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# CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

FOR  
STRATEGIC HOUSING DEVELOPMENT  
AT  
KILMONEY ROAD, CARRIGALINE, CO. CORK

MAY 2022

ON BEHALF OF  
Reside Investments Limited

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<b>Client</b>	Reside Investments Limited
<b>Project Title</b>	Proposed Strategic Housing Development at Kilmoney Road, Carrigaline, Co. Cork
<b>Document Title</b>	Construction Environmental Management Plan (CEMP)

<b>Revision</b>	<b>Status</b>	<b>Author(s)</b>	<b>Reviewed</b>	<b>Approved</b>	<b>Issue Date</b>
<b>1.0</b>	Draft for Internal Review	Nikita Coulter <i>Senior Environmental Consultant</i>	Jim Dowdall <i>Director</i>	-	18/05/2022
<b>2.0</b>	Draft for Client Review	Nikita Coulter <i>Senior Environmental Consultant</i>	Jim Dowdall <i>Director</i>	Jim Dowdall <i>Director</i>	18/05/2022
<b>3.0</b>	Issue	Nikita Coulter <i>Senior Environmental Consultant</i>	Jim Dowdall <i>Director</i>	Jim Dowdall <i>Director</i>	19/05/2022

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## 1 INTRODUCTION

This Construction Environmental Management Plan (hereinafter CEMP) has been prepared by Enviroguide Consulting on behalf of Reside Investments Limited (the Applicant) for the Proposed Strategic Housing Development at Kilmoney Road, Carrigaline, Co. Cork (the Site).

This CEMP describes the proposed works and defines the measures that will be implemented during the Construction Phase of the Proposed Development 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.

This CEMP is produced in support of the planning application. It is intended that this will be updated to include more site-specific information once the Construction Management Team (CMT) is appointed.

The CEMP is an integral part of the Health, Safety, Environmental and Quality Management System (HSEQMS) for the Proposed Development. 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 Officer.
- Site Supervisors; and
- Other Relevant Personnel including authors of reports submitted with the planning application including EIAR screening.

### 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.

### 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.

## 2 PROPOSED DEVELOPMENT DESCRIPTION

### 2.1 Site Location and Description

The Proposed Development is located in the townland of Kilmoney within the town of Carrigaline which is identified as a ‘Metropolitan Town’ in the Ballincollig-Carrigaline Municipal District Local Area Plan 2017. The subject site is situated to the west of the Carrigaline town centre and approximately 10km southeast of Cork City Centre. The site lies to the south of the N28 Cork to Ringaskiddy route. The total site area comprises 3.02 hectares and has a sloped topography. There is a net developable area of 2.02 hectares. The site is bounded on the west by agricultural lands, to the north by River Owenabue (Owenabue River is variously referred to as Owenboy and Owenabue. Any reference to either refers to the same watercourse) and mature trees and hedgerows, to the east by the Dairygold Co-op Superstore and associated car park and to the south by a number of detached bungalows with the Kilmoney Road beyond. The site is within easy walking distance of a number of commercial and community facilities including local shops, churches and schools. Access to the site is via the inner relief road (currently under construction) and the Kilmoney Road which runs to the south of the site.

The Site Location is presented in Figure 2-1.

