historic maps is of between c. 13m to >70m in width.

The lands within the Site and those adjacent to the Blackwater River comprise deep, freely (well) draining mineral soils.

The above description of local site conditions has been established from a desk-based study and is used to guide the development of a surface water mitigation strategy. However, prior to construction commencing, the EcCOW will undertake a site walkover to establish site conditions and to familiarise themselves with the landscape, topography and physical characteristics of the Site. This will allow the EcCOW to identify sensitive areas of the site that may be liable to sediment erosion and overland flow pathways to receiving waterbodies, namely the Blackwater River. This will include the identification of surface water features such as springs, drains (land and road drains), sloping land towards waterbodies, and any areas where overland flow might be concentrated, for example due to site topography.

The preliminary flood risk assessment undertaken by DOSA Consulting Engineers concluded that the development is considered to be at low risk of flooding and the development is deemed appropriate within the proposed site location. A site-specific flood risk assessment will be carried out by Arup Consulting Engineers as part of the application. The OPW floodmaps.ie has no history of flooding at the Site or within the vicinity and there are no flood extents within the Site.

Step 2: Storage, Cut-and-Fill Requirements

Prior to construction commencing the Contractor will be required to establish quantities of waste which will be generated by the excavation works for the substructure, roads and underground civil infrastructure, and how these will be stored, reused or exported from the Site. The contractor will be required to determine the number and size of settlement tanks and temporary surface water percolation areas required (more detail provided below).

The Contractor will prepare Construction Method Statements for key construction activities, including but not limited to:

- Site set-up
- Sequence of works – in particular, soil disturbance and reinstatement
- Earthworks
- Pouring of concrete
- Construction of residential units
- Construction of drainage (storm and foul)
- Landscaping works
- Emergency protocols for surface water management.

The Employers Representative and EcCOW will be required to review and sign off on all Construction Method Statements prior to works commencing.

Step 3: Siting of mitigation measures, Site compounds and storage

In advance of construction commencing, the EcCOW, Employers Representative and Contractor will undertake a walkover of the Site. The locations of silt fencing, settlement tanks, lagoons, monitoring locations, site compounds and storage areas will be confirmed. It will be the responsibility of the Contractor to draw up a Construction Phase drainage and mitigation drawing which must be signed off by the EcCOW and Employers Representative. This drawing must include:

1. The location of all surface water features (springs, drains, the River Blackwater) on site
2. The location of silt fences
3. The location(s) of settlement ponds/tanks and standby silt buster equipment
4. The location(s) of surface water percolation areas
5. The location of site compounds
6. The location of site welfare facilities
7. The location(s) of storage areas (e.g., stockpile locations)
8. The location of the wheel wash
9. The location of the haul route
10. The location of spill kits and refuelling areas

Step 4: SOWOR

The EcCOW will prepare a Schedule of Work Operation Record (SOWOR) for the development, in consultation with the Employers Representative and Contractor. All method statements prepared for the construction phase will be included and transferred into the SOWOR.

Step 5: Preparation of a Water Management System

All water protection measures will be incorporated into a detailed Water Management System (WMS) which will be prepared by the contractor.

The WMS will be drawn up in consultation with the EcCOW and Employers Representative and will consider any changes in the physical conditions of the site e.g. river flows or ground conditions, which may have occurred subsequent to the submission of the application.

As part of the water management system the contractor, in consultation with the employer's representative and the EcCOW, will arrange for the installation of the necessary monitoring equipment for the monitoring of turbidity within the River Blackwater in advance of the Construction Phase commencing. This will require the placement of sondes upstream and downstream of construction site to establish a baseline against which to monitor the effectiveness of the WMS and inform the development of trigger values for the SOWOR.

Step 6: Contractor Mobilisation & Monitoring

Once a system for management and protection of water on site has been agreed, the construction phase of the development and all associated monitoring will commence.

6.4.3.2.2 Best Practice Guidance

All works carried out as part of the Proposed Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990. The

objectives of the Water Framework Directive and the adopted construction techniques will comply with the requirements of all relevant statutory bodies (e.g., Building Control Amendment Regulations, Health Service Executive inspections).

Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. The contractors CEMP, Construction Method Statements and the relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors; (C532)
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005.
- BPGCS005, Oil Storage Guidelines.
- Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004)
- CIRIA 697, The SUDS Manual, 2007.
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004.
- Construction Industry Research and Information Association (CIRIA) C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006).
- CIRIA C649: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

Note that *Margaritifera* protection is generally more restrictive than fisheries protection, hence the trigger levels managed by the SOWOR may be stricter than would be assumed by the guidance above.

6.4.3.2.3 The SOWOR

The construction of the Proposed Development will be managed through the SOWOR system. The SOWOR for the Proposed Development will be run by the EcCOW, who is, or will be, trained to implement the process.

The Construction Management Team with their Environmental Manager will provide the numbered Method Statements for the SOWOR.

Together with the EcCOW, environmental triggers for safe undertaking of the high, intermediate, and low risk activities associated with the construction of the Development will be agreed between the contractor, employer's representative along with any other experts or technical specialists needed for high-risk aspects of the project. An experienced EcCOW can assist with determining these values, but the responsibility rests with the developer / employer.

The SOWOR will specify commencement and abandonment triggers for the following parameters for key works activities:

- Rainfall levels.
- Water levels.
- Weather forecast.
- Weather conditions on the ground.
- Soil conditions on the ground (such as soil wetness, whereby a check that the soils in the works area are not so saturated that they could result in slip-page, soil movement, or overland flow of contaminated water).
- Flow in the Blackwater River.
- Turbidity in the Blackwater River, upstream and downstream of the works area.
- Hydrocarbon sheen on the Blackwater River, upstream and downstream of the works area, and.
- Integrity of mitigation measures

The EcCOW will have the power to stop any works where the SOWOR established a risk of failure to properly implement the planning conditions and mitigation measures included in the CEMP.

Further details on the structure of SOWOR system are provided in section 5.3 above.

6.4.3.2.4 Sediment Management

Accounting for the sloping topography of the Site (particularly along its southern most extent) which is freely draining, this represents an increased risk of sediment laden runoff from the Site into excavations and surface water bodies during excavation and earthworks. The following measures for managing sediment on site will eliminate the risk of sedimentation of surface water receptors.

6.4.3.2.4.1 Surface Water Treatment and Retention

Surface water runoff or groundwater encountered during the excavation of the proposed new underground structures and foundations shall be pumped clear from the excavations. Water shall be directed toward a sump within the excavations. Using submersible pumps can generate more sediment through water turbulence. To avoid this, a corner of the excavation shall be used as a sump and care taken to avoid disturbing that corner. The pipe intake shall be fitted with a device to minimise disturbance of sediment within the sump, such as a perforated oil drum, a short length of wide bore perforated pipe or concrete manhole rings containing (non-limestone) granular fill.

Dewatering pumps will have appropriate capacity to pump out the residual seepage from excavations to maintain the works area excavation dry. The pumps shall be integrated sumps or shall sit within a fully bunded impermeable surface which is monitored and emptied regularly.

Water from excavations shall be pumped to appropriately sized settlement ponds or tanks for subsequent percolation / discharge of attenuated water to adjoining greenfield areas. The outlet pipe from the settlement tank shall be fitted with a silt bag or sock. Local ground conditions must be taken into consideration for the appropriate siting of the percolation areas

and settlement ponds. The settlement ponds and percolation areas must be carefully sited as per the following criteria:

- Settlement ponds and percolation areas must be sited on flat areas at least 50m from a watercourse or drain.
- Double silt fencing will be installed around the percolation area (more detail on silt fencing is provided below).
- Settlement ponds and surface water percolation areas must be sized to allow for:
    - Expected rainfall intensity
    - Expected rainfall duration
    - Size of the drained area
    - Permeability of the soil
    - Groundwater vulnerability.

The number of settlement ponds and percolation areas required shall be determined by the Contractor, using the information as obtained from site investigations and groundwater sampling to ensure that the treatment provided suits the actual ground conditions encountered during the construction works.