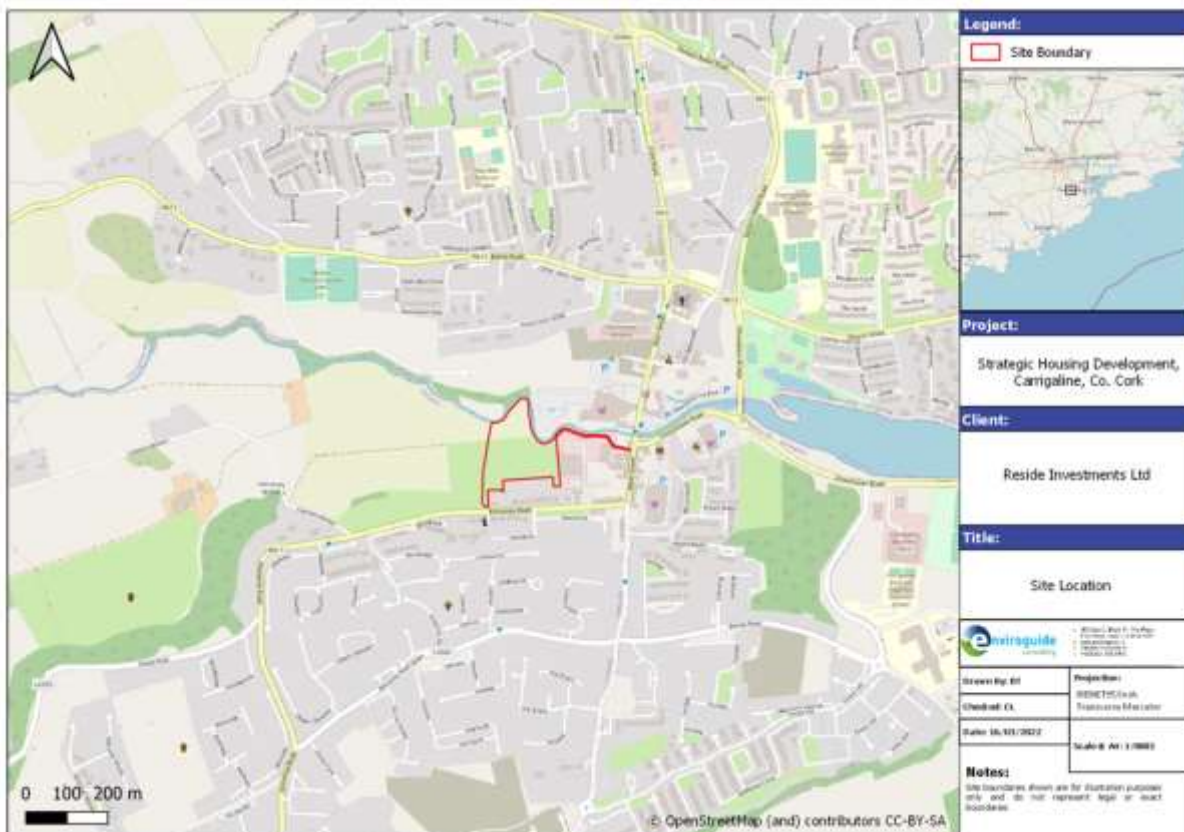


Figure 2-1: Site Location

## 2.2 Proposed Development

The Proposed Development consists of the following:

- The construction of 224 no. residential units consisting of 202 no. proposed apartments in 2 no. blocks, ranging in height from 6 to 7 storeys and 22 no. townhouse/duplex units
- A 184 m<sup>2</sup> creche/childcare facility
- The provision of landscaping and amenity areas to include 1 no. local play area, 1 no. kick about areas, an activity trail/greenway along the river, a gathering area/amphitheatre with tired seating areas, a civic space/promenade and 2 no. courtyard areas
- The provision of 3 no. retail units, residential amenity and management spaces at ground and first floor level, and
- All associated ancillary development including vehicular access on to the Kilmoney Road Lower, and a cycle/pedestrian connection on to the R611 (via an activity trail/greenway along the river), lighting, drainage, roads boundary treatments, ESB Substation, bicycle & car parking and bin storage.

The Proposed Site Layout is presented in *Figure 2-2*.



*Figure 2-2: Proposed Site Layout*



### **3 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT**

#### **3.1 Programme**

All construction works will occur in a single phase which is estimated to last 18 months. During the general excavation of the foundations there will be additional (heavy goods vehicle (HGV) movements to and from the Site. All suitable excavated soil and stone material will be used onsite for construction and fill activities wherever possible and appropriate. It is envisaged that tower cranes will be erected to hoist materials on Site in the construction of apartments.

#### **3.2 Working Hours**

For the duration of the proposed infrastructure works it is envisaged that the maximum working hours will be 07:00 to 18:00 Monday to Friday (excluding bank holidays) and 08:00 to 13:00 Saturdays, subject to the restrictions imposed by the local authorities. No working will be allowed on Sundays and Public Holidays unless express permission is obtained from the Local Authority.

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 (CCC). 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. The site compound will consist of:

- Offices
- Meeting Rooms
- Toilet / Shower Rooms
- Drying Rooms
- Canteens
- Storage Containers

All cabins will be steel securi-type with steel lockable shutters on the windows and a steel lockable door. 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 toilets and canteen 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, 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.

### **3.4 Traffic**

The traffic for the Construction Phase will be managed in accordance with the details specified in the Construction Traffic Management Plan (*Martin Hanley Consulting Engineers Ltd., 2022*) submitted with this application. The nature of the construction process is such that the traffic generated will comprise short periods of intense activity interspersed with longer periods with relatively low level of movements into and out of the Site over the Construction Phase.

The traffic in the Construction Phase has been estimated based on the amount of material to be removed from the Site, material imported to Site, the extent of the construction processes, plant deliveries and labour, all with respect of the likely duration of the Construction Phase.

It is proposed that all construction traffic will access the Site through a main entrance from the Carrigaline Inner Western Relief Road (IWRR). Sightlines will be provided, as required for the public road design speed.

During the Construction Phase, it is predicted that low volumes of materials will be transported offsite and low volumes of fill materials will be imported to the site. It is estimated that over the entire Construction Phase approximately 2 HGVs and 25 Cars/LGVs are expected to travel to and from the Site each working day (*Martin Hanley Consulting Engineers Ltd., 2022*).

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

The contractor's compound will be located in the northeast of the Site. This area will be utilised for site accommodation and car parking for construction staff. An area for storage of materials and site laydown has been identified in the northwest of the Site. Although indicative locations have been chosen for these activities, the Contractor is permitted to revise this plan within the boundaries of the Site, subject to specific client restrictions and agreement prior to start on site.

Hoarding will be required to secure the western boundary of the Site. The hoarding will reach a height of approximately 2.4m and will be secure and non-climbable. In addition, the hoarding in areas such as adjacent to vehicle entrances will be vehicle impact resistant. No stored material will be stacked against hoarding and no storage will be allowed adjacent to public trafficked areas.

Vehicle gates with barriers will likely be accommodated at a security hut combined with a secure turnstile to control pedestrian and vehicle access.

Safety and ease of access to the Site will 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.

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.
- Each person on site will have been inducted and fingerprint access control will be used for site entry and exit. 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 (subject to GDPR regulations).
- Motion sensor hoarding lighting on short (1min) timers will be incorporated to increase the general illumination levels around the site, with the exception of boundaries to residential gardens and houses. Additionally, all lighting installed at the site will comply with the controls listed in Section 6.4.3 (Protection of Biodiversity) and Section 6.4.4 (Control of Light) 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, 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 the appropriate procedures are in place to ensure that all site traffic will be managed in accordance with the Construction Traffic Management Plan (*Martin Hanley Consulting Engineers Ltd., 2022*). 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.

The main issues, which could arise during the early part of construction, 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 channelling of departing vehicles through the wheel wash.
- Sweeping of public streets adjacent to egress from site.
- Provision and facilities to cover lorry contents, as necessary.
- Controlled loading of excavated material to minimise risk of spillage of contents.
- Spraying/damping down of excavated material on site by dedicated crews.
- 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).

### 4.1.1 Construction Director

The Construction Director will have an overall responsibility for the organisation and execution of all related environmental activities as appropriate, in accordance with regulatory and project environmental requirements. The principal duties and responsibilities of the Construction Director will include:

- Overall responsibility for the development and implementation of the CEMP.
- Ensuring adequate resources are available to ensure the implementation of the CEMP.
- Responsibility for the management review of the CEMP for suitability, adequateness, and effectiveness; and
- Setting out the focus of environmental policy, objectives, and targets for the Contractor.

### 4.1.2 Construction Manager

The Construction Manager is directly responsible to the Construction Director for the successful execution of the project. The principal duties and responsibilities of this position will include:

- 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.
- Give Contractors precise instructions as to their responsibility to ensure correct working methods where risk of environmental damage exists.
- Where appropriate, ensure Contractor's method statements include correct waste disposal methods; and
- Co-ordinate environmental planning of CMT activities to comply with environmental authorities' requirements and with minimum risk to the environment.

### 4.1.3 Environmental Officer

The Environmental Officer will be responsible to the Construction Manager for, but not limited to, the following activities:

- 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; and

- Advising site management on environmental matters.
- Be aware of any potential environmental risks relating to the Contractors and bring these to the notice of the appropriate management.
- Ensure materials/waste register is completed; and
- Maintenance of all environmental related documentation.

The Environmental Officer will also have the overall responsibility to oversee recording of all waste management at the site in line with the Construction and Demolition Waste Management Plan (CDWMP) (*Enviroguide Consulting, 2022*). Some of the principal duties and responsibilities of this role include:

- Report to Project Manager on the management of waste at the site.
- Delegate responsibility to sub-contractors, where necessary.
- Coordinate with suppliers, service providers and sub-contractors.
- Prioritise waste prevention and recovery.
- Maintain a record of each load of waste materials being transported off-site; and
- Maintain a record 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.

#### **4.1.4 Project Environmental Consultant (as required)**

An Environmental Consultant will be engaged as 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.

The Project Environmental Consultant will be responsible to the Environmental Officer for, but not limited to, the following activities:

- Updating of this CEMP and advising the Main Contractor in the updating of the CEMP, environmental control plans, and supporting procedures.
- Advising the site management on environmental matters.
- 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 construction team as required; and
- Investigating incidents of significant, potential, or actual environmental damage, ensure corrective actions are carried out and recommend means to prevent recurrence.

#### **4.1.5 Project Archaeologist Clerk of Works (as required)**

The Project Archaeologist Clerk of Works (if required) will report to the Environmental Officer and is responsible for advising on all archaeological monitoring activities, conducting watching briefs and distributing information relevant to monitoring. The responsibilities and duties of the Project Archaeologist will include the following:

- Monitor all ground disturbance works associated with the construction of the development,
- Ensure 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, and
- Liaison with the Department Applications Unit, National Monuments Service, Department of Arts, Heritage and Gaeltacht and Cork County Council as required.