Settlement ponds will be excavated to a depth. All ponds constructed in the poorly draining areas of the Site will be fully and securely lined with terram and dressed in clean stone across the base (Figure 6-2). Limestone will not be used within the ponds. For the well-drained areas of the site to the south the ponds will be dressed in clean stone across the base and water will be allowed to infiltrate to ground, however contingencies will be put in place if a discharge is required for these settlement ponds should the infiltration prove to be unsuccessful. Where this is the case, the discharge will be managed in the same way as the lined settlement ponds. If settlement tanks are required, the tanks must be sited as per the criteria listed above, with the discharge directed to a designated percolation area. The ponds will be securely fenced off and appropriate safety signage erected. Where relevant, discharge water from the settlement pond will be inspected on a daily basis by the EcCOW with a handheld turbidity probe. If turbidity exceeds triggers set in the SOWOR, the flow will be stopped immediately and appropriate remedial works (e.g., enlargement of the pond, deployment of mobile ‘silt busters’) will be carried out.

Water from the settlement ponds/tanks must be discharged at a rate that will allow water to infiltrate the ground within the percolation area.

Uncontrolled water leaks from pumps and hoses can create additional surface water problems. To avoid damage, discharge hoses shall be routed out of the way of vehicle movements. Wherever hoses pass over a solid edge (the top of an excavation or a concrete sump, for example), care shall be taken to ensure no damage can occur. Regular daily checks shall be carried out on the pump, hoses and couplings for leaks and kinks by site personnel, with any problems being fixed immediately. Electric pumps shall be used wherever possible to reduce the use of fuels on site.

Should water pumped from excavations become contaminated (e.g., from a hydrocarbon spill or leak), pumped water must be tankered off site and treated at an appropriately licensed facility.

Sediment collected within the settlement ponds shall not be disposed of on site. Sediment accumulating within settlement ponds shall be carefully removed and disposed of off-site to an appropriate waste facility.

Should overland flow or surface water run-off into excavations affect the integrity of the various mitigation measures in place, temporary interceptor drains will be installed within the Site, as per a detailed method statement, with the locations agreed with the Employers Representative and EcCOW. The drains will be used to divert runoff around the works area to a location within the Site that is low risk (e.g., where silt fencing has already been installed) where it can be redistributed over the ground surface as sheet flow. The drains must be managed through the SOWOR system.

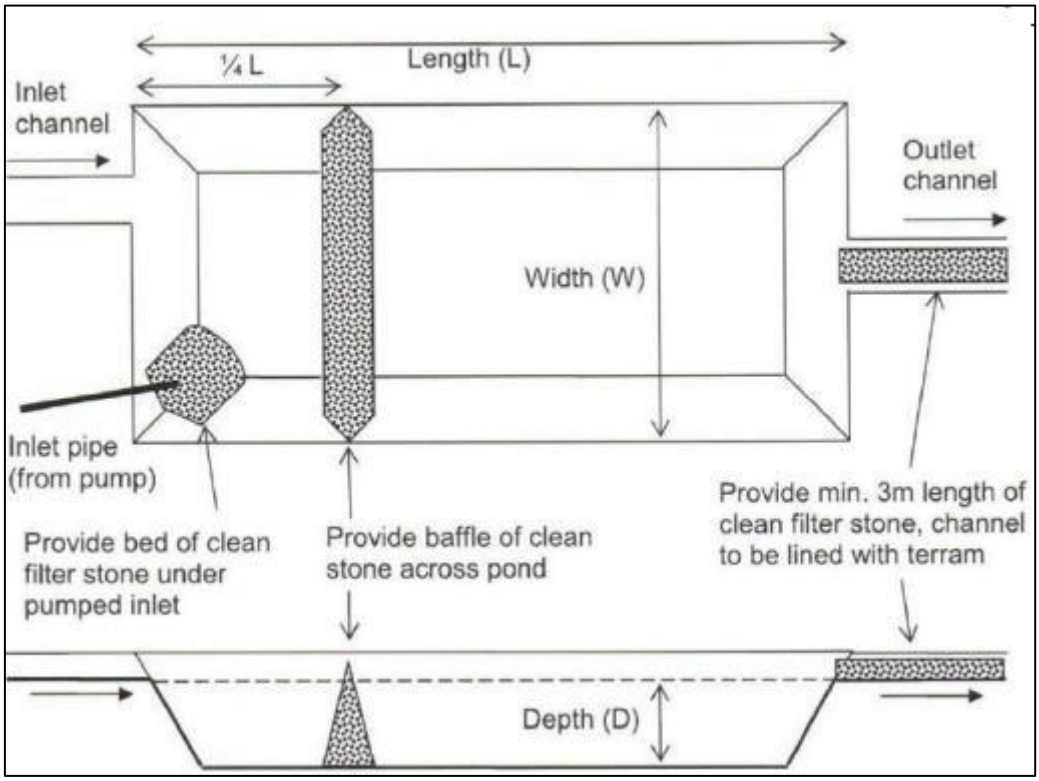

Figure 6-1 Temporary Surface Water Settlement Pond

6.4.3.2.4.2 Silt Fencing

Silt-fencing will be installed along the southern extent of the Site between the extent of the works at Site and the Blackwater River. This should consider the landscaping of the open space in the south of the Site, and the Site topography. Silt fencing will be used to isolate the Site from receiving surface water bodies, and to isolate designated surface water percolation areas. The following criteria, as per CIRIA C648, with additions for *Margaritifera* must be adhered to for the installation/operation of silt fencing:

- With the exception of the southern boundary of the mixed broadleaved woodland (located to the north of the Site), silt fencing will be installed in two parallel layers as

described below, and three layers at high-risk areas in advance of works commencing.

- As noted previously, the Blackwater River is protected by a 0.15km vegetative buffer at the southern boundary of the Site where the existing public park is located. A single, trenched silt fence will be installed between the Site and this southern boundary in advance of works commencing.
- Silt fencing must be installed along a level contour, so water does not pond more than 400 mm at any point.
- An undisturbed area behind the fence must be retained for runoff to pond and sediment to settle.
- No more than 0.5 ha of concentrated flow shall drain to any point along the silt fence.
- The fabric will be fixed to strong supporting posts at regular intervals.
- In areas where more than one layer of silt fence is required, the following applies:
    - The inner silt fence fabric will be buried at least 100 mm into the ground.
    - The outer silt fence fabric will be folded at ground level and not buried.
- The silt fences will be positioned at central and right angles to flow, with the ends curving up slope to ensure water ponds behind the fence and does not flow around it.
- The fence will be supported by a wire mesh if the fabric selected does not have sufficient strength.
- Accumulated silt will be cleared regularly; commercially produced silt fences have a printed indicator line over which silt should not accumulate.
- The silt fence must be capable of preventing 180µ (micron) and above sediment from passing through.
- Silt fences must not be decommissioned until all land is vegetated.
- The buried inner silt fence is removed first.
- The outer folded silt fence is removed last, when the inner silt fence ground has revegetated.

High risk areas where triple silt fencing is required are areas between the works area and all surface water bodies. Given that there are no watercourses, drains or sewers present on Site, the southern boundary where the topography of the Site slopes steeply toward the Blackwater River is considered a high-risk area and will require triple silt fencing. Silt fencing must be positioned at a minimum of 10 metres and where possible 50 metres from surface water bodies. The 2-3 layers of silt fencing shall be spaced in 1 metre intervals. Every precaution will be taken to ensure that the installation of the silt fencing itself does not result in emissions of silt. To this end, sequential excavation, and reinstatement of turves as the silt fence is trenched will be implemented. Silt fencing will be placed as close as possible to the construction works

while allowing for sufficient space for maintenance and clearance of silt and debris.

Any drains within the Site (as identified by the EcCOW) will be blocked or isolated with check-dams and silt curtains in series downstream of the works area prior to infilling/modification. As noted previously, where drains are to be retained within the site, these must be protected with triple silt fencing.

The EcCOW shall regularly inspect the silt fences as per the SOWOR to ensure they are functioning as intended, and no damage has occurred (e.g., holes, blown over in wind). The fencing shall be amended as required.

Silt fencing shall remain in place for the duration of works and until exposed soils have revegetated.

In no circumstances will terrestrial works be undertaken outside the silt fences.

6.4.3.2.4.3 Open Cut Pipeline Works

- All pipeline works for the development will occur within the main development area, where the residential units are proposed. The development will connect with the existing sewerage network at the existing adjacent residential estate.
- Where trench dewatering is required, water pumped from excavations will be managed as per the “Surface Water Treatment and Retention” section above. Excavated spoil and stripped topsoil will be stockpiled. Drainage inlets constructed as part of the new surface water drainage network will be either blocked or protected as per the following criteria during the Construction Phase:
    - Drain inlets will be protected with a drain guard designed to filter oil and silt from stormwater run-off (e.g., https://ssienvironmental.ie/product/drain-guard/).
    - In addition to the above, sandbags will be placed around the inlet to provide additional protection from sediment.
    - Inlet protection can only be removed once all construction activity that could generate sediment or result in emissions of other pollutants such as chemicals and fuel has ceased in a given location and the drainage infrastructure is operational (e.g., to allow for the discharge of stormwater from the roofs of newly constructed and completed dwellings into the stormwater network).
- Measures will be employed to prevent soil wash out which will Include:
    - Closing and stabilising open trenches as soon as possible.
    - Sequencing the works so that open portions of the trench are closed before a new section of trenching is begun.
    - No more than 500m of pipeline will be constructed before a trench is backfilled.