#### **4.1.6 Project Ecological Clerk of Works (EcCOW) (as required)**

The Project Ecologist Clerk of Works (if required) will report to the Environmental Officer and is responsible for the protection of sensitive habitats and species encountered during the Construction Phase of the project. The responsibilities and duties of the Project Ecologist will include the following:

- Provision of specialist input and supervision where necessary of critical construction activities in relation to habitats and species and any specified protection measures;
- Provision of specialist advice on ecological monitoring and site inspections and surveys as required;
- Liaison with the National Parks and Wildlife Service (NPWS) and other relevant stakeholders.

#### **4.1.7 Project Communications Officer**

The Project Communications Officer will be responsible for conducting all public liaison associated with the Construction Phase of the project. The responsibilities and duties of the Project Communications Officer include the following:

- Responding to any concerns or complaints raised by the public in relation to the Construction Phase of the project.
- To liaise with the Environmental Officer on community concerns relating to the environment.
- Ensure the Environmental Officer is informed of any complaints relating to the environment; and
- Keep the public informed of project progress and any construction activities that may cause inconvenience to the local community.

The Communications Officer will report to the Construction Manager.

#### **4.1.8 Site Supervisors**

All Site Supervisors are required to:

- Read, understand, and implement the CEMP when it is fully developed.
- Have knowledge of the requirements of the relevant law in environmental matters and take whatever action is necessary to achieve compliance. Where necessary seek the advice of the contracted Environmental Officer.
- Ensure that environmental matters are considered at all times.
- Be 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; and

- Ensure that any plant is environmentally suited to the task in hand.

#### **4.1.9 Site Personnel**

All Contractors, and other site personnel, on the project will adhere to the following principal duties and responsibilities:

- To co-operate fully with the CMT and the Environmental Officer in the implementation and development 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; and
- Adhere fully to the requirements of the site environmental rules.



## 5 PROJECT ENVIRONMENTAL POLICY

Reside Investments Limited 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; 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 general 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 officer, 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 OFFICER 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 personal to outline the CEMP and to detail the site environmental policy.

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

Contractors will 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 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

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 Officer 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.

## **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:

- Air
- Water
- Soil and Geology
- Noise and vibration
- Biodiversity; and
- Archaeology

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, and plans 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.

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

#### **6.2.1 Conditions of Planning Permission**

Compliance with environmental conditions and the control measures set out in the planning permission will be included in the CEMP to be prepared by the Contractor once these planning conditions are known.

### **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 weekly 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 will 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 and control measures as set out in this CEMP.
- Approved Method Statements and Risk Assessments from Contractors which will 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 the site induction provided by the Main Contractor toolbox talks will be used by the CMT to communicate changes to process, identify potential areas of concern and inform staff of corrective and preventative actions implemented.

Details of all safety meetings / toolbox talks, including topics and attendees must be submitted to the CMT for inclusion in the project's HSEQMS records.

#### **6.3.2 Communication – Community Liaison**

The Main Contractor will be required to appoint a member of the Site Management Team to act as the liaison with third parties. The appointed person will:

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person accountable for environmental, health and safety issues on the site boundary, and the head or regional office contact information.

- Communicate with interested parties in respect of complaints regarding site activities or emissions from the site (e.g., noise / dust / water / litter etc.).

### **6.3.3 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.

### **6.3.4 Monitoring, Audits, and Inspections**

Regular inspection and monitoring of construction activities to ensure that the recommended mitigation measures are being correctly implemented will support environmental protection by identifying potential environmental issues at an early stage will reduce the likelihood of significant effects on human health or the environment.

Inspections by the CMT will address environmental issues including dust, litter, noise, traffic, surface water, waste management and general housekeeping. These will be carried out on both scheduled and random intervals. The findings of these inspections will be recorded.

The specific environmental monitoring requirements relating to the control of potential impacts are detailed in the Operation Controls section (Section 6.5) of the CEMP.

### **6.3.5 Non-Conformance and Corrective and Preventative Action**

Corrective Action Requests (CARs) will be issued by the CMT to those responsible for the implementation of corrective and preventative actions to ensure effective resolution of deviations from the CEMP requirements 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 Operation Controls

### 6.4.1 Control of Fuel and Chemical Storage

#### 6.4.1.1 Handling of Chemicals and Fuels

Fuel, oils, and chemicals used during construction are classified as hazardous.

Storage of fuel hazardous will be undertaken with a view to protecting any essential services (electricity, water etc.) and the receiving water environment.

Bulk quantities of fuel will not be stored at the Proposed Development Site and fuel required for plant and equipment will be delivered directly from a delivery tanker. Fuel will only be stored in the quantities required for emergency use.

Oils and chemicals used and stored on-site 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.