6.4.3.2.4.4 Water Management System (WMS)

All water protection measures will be incorporated into a detailed Water Management System (WMS) which will be prepared by the contractor.

The WMS will be drawn up by the contractor in consultation with the EcCOW and Employers Representative and will take into account any changes in the physical conditions of the site e.g., river flows or ground conditions, which may have occurred subsequent to the submission of the application.

As part of the WMS the Contractor, in consultation with the Employers Representative and the EcCOW, will arrange for the installation of the necessary monitoring in advance of the Construction Phase commencing. This will require the placement of sondes upstream and downstream of construction site in order to establish a baseline against which to monitor the effectiveness of the WMS and inform the development of trigger values for the SOWOR.

The EcCOW and Employers Representative will be required to sign off on the WMS.

- The WMS will provide detailed designs for each stage of development and will detail how surface water management will be carried out. The WMS will include the following provisions:
    - The surface water protection and management measures outlined in this CEMP.
    - The design of the WMS will take due consideration of the requirements given in the document “Control of water pollution from Construction Sites – Guidance for consultants and contractors (Ciria C532)”.
    - The WMS shall be contained within the redline boundary of the Site, unless prior agreement from adjacent landowners is received and permission to discharge treated water to land outside of the red line boundary can be attained.
    - Detailed methodologies for the construction of silt management systems (e.g., settlement ponds, silt traps, silt fences, and detailed procedures for pumping water from excavations are provided in the preceding sections.
    - At least 3 mechanical siltbusters will be on standby to be employed sequentially if turbidity levels from pond outfalls are exceeded.
    - At no time will any chemical coagulants be used to remove silt, whether in siltbusters or other areas.
- All elements of the WMS will be managed and maintained in line with the provisions of a detailed maintenance programme. Daily inspection of the WMS will be carried out by the EcCOW.
- The WMS will detail emergency procedures to be put in place in the event of fuel spillages.

6.4.3.2.5 Refueling

- Re-fueling of plant and the addition of hydraulic oil or lubricants to vehicles/equipment

shall only take place on hard standing in designated bunded areas and not within 50 m of any watercourse or surface water feature. Spill containment (i.e., drip trays) shall be used, and spill kits shall be kept available and used if necessary. The location of spill kits will be specified in the Construction Phase drainage and mitigation drawing.

- Only emergency breakdown maintenance shall be carried out on site. Emergency procedures and spill kits will be readily available at strategic and/or sensitive site locations and all relevant personnel will be familiar with emergency procedures.
- Robust and appropriate Spill Response Plan and Environmental Emergency Plans must be implemented by the Contractor and the details of which will be communicated, resourced and implemented for the duration of the works.
- Control measures and spill clean-up equipment adequate to treat spills at the Site will be available and staff will be trained and experienced in using said equipment.
- Spill kits will be kept in designated areas for refueling of construction machinery.
- Fuel will be delivered to plant on-site by dedicated road tanker.
- All deliveries to on-site vehicles will be supervised and records will be kept and retained onsite of delivery dates and volumes.
- The driver will be issued with, and will carry at all times, absorbent sheets, and granules to collect any spillages that may accidentally occur.
- Where the nozzle of a fuel pump cannot be placed into the tank of a machine then a funnel will be used.

6.4.3.2.6 Concrete Works

- The cementitious grout and other concrete works during the Construction Phase, will avoid any contamination of ground and water using appropriate design and methods implemented by the Contractor and in accordance with industry standards (e.g., Guidance for Consultants and Contractors, CIRIA - C532', CIRIA, 2001).
- All ready-mixed concrete will be delivered to the Site by truck. Concrete mixer trucks will not be permitted to wash out on-site apart from cleaning the chute into a designated container which will be carefully collected and subsequently sent off site for compliant waste management. A suitable risk assessment for wet concreting will be completed prior to works being carried out.
- Concrete pouring will be undertaken in accordance with the commencement and abandonment triggers set out in the SOWOR.
- Shuttering will be designed to accommodate increases in the volume of material contained within the shuttered area due to rainfall.
- Discharge water generated during placement of concrete will be stored and removed off site for treatment and disposal.

6.4.3.2.7 *Storage and Transport of Excavated Material Near Existing Waterbodies*

Good construction management practices that will be employed to minimise the risk of pollution of existing watercourses and waterbodies due to the storage and transport of the excavated materials include:

- Where feasible transfer of excess soil materials from stockpile areas off-site will be undertaken during dry periods.
- Stockpile and transfer of excess soil material will be restricted to specified areas that are isolated from the surrounding environment.
- A wheel wash facility will be in place for all vehicles prior to entering onto public road, detail of which is shown in Figure 6-2 below.
- The location of the wheel wash will be agreed with the EcCOW and Employers Representative.

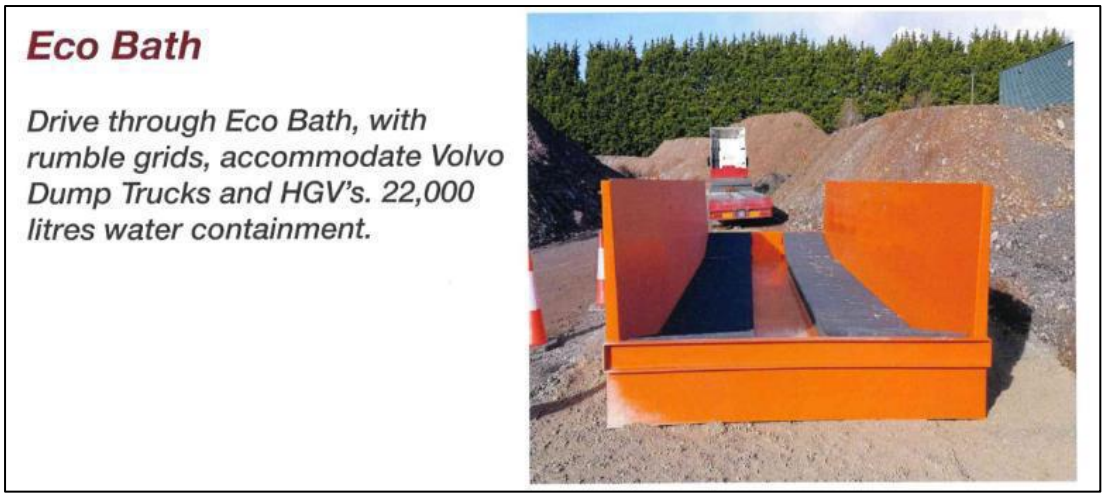

Figure 6-2 Wheel Wash Eco Bath Facility

- The wheel wash will be installed by the site contractor and will be fully operational prior to the commencement of the development.
- Vehicles will be directed to use the wheel wash during times of wet weather, when site conditions dictate its use and/or when the site management consider the use of the wheel wash will safeguard the condition of the highway outside the site. In the event of mud being tracked on to the lane, the contractor shall be responsible for ensuring that the lane is brushed and washed to clear any mud as soon as practically possible.
- All staff will be trained and will follow vehicle cleaning procedures. Details of these procedures will be posted in all work sites for easy reference.

6.4.3.2.8 *Soil Structure*

The extent of the required work area and the bulk excavation at the Site will be minimised where appropriate to prevent unnecessary excavation of soil and tracking over soil and subsoil outside of the excavation work areas as a result of compaction and rutting from construction traffic.

Dedicated internal haul routes will be established and maintained by the contractor to prevent tracking over unprotected soils. The following criteria for the siting of haul routes must be adhered to:

- The length of haul routes on the site shall be minimised.
- The contour of the natural ground shall be followed as much as possible.
- The slope of haul routes shall not exceed 15%.
- Haul routes shall be constructed using permeable material, laid on geotextile.
- Trenchless gravel banks shall be used to filter runoff, and where possible existing vegetation along the perimeter of the haul routes shall be retained to provide an effective buffer against sediment leaving the area.
- Haul routes shall be at least 10m from a watercourse and shall be isolated from any watercourses with silt fencing.

Exclusion zones will be established where soft landscaping is proposed in particular along Site boundaries which are outside of the excavation areas to ensure soil structure is maintained.

6.4.3.2.9 Management of Stockpiles (soils)

Soils intended for reuse onsite or for off-site removal and disposal will be segregated and temporarily stored on-site (pending removal or for reuse on-site).

Any reuse of excavated soil and bedrock at the Development Site will be undertaken in accordance with the engineered design and landscape plan for the Proposed Development Site. Soil including topsoil and subsoil will be segregated and stored appropriately to prevent deterioration of soil structure and quality to ensure the material will be suitable for reuse onsite. Surplus onsite materials will be segregated and stockpiled appropriately for removal offsite in accordance with the Construction and Demolition Waste Management Plan prepared by Enviroguide Consulting (2024).

For any excavated material identified for reuse or removal offsite, while assessment and approval of acceptance at a destination reuse, recovery site or waste facility is pending, excavated soil for will be stockpiled as follows:

- A suitable storage area will be identified and designated. The following criteria for the siting of storage areas must be adhered to:
    - Storage areas must be a minimum of 50m from watercourses and will be surrounded by single trenched silt fencing.
    - Storage areas must be on flat ground.
- All stockpiles will be assigned a stockpile number.
- Material identified for reuse on site, disposal off site and waste materials will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on the Construction Phase Drainage and Mitigation drawing.
- Soil stockpiles will be sealed to prevent run-off from the stockpiled material and/or the generation of dust either via revegetation of stockpiles or where this is not possible via geotextile (e.g., hessian).

- Any waste that will be temporarily stored / stockpiled will be stored on impermeable surface high-grade polythene sheeting, hardstand areas or skips to prevent cross-contamination of the soil/subsoil below and covered with impermeable sheeting.
- Soil excavation will be undertaken as per the commencement and abandonment triggers set out in the SOWOR and undertaken with excavators and dump trucks. Topsoil and subsoil will not be mixed.
- Stockpiles will be graded to a <1:4 profile. Topsoil and subsoils will be stored separately. Stockpiles of mineral soils and peat (in the unlikely event that peat soils are encountered) will be <2m and <1m respectively. Stockpiles will be covered with plastic sheeting during wet weather to prevent run-off of silt. Excavated material will be used for backfilling where possible. Surplus material will be removed from site.
- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the Proposed Development Site.
- Stockpiles will not be located near Site boundaries.
- When a stockpile has been sampled for classification purposes, it will be considered to be complete, and no more soil will be added to that stockpile prior to removal off site.
- An excavation/stockpile register will be maintained on-site.

Waste will be stored on-site, including concrete, asphalt and soil stockpiles, in such a manner as to:

- Prevent environmental pollution (bunded and/or covered storage, minimise noise generation and implement dust/odour control measures, as may be required).
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent reuse, recycling and recovery; and
- Prevent hazards to site workers and the public during construction phase (largely noise, vibration and dust).

Prolonged exposure of contaminated soils or groundwater to the atmosphere will be avoided where practical or unnecessary.

6.4.3.2.10 Export of Resource (soil and stone)

All surplus materials and any waste will be managed and removed off-site in accordance with all legal obligations.

The reuse of soil offsite will be undertaken in accordance with all statutory requirements and obligations including where appropriate reuse as by-product in accordance with Article 27 of the European Communities (Waste Directive) Regulations 2011 (SI No. 126 of 2011) as amended.

Any surplus soil not suitable for reuse as a by-product and other waste materials arising from the Construction Phase will be removed offsite by an authorised contractor with a valid Waste

Collection Permit (WCP) issued by the National Waste Collection Permit Office (NWCPO) under the Waste Management (Collection Permit) Regulations 2007, as amended, and will be delivered to an appropriately authorised (licensed/permitted) waste management facility. As only authorised facilities will be used, the potential impacts at any authorised receiving facility sites will have been adequately assessed and mitigated as part of the statutory consent procedures. It will be the contractor's responsibility to engage specialist waste service contractors who will possess the requisite authorisations for the collection and movement of waste off-site.

Materials and waste will be documented prior to leaving the Site. All information will be entered into a waste management register kept on the Site. Vehicles transporting material with potential for dust emissions to an off-site location will be enclosed or covered with a tarpaulin at all times to restrict the escape of dust.

Public roads outside the Site will be regularly inspected for cleanliness, as a minimum daily and cleaned as necessary. The wheels of all lorries will be cleaned prior to leaving the Site so that traffic leaving the Site compound will not generate dust or cause the build-up of aggregates and fine material in the public domain. A wheel-wash will be installed at the egress point and a road sweeper will be deployed to ensure that public roads are kept free of debris.

6.4.3.2.11 Import of Aggregates

To minimise the requirement to import virgin quarried materials, recycled aggregates will be used where available and subject to meeting specified design requirements and all construction and environmental legislation. This will include where suitable, by-products that meet the legislative requirements of Article 27 of the European Communities (Waste Directive) Regulations, 2011 and other applicable statutory requirements.

Contract and procurement procedures will ensure that all imported aggregates required for the Site will be sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations. The importation of aggregates will be subject to management and control procedures which will include testing for contaminants, invasive species and other anthropogenic inclusions and assessment of the suitability for use in accordance with engineering and environmental specifications for the Development. Therefore, any unsuitable material will be identified prior to unloading / placement onsite.

Imported aggregates must be compatible with local stone and have an equivalent pH value when slurried with water. As with all *Margaritifera* construction, the importation of limestone aggregate is not acceptable.

6.4.3.3 Control of Emissions to Soil and Groundwater

Measures set out in Section 6.4.2 will also serve to protect soil and groundwater. In addition,

- No direct untreated point discharge of construction runoff to groundwater will be permitted.
- Where a pollution incident is detected, construction works will be stopped immediately until the source of the construction pollution has been identified and remedied.

- Groundwater may be encountered during the construction works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents.
- Any excavated and potentially contaminated stockpiled soils will be constructed/ located/ sheeted in a manner that ensures water is contained within the site boundary.

6.4.3.4 Construction Phase Foul Water Drainage

Foul water disposal will only be through connection to existing foul water infrastructure on Site or tankered away. It will be the Contractor's responsibility to apply to Irish Water for connections to the foul sewer network, provided the use of existing connections is feasible. If foul water must be disposed of via tankering, a dedicated holding tank for storage of construction foul effluent from welfare facilities will be imported prior to commencement of the main construction activities. The effluent will be regularly disposed of off-site by tanker by a permitted contractor to an approved licensed facility.

In order to reduce the risk of defective or leaking foul sewers, the following remedial measures will be implemented:

- All new foul sewers will be tested by means of an approved air test during the Construction Phase in accordance with Irish Waters Code of Practice and Standard Details.
- All private drainage will be inspected and signed off by the design Engineer in accordance with the Building Regulations Part H and BCAR requirements.
- Foul sewers will be surveyed by CCTV to identify possible physical defects.
- The connection of the new foul sewers to the public sewer will be carried out under the supervision of Irish Water and will be checked prior to commissioning.
- Prior to commencement of excavations in public areas, all utilities and public services will be identified and checked, to ensure that adequate protection measures are implemented during the Construction Phase.

6.4.3.5 Best Practice Guidance

All works carried out as part of the Development will comply with all Statutory Legislation including the Local Government (Water Pollution) acts, 1977 and 1990. The objectives of the Water Framework Directive and the adopted construction techniques will comply with the requirements of all relevant statutory bodies (e.g., Building Control Amendment Regulations, Health Service Executive inspections).

Personnel working on the Site will be trained in the implementation of environmental control and emergency procedures. The contractors CEMP, Construction Method Statements and the relevant documents produced will be formulated in consideration of standard best international practice including but not limited to:

- CIRIA, (2001), Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors; (C532)
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005.
- BPGCS005, Oil Storage Guidelines.

- Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004)
- CIRIA 697, The SUDS Manual,
- UK Pollution Prevention Guidelines (PPG) UK Environment Agency, 2004.
- Construction Industry Research and Information Association (CIRIA) C648: Control of water pollution from linear construction projects: Technical guidance (Murnane et al. 2006).
- CIRIA C649: Control of water pollution from linear construction projects: Site guide (Murnane et al. 2006); and
- Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

Prior to the commencement onsite contact will be made with IFI to ensure the works comply with any detailed operational and construction requirements issued by IFI.