All drums to be quality approved and manufactured to a recognised standard. If drums are to be moved around the Proposed Development Site, they will be secured and moved on spill pallets. Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

- Bunds will comply with the requirements of Environmental Protection Agency guidelines 'Storage and Transfer of Materials for Scheduled Activities' (EPA, 2004) and Enterprise Ireland. Best Practice Guide BPGCS005. Oil Storage Guidelines. All tank and drum storage areas will, 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;
  - 25% of the total volume of substance that could be stored within the bunded area;
  - Vehicle or equipment maintenance work will take place in a designated impermeable area within the Proposed Development Site;
  - Emergency response procedures will be put in place, in the unlikely event of spillages of fuels or lubricants;
  - Spill kits including oil absorbent material will be provided so that any spillage of fuels, lubricants or hydraulic oils will be immediately contained;
  - In the event of a leak or spill from equipment in the instance of a mechanical breakdown during operation, any contaminated soil will be removed from the Proposed Development Site and compliantly disposed off-site. Residual soil will be tested to validate that all potentially contaminated material has been removed. This procedure will be undertaken in accordance with industry best practice procedures and EPA guidelines;
  - Site staff will be familiar with emergency procedures for in the event of accidental fuel spillages;
  - All staff on-site will be fully trained on the use of equipment to be used on-site; and
  - Portable generators or similar fuel containing equipment will also be placed on suitable drip trays or bunds.

Refuelling of plant and vehicles during the Construction Phase will only be permitted at designated refuelling station locations onsite. Each station will be fully contained and equipped

for spill response and a specially trained and dedicated Environmental and Emergency Spill Response team will be appointed by the Contractor before the commencement of works on-site.

A procedure will be prepared by the appointed contractor which will be adhered to during refuelling of on-site vehicles and plant. This will include the following:

- Fuel will be delivered to plant on-site by dedicated 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; and
- All re-fuelling will take place in a designated impermeable area to be specified by the contractor. In addition, oil absorbent materials will be kept on-site in close proximity to the re-fuelling area.

## **6.4.2 Control of Emissions to Surface Water, Groundwater and Soil**

### **6.4.2.1 General Protection Measures**

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, 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 CEMP 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;
- Construction Industry Research and Information Association (CIRIA) Environmental Good Practice on Site (C650), 2005;
- BPGCS005, Oil Storage Guidelines;
- 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 C648: 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.

The Proposed Development will be designed to avoid/mitigate as much as possible any potential water pollution causing scenarios during the Construction Phase. Some of the mitigation measures that will be implemented during construction include:

- Avoid working on floodplains and/or sequence construction to avoid temporary increase in flood risk and water pollution incidents,
- The compensatory and attenuation storages will be constructed in advance of constructing the buildings and the car park,
- The Site Compound will be located outside of the floodplain,
- Implement best practice construction methods and practices complying with relevant legislation to avoid or reduce the risk of contamination of watercourses.
- The CEMP will be implemented during the construction phase. Site inductions will include reference to the procedures and best practice as outlined in the CEMP.
- Surface water runoff from work areas and construction dewatering water will be directed to on-site settlement ponds will be discharge at controlled rate.
- Any works in or adjacent to the River Owenabue will be carried out after consultation with Inland Fisheries Ireland (IFI) and the Office of Public Works (OPW).
- Washing of trucks and other construction equipment will take place off site. If within the site, the discharge from this area must be directed to on-site settlement ponds.
- Oil and fuel will be stored in designated bunded areas and away from surface water drainage features.
- Refuelling of construction machinery will be undertaken in designated areas away from surface water drainage to minimise potential contamination of the water environment. Spill kits will be kept in these areas in the event of spillages.
- Hazardous construction materials will be stored appropriately to prevent contamination of the river or groundwater.
- Spill kits will be kept in designated areas for re-fuelling of construction machinery.
- Potential pollutants will be adequately secured against vandalism and will be provided with proper containment according to the relevant codes of practice. Any spillages will be immediately contained, and contaminated soil will be removed from the Proposed Development and properly disposed of in an appropriately licensed facility.
- Silt traps will be placed in gullies to capture any excess silt in the run-off from working areas.
- A 10m riparian buffer corridor will be created along the River Owenabue by erection of 1m high barrier prior to site clearance with relevant signage to notify site users no construction activity or discharge of any kind is permitted in this exclusion zone.
- Soil and water pollution will be minimised by the implementation of good housekeeping (daily site clean-ups, use of disposal bins, etc.) and the proper use, storage and disposal of these substances and their containers as well as good construction practices.
- A contingency plan for pollution emergencies will also 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.

#### **6.4.2.2 Existing Waterbodies**

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

- Where feasible all excavated spoil will be treated to remove excess fluid prior to stockpiling and transportation.
- 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 and impermeable areas that are isolated from the surrounding environment.
- Wheel washes will be provided at site entrances to clean vehicles prior to exiting the work site, and,
- All staff will be trained and follow vehicle cleaning procedures. Details of these procedures will be posted in all work sites for easy reference.