Note that *Margaritifera* protection is generally more restrictive than fisheries protection, hence the trigger levels managed by the SOWOR may be stricter than would be assumed by the guidance above.

6.4.3.6 Monitoring Programme

In advance of the construction phase commencing, and throughout the construction phase, the EcCOW will undertake turbidity monitoring to establish baseline turbidity levels at the Blackwater River. Turbidity will be monitored via fixed sondes located upstream and downstream of the works area. station. The sondes will be set up so that an alert issues via SMS to nominated individuals including the EcCOW, CMT and Environmental Manager if turbidity levels at the downstream sonde increase by 20% over the baseline levels. An exact turbidity level will need to be decided above which works are suspended for investigation and remedial action. The monitoring data will be transmitted to the EcCOW via SMS or to a central server so that records can be retained.

Visual inspections of the Blackwater River for hydrocarbon sheen, as well as on going monitoring of the weather forecast, onsite weather conditions, overland flow and soil wetness conditions on Site will also be undertaken by the EcCOW as part of the SOWOR.

The EcCOW will submit monitoring records of the SOWOR to the NPWS on completion of the Construction Phase. Submitting records of the SOWOR to the NPWS will work towards building an evidence base for the effectiveness of mitigation measures employed in pearl mussel catchments.

Table 6-2 outlines a schedule of monitoring required during the construction phase.

Table 6-2 Schedule of Monitoring

Parameter	Technique	Frequency	Data Management	Response to Elevated levels/ Conditions	Responsible Persons
Turbidity	Sondes located upstream and downstream of Site with alarm system installed. A 20% rise in turbidity should always trigger an investigation.	Automated monitoring every 15 minutes.	To be recorded as part of the SOWOR throughout construction phase. All data to be retained and backed up for reference.	As per SOWOR	EcCOW
Hydrocarbon sheen	Visual inspection of the Blackwater River. Time and location referenced photographic records to be taken.	Daily, or at least twice Daily during high-risk activities	To be recorded on a spreadsheet for reference.	As per SOWOR	EcCOW
Weather forecast data	Weather forecast information for rain, wind and storm will be obtained from at least two reliable sources namely Met Eireann and AccuWeather.com. The most pessimistic forecast will be used initially until a picture of which forecast is the more accurate for the area is established.	Daily	To be recorded on a spreadsheet for reference.	As per SOWOR	EcCOW
Weather on the ground	A check that the weather on the ground is no worse than the forecasted weather.	Daily during high-risk activities, otherwise weekly checks to be carried out.	To be recorded on a spreadsheet for reference.	As per SOWOR	EcCOW
Flow in the Blackwater River	Visual inspection including of flow gauge placed at the downstream end of the site, marked at 5cm intervals. A check that the flow within the Blackwater River is not at a level that could affect the integrity of mitigation measures during work activities. Time and location referenced photographic records to be taken.	Daily during works adjacent to the Blackwater River	To be recorded on a spreadsheet for reference.	As per SOWOR	EcCOW

Soil conditions on the ground	A check that the soils in the works area are not so saturated that they could result in slippage, soil movement, or overland flow of contaminated water. Time and location referenced photographic records to be taken, hand held soil moisture measurements.	Weekly, or at least twice daily during high-risk activities or during periods of prolonged wet weather.	To be recorded on a spreadsheet and within a photographic log for reference.	As per SOWOR	EcCOW
Mitigation measures integrity checks	Documented checks of the integrity of any silt fencing, settlement tanks, percolation areas, etc. Integrity checks of machine routes and any exclusion zones. Time and location referenced photographic records to be taken.	Weekly, with increased frequency during high-risk activities	To be recorded on a spreadsheet and within a photographic log for reference.	As per SOWOR	EcCOW

6.4.3.7 Pollution Emergency Procedures

A contingency plan for pollution emergencies will be developed by the contractor prior to the commencement of the works and regularly updated during construction. This contingency plan will identify the actions to be taken in the event of a pollution incident in accordance with the CIRIA Guidance 37 which requires the following to be addressed:

- Containment measures
- Emergency discharge routes
- List of appropriate equipment and clean-up materials
- Maintenance schedule for equipment
- Details of trained staff, location and provision for 24-hour cover
- Details of staff responsibilities
- Notification procedures to inform the EPA or Environmental Department of Cork County Council
- Audit and review schedule
- Telephone numbers of statutory water consultees; and
- List of specialist pollution clean-up companies and their telephone numbers.

An emergency-operating plan will be established to deal with incidents or accidents during construction that may give rise to pollution within any watercourses. This will include:

- Means of containment in the event of accidental spillage of hydrocarbons or other pollutants. The emergency response plan should include a register of the significant potential pollutants and their locations on Site.
- An inventory of suitable pollution prevention and remediation equipment for use in sensitive *Margaritifera* areas, which will be agreed with *Margaritifera* experts and included in the plan. This will include any equipment, and materials held by the regulatory agencies and equipment and materials that may be sourced from commercial suppliers. Typical examples include filter media designed to prevent sediment run off over land in the form of sediment curtains; filter media designed to inhibit sediment discharges from pipes or to be installed in riverbeds to trap sediment; temporary storage tanks which are readily transported and erected on site; oil pollution booms, skimmers etc.

- Procedures for addressing fires on Site, including water sources and discharge of fire- fighting run-off.
- Procedures to address complete or partial blockage of river flow in the event of a landslide or bridge collapse. The emergency response plan should include measures for controlled restoration of natural flow in the watercourse while minimising sediment release and transport downstream through installation of appropriate filters and sediment barriers and careful use of machines such as diggers required in rectifying the bridge collapse or landslide etc.
- Three mechanicals (no coagulants) 'siltbusters' which will be on standby for use in emergency situations.
- A monitoring programme for emergency situations.

Table 6-3 Monitoring Programme for Emergency Situations.

Attribute	Monitoring needed	Frequency
Weather forecast data from a reliable forecast service and actual onsite conditions.	To maintain a record of weather conditions that might exacerbate risk factors and result in impact to *Margaritifera* materialising.	At least twice daily
Mitigation measures integrity checks	Regular documented checks of the integrity of any sediment fencing, weirs, booms, containment ponds etc. Integrity checks of machine routes and any exclusion zones. Time and location referenced photographic records are appropriate.	Repeatedly during the period of the incident as appropriate.
Stream Flow	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess pollution and scouring potential.	At least weekly in protracted incidents.
Turbidity	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess pollution by fine sediments.	Regularly each day with handheld meter, or constantly with automatic recorder in major protracted incidents.
Suspended Solids	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess sediment pollution.	Weekly in protracted incidents.
Phosphorus	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of	Weekly in protracted incidents, including rising

	Margaritifera populations to assess nutrient pollution.	flood conditions
Nitrogen	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess nutrient pollution.	Weekly protracted incidents.
Ammonia	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess nutrient pollution.	Weekly protracted incidents.
BOD/Dissolved Oxygen	To be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess pollution by organic or oxygen depleting materials.	Weekly protracted incidents.
pH	pH to be measured in drains and streams possibly affected by the incident, emergency response operations, or rehabilitation works upstream of *Margaritifera* populations to assess pollution by acidic or alkaline materials.	Weekly protracted incidents.

6.4.4 Dust

The objective of dust control at the site is to ensure that no significant nuisance occurs from the Proposed Development. The following Dust Management Plan (DMP) has been formulated by drawing on best practice guidance from Ireland, the UK (BRE 2003), (The Scottish Office 1996) (UK Office of Deputy Prime Minister 2002) and the USA (USEPA 1997), (USEPA 1986).

The aim is to ensure good site management by avoiding dust becoming airborne at source. This will be done through good design and effective control strategies. The dust minimisation measures shall be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust using best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem.

6.4.4.1 Site Management

- Regular inspections of the Site and boundary will be carried out to monitor dust. Records and notes on these inspections should be logged.
- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.

- Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook.

- Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

6.4.4.2 Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.

- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on Site.

- Fully enclose specific operations where there is a high potential for dust production and the Site is active for an extensive period.

- Avoid Site runoff of water or mud.

- Keep Site fencing, barriers and scaffolding clean using wet methods.

- Remove materials that have a potential to produce dust from Site as soon as possible, unless being re-used on Site. If they are being re-used on-site cover as described below.

- Cover stockpiles to prevent wind whipping.

6.4.4.3 Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems.

- Ensure an adequate water supply on the site for effective dust/ particulate matter suppression/ mitigation, using non-potable water where possible and appropriate.