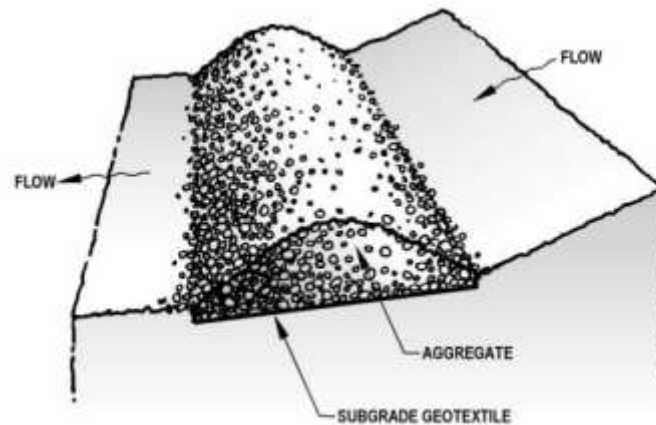
The implementation of the above measures will ensure that the risk of pollution of groundwater and nearby water bodies resulting from the construction activities will be minimised.

#### **6.4.2.3 Direct Watercourse Protection**

To prevent direct surface water run-off containing sediment/pollutants entering to River Owenabue, silt trapping measures will be implemented. This will be achieved by the construction of a filter berm along the northern Site boundary adjacent to the River Owenabue. A filter berm is designed to control erosion and sedimentation by reducing the rate of surface water run-off. The berm will be constructed using aggregate and geotextiles to the specifications (Clean Water Services, 2020) outlined below:

- Use 6 inch. maximum washed and well-graded gravel or crushed rock with less than 5% fines.
- Height and side slopes: 1 foot high with 3:1 side slopes.
- Length: 8 foot per 1 cubic foot per second flow, based on the peak flow for the 10-year storm.
- Use primarily as a base measure (toe of slope)

The berm will **not** be constructed immediately adjacent to the River Owenabue but instead an appropriate buffer zone will be maintained so that the natural riparian vegetation of the watercourse remains intact (IFI, 2016). The berm will be constructed at least 10m from the edge of the watercourse (IFI, 2020). In the case where a 10m buffer zone is not practicable as part of the proposed works, a suitably qualified ecologist will be consulted regarding the positioning of the berm prior to its construction to ensure appropriate protection of the riparian zone of the River Owenabue.



**FIGURE 6-1 EXAMPLE OF FILTER BERM CONSTRUCTION (CLEAN WATER SERVICES, 2020)**

#### **6.4.2.4 Soil Structure**

The extent of the required work area and the bulk excavation at the Proposed Development 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.

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

#### **6.4.2.5 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 Proposed 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 resource and management plan.

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

- A suitable temporary storage area will be identified and designated.
- All stockpiles will be assigned a stockpile number.
- Material identified for reuse on site, off site and waste materials will be individually segregated; and all segregation, storage & stockpiling locations will be clearly delineated on the Site drawings.
- Soil stockpiles will be sealed to prevent run-off from the stockpiled material generation and/or the generation of dust.

- 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 below or cross contamination with soil.
- The location and moisture content of storage piles are important factors which determine their potential for dust emissions.

Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the Proposed Development Site;

- Regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust.
- Stockpiles will not be located near Site boundaries or sensitive receptors and a setback of will be established and maintained from any boundary with offsite receptors.
- 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 general public during construction phase (largely noise, vibration and dust).

#### **6.4.2.6 Export of Resource (soil and stone)**

All surplus materials and any waste will be managed and removed off-site in accordance with 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 Proposed Development Site. All information will be entered into a waste management register kept on the Proposed Development 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 Proposed Development Site will be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. The wheels of all lorries will be cleaned prior to leaving the Proposed Development 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 if required and a road sweeper will be deployed to ensure that public roads are kept free of debris.

#### **6.4.2.7 Import of Aggregates**

In order 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 Proposed Development 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 Proposed Development. Therefore, any unsuitable material will be identified prior to unloading / placement onsite.

#### **6.4.2.8 Concrete Works**

The cementitious grout and other concrete works during the Construction Phase, will avoid any contamination of ground through the use of 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 Proposed Development Site by truck. Concrete mixer trucks will not be permitted to wash out on-site with the exception of cleaning the chute into a container which will then be emptied into a skip. A suitable risk assessment for wet concreting will be completed prior to works being carried out.

#### **6.4.2.9 Foul Water Drainage**

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.

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).

### 6.4.3 Controls to Protect Biodiversity

#### 6.4.3.1 Tree Protection

As part of the proposed landscape plan, the majority of the trees present on Site will be retained and are incorporated into the final landscape design. In total, there are 19 trees on-site of which 13 will be retained. The trees to be felled were identified in the arborists report as being in "poor" condition, suffering from disease, having poor structure, or posing a health and safety risk. Species which will be felled include sycamore, ash and alder

Several protection measures will be implemented for the 13 trees that are to be retained including:

**Protective barriers:** which are 2.3m high and comprise a vertical and horizontal framework of scaffolding (BS 5837:2012), well braced to resist impacts and securely supporting weldmesh panels will be erected around the base of all trees to be retained on-site. This barrier will be clearly identified on-site by the attachment of all – weather signs of suitable dimension stating: 'CONSTRUCTION EXCLUSION ZONE – NO ACCESS'. The line of this fence will be at least the distance defined in the Root Protection Area. No construction traffic, materials or debris will be permitted within this zone of protection.

**Access facilitation pruning:** If it is deemed appropriate to trim back retained trees to provide adequate access to approved construction works, all such tree works will be undertaken by a competent and suitably qualified tree surgeon. Such works will remedy any tree related conflict with proposed structures or access in a way that ensure that not less than 70% of live buds are retained within the tree canopy. The aim of the tree works will be to retain the general form of the tree by a combination of crown thinning, reduction of end weight and the re-forming of the trees crown to create a pleasing and balanced crown. No branch, limb of trunk greater than 100mm diameter will be cut in the process of reducing end weight.

**Demolition within the zone of protection:** If it is deemed necessary to carry out demolition works within a construction exclusion zone surrounding retained trees, for example to remove existing paths or kerbs, only pedestrian operated plant or low ground pressure plant that is

less than 2 tonnes gross weight fully loaded will be permitted. Such plant will only be operated on existing hard surfaces, or where temporary surfaces have been established. No excavations within the root protection zone of these retained trees will be permitted, except only under supervision or a suitably qualified arborist, with the use of an air spade or by careful use of hand tools in a way that retains, without damage, all exposed roots with a diameter greater than 25mm.

**Scaffolding within zone of protection:** Where scaffolding is to be established within the 'zone of protection' surrounding retained trees, the existing undisturbed ground surface will be protected by a layer of sharp sand, approximately 50mm thick, overlaid with a geotextile membrane. Stout planks, such as closely side butted scaffold boards, will be laid over the geotextile membrane and scaffolding will be constructed on these planks with additional stays as directed by a competent person. Adequate protection fencing will be maintained between scaffolding and adjacent trees.

**Construction of hard surfaces close to retained trees:** Where permanent surfaces are to be constructed close to retained trees, within the zone of protection as defined by BS 5837 : 2012, carefully remove accumulated organic material and loose soil, leaving existing topsoil in situ. Protect the root zone with a layer of sharp sand and geotextile membrane and a three-dimensional cell product as defined by a competent Civil or Structural Engineer. Construct the paved area on this sub-base using established design guidelines and a no fines granular material with a porous surface finish such as pavers or porous bitmac.

**Alterations of levels on lands adjoining construction exclusion zones:** Where it is deemed appropriate to lower ground levels on land adjoining a root protection zone established around a retained tree, all excavations and the subsequent construction supporting structures will be managed in a way that excludes access by construction traffic to the construction exclusion zone. Where such alterations result in the lowering of existing surfaces, the existing ground water environment within the root protection zone will be maintained by the insertion of a root barrier behind proposed supporting structures. This will consist of a non-porous barrier carefully inserted in a way that maintains the existing soil moisture regime surrounding the retained tree. Where alterations result in the raising of levels, these will be designed and detailed by a competent Civil or Structural Engineer to ensure no alterations to ground conditions within the root protection zones.

**Landscaping within the root protection zone:** If it is deemed necessary to carry out landscaping, planting or re-instatement works within a construction exclusion zone surrounding retained trees, only pedestrian operated plant, or low ground pressure plant that is less than 2 tonnes gross weight fully loaded, will be permitted. Such works will be supervised by a competent Horticulturalist and be timed and designed to ensure that no soil compaction occurs. No excavations within the root protection zone of these trees will be permitted, except under supervision using an air spade or by careful use of hand tools in a way that retains, without damage, all exposed roots with a diameter greater than 25mm.

**Temporary surfaces within zone of protection:** Where temporary access is to be established within the 'zone of protection' surrounding retained trees, ground surfaces will be protected by a layer of sharp sand, approx. 50mm thick, overlaid with a geotextile membrane on which temporary surface of no fines granular material (compression resistant for example woodchip) at least 150mm thick is laid. Where traffic is turning on this surface, stout planks will be laid over the geotextile membrane and below the granular material.

#### **6.4.3.2 Protection of Bats**

In order to reduce the potential negative impact of the Proposed Development on local bat populations, the following mitigation measures will be fully implemented.

##### **Pre-Pruning & Tree Felling survey**

The arborists report recommends pruning of the mature Turkey Oak (*Quercus cerris*) tree on the southern boundary, which was identified as being a potential bat roost during Enviroguide Consulting bat surveys. Pruning works will involve clearing the crown of any dead or cracked branches which is potential bat roost habitat. Therefore, the following measures will be followed.