- Use enclosed chutes and conveyors and covered skips.

- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

6.4.4.4 Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian or mulches where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

6.4.4.5 Measures Specific to Construction

- Avoid scabbling (roughening of concrete surfaces) if possible.
- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

6.4.4.6 Measures Specific to Trackout

Site roads (particularly unpaved) can be a significant source of fugitive dust from construction sites if control measures are not in place.

- It is anticipated that a speed restriction of 20 km/hr will be applied as an effective control measure for dust for on-site vehicles.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Record all inspections of haul routes and any subsequent action in a site logbook.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout allows.

6.4.5 Noise and Vibration

In order to control likely noise impacts caused by the Proposed Development, best available technology will be employed by the appointed Main Contractor to minimise noise from the construction operations and will comply with Safety, Health and Welfare at work (construction) Regulations 2006 to 2013, Safety Health and Welfare at Work Act 2005, BS 6187:2011 - Code of Practice for full and partial demolition, BS 5228:2009: A1:2014 *Parts 1 & 2 - Code of Practice for noise and vibration control on construction and open sites*, Environmental Protection Agency Act 1992 Sections 106-108, and all Local Authority specific requirements for this specific site.

6.4.5.1 Noise

BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise, suggests an absolute construction noise limit depending on the receiving environment. The document states:

> "*Noise from construction and demolition sites should not exceed the level at which conversations in the nearest building would be difficult with windows shut…. Noise levels between 07:00 and 19:00 hrs, outside the nearest window of the occupied room closest to the site boundary should not exceed:*
>
> - *70dB in rural, suburban and urban areas away from main road traffic and industrial noise;*
> - *75dB in urban areas near main roads in heavy industrial areas*."

The 2004 TII document "Guidelines for the Treatment of Noise and Vibration in National Road Schemes" outlines the construction noise limit values, as listed in Table 6-4 Construction Noise Limits.

Table 6-4 Construction Noise Limits (Source: TII, 2004)

Days and Times	LAeq	Lasmax
Monday to Friday (07:00 to 19:00 hours)	70 dB	80 dB
Monday to Friday (19:00 to 22:00 hours)	60* dB	75* dB
Saturdays (08:00 to 16:30 hours)	65 dB	75 dB
Sundays & Bank Holidays (08:00 to 16:30 hours)	60* dB	65* dB

Note * Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the local authority.

A programme of monitoring will be put in place to monitor site activity, and noise levels generated to ensure impacts to nearby residential noise sensitive locations are not significant.

6.4.5.1.1 Best Practice Guidelines for the Control of Construction Noise

BS 5228 (2009 +A1 2014) *Code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2*, provides guidance on the various aspects of construction site noise mitigation, including, but not limited to:

Selection of Quiet Plant

This practice is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item will be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action will be to identify whether or not said item can be replaced with a quieter alternative.

Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control "at source". This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

The following work methods will be implemented to ensure minimal noise and vibration are generated at sources during the construction phases:

- All plant and equipment liable to create noise whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors and neighbouring occupied buildings.

- For mobile plant items such as cranes, dump trucks, excavators and loaders, maintaining enclosure panels closed during operation can reduce noise levels over normal operation. Mobile plant will be switched off when not in use and not left idling.

- For steady continuous noise, such as that generated by diesel engines, it may be possible to reduce the noise emitted by fitting a more effective exhaust silencer system.

- For percussive tools such as concrete breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker 'tool' and ensure any leaks in the air lines are sealed. Erect localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.

- For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.

- For all materials handling ensure that materials are not dropped from excessive heights, lining drops chutes and dump trucks with resilient materials.
- For compressors, generators and pumps, these can be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures.
- Any plant, equipment or items fitted with noise control equipment found to be defective will not be operated until repaired.
- Site deliveries will be confined to working hours and allocated offloading location will be utilized for all deliveries.
- Working hours will be confined to those stipulated in the grant of planning permission.

Screening

Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. Standard construction site hoarding with a mass per unit of surface area greater than 7 kg/m^2 can provide adequate sound insulation.

Liaison with the Public

A designated noise liaison officer (who may be the Environmental Manager referred to above) will be appointed to oversee the site during construction works. Any noise complaints will be logged and followed up in a prompt fashion by the liaison officer. In addition, prior to particularly noisy construction activity, e.g., breaking, piling, etc., the liaison officer will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

Project Programme

The construction programme will be arranged to control the amount of disturbance in noise and vibration sensitive areas at times that are considered of greatest sensitivity. If piling or breaking works are in progress on a site at the same time as other works of construction that themselves may generate significant noise and vibration, the working programme will be phased so as to ensure noise limits are not exceeded due to cumulative activities.

6.4.5.2 Vibration

Ground vibration may also potentially occur during the construction phase. Vibration can be measured in terms of Peak Particle Velocity (PPV), this is expressed in millimetres per second (mm/s). Vibration standards can be considered in two varieties: those dealing with human comfort and those dealing with cosmetic or structural damage to buildings. For example, vibration is perceptible at around 0.5mm/s in the case of road traffic, however at higher magnitudes, this vibration may become an annoyance.

Rock breaking and piling are considered the primary sources of vibration during the construction phase of a project. These would occur at higher levels of vibrations (up to 12mm/s and 6mm/s respectively), and this can be tolerated for events of a short duration.

Guidance relevant to the protection of building structures is contained in the following documents:

- British Standard BS 7385: 1993*: Evaluation and measurement for vibration in buildings Part 2: Guide to damage levels from ground borne vibration,* and.
- British Standard BS 5228: 2009+A1 2014: *Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration.*

6.4.5.2.1 Vibration Mitigation Measures

The below measures will be taken to ensure that no significant vibration levels occur, and that all appropriate steps are taken to assist in effective vibration level management:

- Vehicle engines shall be switched off when not in use.
- Machines will be fitted with suitable silencers.
- Offsite fabrication.
- In method statements/risk assessments the contractor will highlight any activity that may cause significant vibration levels and include measures in helping to mitigate these emission levels.
- Equipment is to be task-specific; and
- Best practice noise and vibration control measures will be employed by the contractor and screening provided to adjoining properties.

6.4.5.3 Monitoring of Noise and Vibration

The Main Contractor will monitor the likelihood of prolonged exposure to excessive noise and commission a noise surveying/monitoring programme where necessary.

In the first instance, it is envisaged that such audits will take place on a monthly basis. This will be subject to review and the frequency of audits may be revised if deemed appropriate.

The purpose of the audits will be to ensure that all appropriate steps are being taken to control construction noise emissions. To this end, consideration will be given to issues such as the following:

- Hours of operation being correctly observed.
- Opportunities for noise control ‘at source’.
- Optimum siting of plant items.

- Plant items being left to run unnecessarily.
- Correct use of proprietary noise control measures.
- Materials handling.
- Poor maintenance; and
- Correct use of screening provided and opportunities for provision of additional screening.

Noise and vibration monitoring reports will be maintained and made available to the Local Authority and members of the public on request.

6.4.6 Archaeology and Cultural heritage

It is possible that excavation works associated with the Proposed Development may have an adverse impact on small or isolated previously unrecorded archaeological features or deposits that have the potential to survive beneath the current ground level. If any archaeological remains are discovered during this project, all works will cease, and an expert archaeologist will be brought to site, and all future works will be carried out under the supervision of the archaeologist. Any excavation undertaken by site archaeologists will be subject to Method Statements and managed through the SOWOR system.

6.4.6.1 Monitoring

No specific monitoring measures are required in relation to archaeology and cultural heritage given the fact that it is not predicted that the Proposed Development will have any adverse impacts on any archaeological features or deposits.

6.4.7 Material Assets: Waste, Utilities and Traffic

6.4.7.1 Control of Traffic

An Outline Construction Traffic Management Plan has been prepared by Punch Consulting Engineers (September 2024).

In advance of construction works commencing onsite, the appointed Main Contractor will prepare a detailed Construction Traffic Management Plan (CTMP) taking account of the particulars of the grant of planning and in consultation with Cork County Council where necessary in advance of construction works commencing onsite.

Care will be taken to ensure existing pedestrian and cycling routes are suitably maintained or appropriately diverted as necessary during the construction period, and temporary car parking is provided for contractor's vehicles. It is likely that construction will have an imperceptible impact on pedestrian and cycle infrastructure.

Through the implementation of the CEMP and CTMP, it is anticipated that the effect of traffic during the Construction Phase will have a slight effect on the surrounding road network for a short-term period.

6.4.7.1.1 Monitoring

During the Construction Phase the following monitoring is advised:

- Construction vehicles routes and parking
- Internal and external road conditions
- Construction activities hours of work

The specific compliance exercises to be undertaken in relation to the range of measures detailed in the final construction management plan will be agreed with the planning authority.

6.4.7.2 Control of Waste and Waste Management

A member of the construction team will be appointed as **Construction Waste Manager** to ensure commitment, operational efficiency, and accountability during the construction phase of the project. The Resource Waste Manager will be trained in how to set up and maintain a record keeping system, how to perform an audit, and how to establish targets for the waste management on site. They will be also trained in the best methods for segregation and storage of recyclable materials, have information on the materials that can be reused on site, and know how to implement the waste section of the CEMP.

Training of the site crew in effective waste management is the responsibility of the Construction Waste Manager. A waste training program will be organised at the commencement of the project. A basic awareness course will be held for all site crew to outline the requirements of the CEMP and to detail the segregation of waste materials at source. This may be incorporated into the induction course or the safety-training course. This basic course will describe the materials to be segregated, the storage methods and the location of the waste storage areas. A subsection on hazardous wastes will be incorporated and the particular dangers of each hazardous waste will be explained.

6.4.7.2.1 Construction Waste Manager Training and Responsibilities.

The nominated Construction Waste Manager will be assigned responsibility and authority to select a waste team if required, i.e., members of the site crew that will aid them in the organisation, operation, and recording of the waste management system implemented on site.

The Construction Waste Manager will have overall responsibility to oversee, record, and provide feedback to the client on everyday waste management at the site. Authority will be given to the Construction Waste Manager to delegate responsibility to sub-contractors, where necessary, and to coordinate with suppliers, service providers and sub-contractors to prioritise waste prevention and salvage.

The Construction Waste Manager will be trained in how to set up and maintain a record keeping system, how to perform an audit and how to establish targets for waste management on site.

6.4.7.2.2 Proposed Waste Management Options

Waste materials generated will be segregated on site where it is practical. Where the on-site segregation of certain waste types is not practical, off-site segregation will be carried out by

the appointed waste management contractor. Skips and other receptacles will be provided to facilitate segregation at source.

The appointed waste contractor will collect the wastes as receptacles are filled. All waste contractors will be licensed under the *Waste Management Acts 1996 - 2008,* the *Waste Management (Collection Permit) Regulations 2007*(*as amended*). All waste arisings requiring disposal off-site will be transferred to waste facilities which are licensed under the *Waste Management (Facility Permit & Registration) Regulations 2007 (as amended)*.

It will be the responsibility of the Construction Waste Manager to ensure that every Waste Contractor maintains a valid Waste Collection Permit for the duration of the contract and that the waste types being collected from the site are permitted by the permit and all destination sites are also permitted by the permit.

The location of the waste segregation area on site is detailed in the Site Compound Drawing (Figure 3-1).

Typical non-hazardous and hazardous waste streams generated by construction and demolition at typical sites are shown below (Table 6-5) along with their accompanying European Waste Code (EWC) Classification.

Table 6-5 C&D Waste Materials Categorisation

Category	Description	Code
Non-Hazardous	Metals	17 04
	Wood, glass, plastic	17 02
	Soil, stones, dredged soils	17 05
	Gypsum based materials	17 08
	Cardboard	15 01 01
	Glass	17 02 02
	Bituminous mixtures, coal tar, tar products	17 03
	Concrete, bricks, tiles, ceramics	17 01
Hazardous	Electrical and Electronic Components	16 02
	Liquid Fuels	13 07
	Wood Preservatives	03 02
	Batteries	16 06
	Soil and stones containing dangerous substances	17 05 03*
	Waste construction material containing asbestos	17 06 05*
	Other construction and demolition wastes containing dangerous substances	17 09 03*

The classification of materials as non-hazardous and/or hazardous will be based on the www.hazwasteonine.com web based system as well as classification using Waste Acceptance Criteria in accordance with the European Communities (EC) Council Decision 2003/33/EC, which establishes criteria for the acceptance of waste at landfills.

The management of the main waste streams are detailed as follows:

6.4.7.2.2.1 Soil/Subsoil

Soil will be excavated to facilitate construction of foundations, access roads, the installation of site services and general landscaping. Where possible, excavated topsoil will be reused on site for landscaping. It is anticipated that any additional soil will be removed from the site for reuse, recovery and/or disposal as there are limited suitable onsite re-use options. Records of topsoil and soil storage, movements and transfer from site will be kept by the Resource Waste Manager.

The Waste Management Hierarchy states that the most preferred option for waste management is prevention and minimisation of waste, followed by reuse and recycling/recovery, energy recovery (i.e., incineration) and, least favoured of all, disposal. The excavations are required to facilitate construction so the preferred option (prevention and minimisation) cannot be accommodated for the bulk excavation phase.

The next option (beneficial reuse) may be possible for some and potentially all of the inert natural material (Category A1). This material could be used as fill material in other construction projects or engineering fill for waste licensed sites. Beneficial reuse of surplus excavation material as engineering fill may be subject to further testing to determine if materials meet the specific engineering standards for their proposed end-use (e.g., in respect of sulphate content, pyrites etc.).

Any nearby sites requiring clean fill/capping material will be contacted to investigate reuse opportunities for clean and inert material. If any of the material is to be reused on another site as a by-product (and not as a waste), this will be done in accordance with Article 27 of the *European Communities (Waste Directive) Regulations 2011*. Article 27 requires that certain conditions are met and that by-product decisions are made to the EPA, via their online notification form.

Similarly, if any soils/stones are imported onto the site from another construction site as a by-product, this will also be done in accordance with Article 27.

Once all available beneficial reuse options have been exhausted, the options of recycling and recovery at waste permitted and licensed sites will be considered. The option of disposal of inert natural material to landfill will only be considered once all available reuse options have been explored and where void capacity cannot be secured at appropriately permitted/licensed facilities for recycling or recovery purposes.

If the material is deemed to be a waste, removal and recycling/ recovery/disposal of the material will be carried out in accordance with the *Waste Management Acts 1996 - 2008*, the *Waste Management (Collection Permit) Regulations 2007* (*as amended)* the *Waste Management (Facility Permit & Registration) Regulations 2007 (as amended)*. The volume of waste removed will dictate whether it can be directed to a Certificate of Registration (COR), Waste Facility Permit or Waste Licenced receiving facility.

Any soil/subsoil that is deemed to be contaminated will be stored separately to the clean and inert soil/subsoil. The material will be appropriately tested and classified as either non-hazardous or hazardous in accordance with the EPA publication '*Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline*

application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the *EC Council Decision 2003/33/EC.*

6.4.7.2.2.2 Concrete, Bricks, Tiles & Ceramics

Any concrete, bricks, tiles and ceramics waste generated as part of the construction works is expected to be clean, inert material and will be recycled, where possible.

6.4.7.2.2.3 Hard Plastic

Hard plastic is a highly recyclable material and the majority of the plastic generated will be from new material off-cuts. All recyclable plastic will be segregated, where suitable, to improve its recovery quality.

6.4.7.2.2.4 Timber

Timber that is uncontaminated, i.e., free from paints, preservatives, glues etc., will be segregated and stored in skips for timber recycling.

6.4.7.2.2.5 Metal

Metals will be segregated into mixed ferrous, cladding, aluminium, high grade stainless steel, low grade stainless steel etc., where practical. Metal is highly recyclable and there are numerous companies that will accept these materials. Metals will be segregated and stored in skips.

6.4.7.2.2.6 Plasterboard

There are currently a number of recycling services for plasterboard (gypsum) in Ireland. Plasterboard from the Construction Phase will be stored in a separate skip, pending collection for recycling. The site manager and project engineers will ensure that supply of new plasterboard is carefully monitored to minimise waste.

6.4.7.2.2.7 Glass

Glass materials will be segregated for recycling, where possible.

6.4.7.2.2.8 Organic (Food) Waste

Where a site canteen is provided in which food is prepared for the workers, organic waste will be segregated for separate collection. Segregation at source and separate collection of organic waste is required in accordance with the *Waste Management (Food Waste) Regulations 2009* (if food is prepared on the site).

6.4.7.2.2.9 Waste Electrical and Electronic Equipment (WEEE)

Waste Electrical and Electronic Equipment (WEEE) (containing hazardous components), printer toner/cartridges, batteries (Lead, Ni-Cd or Mercury) and/or fluorescent tubes and other mercury containing waste may be generated from temporary site offices. These wastes (if

encountered) will be stored in appropriate receptacles in designated areas of the site pending collection by an authorised waste contractor.

6.4.7.2.2.10 Other Recyclables

Where any other recyclable wastes such as cardboard, soft plastic are generated in sufficient quantities, these will be segregated into dedicated skips or other receptacles.

6.4.7.2.2.11 Non-Recyclable Waste

Construction and Demolition (C&D) waste which is not suitable for reuse or recovery will be placed in separate skips or other receptacles. This will include polystyrene, some cardboard, and plastic which are deemed unsuitable for recycling (e.g., if contaminated). Prior to removal from site, the non-recyclable waste skip/receptacle will be examined by a member of the waste team to determine if any recyclable materials have been placed in there by mistake. If this is the case, efforts will be made to determine the cause of the waste not being segregated correctly and recyclable waste will be removed and placed into the appropriate receptacle and a procedure put in place to avoid a repetition.

6.4.7.2.2.12 Hazardous Wastes

On-site storage of any hazardous wastes produced (i.e., contaminated soil, if encountered and/or waste fuels) will be kept to a minimum, with removal off-site organised on a regular basis. Storage of all hazardous wastes on site will be undertaken so as to minimise exposure to on-site personnel and the public and to also minimise potential for environmental impacts. Hazardous wastes will be recovered wherever possible and, failing this, disposed of appropriately. It will be noted that all liquid wastes are to be stored in bunds.

6.4.7.2.2.13 Asbestos

It is not anticipated that any asbestos will be present on site, however, if discovered, the removal of asbestos will be carried out by a suitably qualified contractor in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010. All material will be taken to a suitably licensed or permitted facility.

6.4.7.2.3 Record Keeping

Records will be kept for all waste material which leaves the site, either for reuse on another site, recycling or disposal. A recording system will be put in place to record the construction waste arisings on site.

A copy of the Waste Collection Permits, Certificates of Registration, Waste Facility Permits and IED or Waste Licences will be maintained on site at all times.

The Resource Waste Manager or designate will record the following:

- Waste removed for reuse off-site.
- Waste removed for recycling.
- Waste removed for disposal.
- Recovered waste materials brought on-site for reuse; and

- By-product material brought onto site.

For each movement of waste on or off-site, a signed docket will be obtained by the Resource Waste Manager from the contractor, detailing the weight and type of the material and the source and destination of the material.

This will be carried out for each material type. This system will also be linked with the delivery records. In this way, the percentage of C&D waste generated for each material can be determined.

The system will allow the comparison of these figures with the targets established for the recovery, reuse and recycling of C&D waste and to highlight the successes or failures against these targets.

6.4.7.2.4 Review of Records and Identification of Corrective Actions

A review of all the records for the waste generated and transported on or off-site will be undertaken mid-way through the project. If waste movements are not accounted for, the reasons for this will be established to see if and why the record keeping system has not been maintained.

The waste records will be compared with the established recovery/reuse/recycling targets for the site.

Each material type will be examined, to see where the largest percentage waste generation is occurring. The waste management methods for each material type will be reviewed to highlight how the targets can be achieved.

6.4.7.2.5 Responsibility for Waste Audit

The appointed Resource Waste Manager will be responsible for conducting waste audits at the site during the C&D phase of the development.

6.4.7.2.6 Financial Issues of Waste

An outline of the costs associated with different aspects of waste management will be recorded and measured for the Proposed Development, and will consider handling costs, storage costs, transportation costs, revenue from rebates and disposal costs.

6.4.7.2.6.1 Reuse/Recovery

By reusing materials on site, there will be a reduction in the transport and disposal costs associated with the requirement for a waste contractor to take the material away to landfill. Clean and inert soils, gravel, stones etc. which cannot be reused on site may be used as capping material for landfill sites, or for the reinstatement of quarries etc. This material is often taken free of charge for such purposes, reducing final waste disposal costs.

6.4.7.2.6.2 Recycling

Salvageable metals will earn a rebate which can be offset against the cost of collection and transportation of the skips. Clean uncontaminated cardboard and certain hard plastics can be recycled. Waste contractors will charge considerably less to take segregated wastes such as recyclable waste from a site than mixed waste. Timber can be recycled as chipboard. Again, waste contractors will charge considerably less to take segregated wastes such as timber from a site than mixed waste.

6.4.7.2.6.3 Disposal

In addition to disposal costs, waste contractors will also charge a collection fee for skips. Collection of segregated C&D waste usually costs less than municipal waste. Specific C&D waste contractors take the waste off-site to a licensed or permitted facility and, where possible, remove salvageable items from the waste stream before disposing of the remainder to landfill. Clean soil, rubble, etc. is also used as fill/capping material wherever possible.

7 SITE TIDINESS & HOUSEKEEPING

Further to the measures described in the previous sections, the following measures will be implemented to maintain site tidiness.

- Construction works will be carried out according to a defined schedule agreed with CMT. Any delays or extensions required will be notified at the earliest opportunity to CMT.
- Contractors will ensure that road edges and footpaths are swept on a regular basis.
- All Contractors will be responsible for the clearance of their plant, equipment, and any temporary buildings upon completion of construction.

The Site will be left in a safe condition and site security will be managed in accordance with the details specified in the RWMP (Enviroguide Consulting, March 2024) and the control measures outlined in Section 6.4 of this CEMP.

8 EMERGENCY PLANNING AND RESPONSE

The purpose of the CEMP is to address the potential emissions from the site, and to implement any necessary mitigation measures to ensure that there will be no negative impact on the receiving environment. The Main Contractor will ensure that all works are carried out consistent with existing emergency response plans and procedures.

8.1 Environmental Emergency Preparedness and Response

The control measures identified in this CEMP, once correctly implemented, will reduce the likelihood of the occurrence of an environmental incident (emergency).

A procedure for Environmental Emergency Preparedness and Response will be developed prior to the commencement of the Construction Phase and will be implemented by the CMT.

The Environmental Emergency Preparedness and Response Procedure will ensure that all countermeasures proceed in a controlled manner so that greater damages are avoided and the possible effects upon persons, the environment and property are avoided or limited.

All general emergency response actions will be posted at strategic locations, such as the site entrance, canteen and near the entrances to buildings.

As per Sections 5.2 and 6.3 of this CEMP, once an environmental incident has been responded to, the processes identified in the incident investigation, and the non-conformity, corrective, and preventative action procedures will be adhered to with all details pertaining to the incident recorded in the site environmental register.

As an example of emergency response actions required, in the event of a spillage, the following procedure shall be followed:

1. IF SAFE (USE PPE), stop the source of the spill and raise the alarm to alert people working in the vicinity of any potential dangers.

2. IF SAFE (USE PPE), contain the spill using the absorbent spill material provided. Do not spread or flush away the spill.

3. Cover or bund off any vulnerable areas where appropriate.

4. If possible, clean up as much as possible using the absorbent spill materials.

5. Do not hose the spillage down or use any detergents.

6. Contain any used absorbent material so that further contamination is limited.

7. Notify the Environmental Manager so that used absorbent material can be disposed of using a licensed waste contractor.

8. An accident investigation should be performed in accordance with procedures and the report sent to the Environmental Manager.

In the event of spillages or other incidents, steps will be taken to prevent environmental pollution. For example, through the protection of drains by use of drain covers or booms, use of absorbent granules following an oil / chemical spill and turning off equipment or other sources of noise or dust.

Once the situation has been rectified, full details about the incident and remedial actions undertaken will be provided to the local authority and all other relevant authorities and recorded in the site environmental register.

9 ENVIRONMENTAL REGULATORY REQUIREMENTS

This site environmental legal register will record regulatory and legal requirements, and summarise applicable environmental legislation, (as well as other requirements) that the project must adhere to. The legal register will be available through the construction manager's office on site.

A typical register of environmental legislation is divided into a number of categories, which include:

- General Environmental Legislation.
- Flora & Fauna.
- Emissions to Air.
- Emissions to Water & Groundwater.
- Waste Management; and
- Noise & Vibration.

For each piece of legislation, the following information is provided:

- Index Number.
- Title of Legislation.
- Summary of Legislation; and
- Relevance.

All legislation included in the Register can be readily accessed on http://www.irishstatutebook.ie or will be available through the construction manager's office.

The Register of Legislation will be reviewed and updated on a minimum six-monthly basis. This is a controlled document and as such will comply with all the requirements of the Contractor document control procedures.

10 REFERENCES

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