- A 2<sup>nd</sup> assessment of the trees proposed to be pruned or removed will be undertaken prior to the commencement of the works to determine if there are any active bat roosts present. This will be undertaken in consultation with the tree surgeons. If bats are encountered during this assessment the NPWS will be consulted.
- Wherever possible, trees that are to be removed will be felled on mild days during the autumn months of September, October or November or Spring months of February and March (felling during the spring or autumn months avoids the periods when the bats are most active).

##### **External Lighting**

To protect bats, all lighting on site during the Construction and Operational Phase will follow the guidelines in Section 6.4.4.

#### **6.4.3.3 Visual Disturbance**

An increase in visual stimuli associated with increased activity on Site (i.e. movement of machinery and site operatives during the Construction Phase) has the potential to cause disturbance to aquatic species of birds and mammals utilising the River Owenabue to the north of the Site.

Sections of screening along the northern Site boundary will be erected to shield the site-works from the view of any aquatic species of birds and mammals utilising the River Owenabue. The screening will be kept back a minimum of 10m from the riverbank to prevent damage to the riparian zone. The design and installation of this screening will be approved and overseen by a Project Ecologist Clerk of Works.

#### **6.4.3.4 Protection of Birds**

Any clearance of vegetation will be carried out outside the main breeding season, i.e. 1<sup>st</sup> of March to 31<sup>st</sup> of August, in compliance with the Wildlife Act 1976 (as amended). If any vegetation removal is required during this period, this vegetation will be checked for birds or nests by the project ECoW. If encountered, the precise location within the hedgerow/trees/buildings, the species of bird present will be recorded, the area will be protected and the NPWS will be consulted prior to any works commencing in this area. The Site Manager will be informed of the presence of nesting birds and advised that no works can commence in this area until further notice. Appropriate protection measures will be implemented in consultation with the project ECoW.

#### **6.4.3.5 Protection of Mammals**

##### **Hedgehog and Pygmy Shrew**

As noted in the British Hedgehog Preservation Society's publication *Hedgehogs and development*, during the Construction Phase of the Proposed Development Hedgehogs have the potential to be impacted through the loss of suitable foraging sites in the form of dry meadows and grassy verges on-site.

Vegetation will be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present (e.g., Hedgehog).

Hedgehog also frequent long grass for foraging and daytime nesting sites so caution when strimming/ mowing these areas of the Site is advised.

As best-practice, all construction-related rubbish on-site e.g., plastic sheeting, netting etc. should be kept in a designated area on-site and kept off ground level so as to protect Hedgehogs from entrapment and death. The above measures will also act to mitigate potential negative impacts on other small mammal species potentially found on-site e.g., Pygmy Shrew.

Work likely to cause disturbance during hibernation – for example removal of hibernation habitats such as log piles and dense scrub – **will not take place during November to March.**

##### **Otter**

Otters, along with their breeding and resting places, are protected under the provisions of the Wildlife Act, 1976 (as amended). Whereas no holts will be directly affected by the Proposed Development, a derogation licence is required for any works likely to cause disturbance to active breeding holts (when present within c.150m of a scheme) (NRA, 2008). According to the NRA guidelines (2008) "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."

As such, the following measures will be implemented to protect the Otter during the Construction Phase:

- A pre-construction survey for Otter will be undertaken by a suitably qualified ecologist, to assess Otter activity within 150m of the Site and to determine whether active holts and/or breeding females or pups are present. This will be undertaken as early as possible but no later than 2-3 weeks before works commence.

If Otter holts or couches are found within 150m of the Site during pre-construction surveys, the precise location of the holt or couch will be recorded, the area will be protected and the NPWS will be consulted prior to any works commencing in this area. The Site manager will be immediately informed of the presence of otter holts or couches and advised that no works can commence in this area until further notice. Appropriate protection measures will be implemented in consultation with the project ecologist and the NPWS.



#### **6.4.3.6 Protection of Aquatic Species**

The mitigation measures outlined in Section 6.4.2 will serve to protect aquatic species during the Construction Phase.

#### **6.4.3.7 Invasive Species**

##### Butterfly bush

To prevent the spread of Butterfly Bush within and outside the Site boundary management options for its removal are provided below:

The Butterfly Bush is a member of the Buddlejaceae family. It is very fast growing and can reach 2m in its first year, producing flowers and setting seed. As Butterfly Bush tolerates very poor soils, it can grow on walls, rock outcrops or sub-soils (NRA, 2010). The following is based on NRA (2010) guidelines:

Management methods such as digging it out are applicable only to minor infestations at the initial stage of invasion. Hand-picking of young plants is feasible but will be undertaken with care to avoid soil disturbance which can give rise to a flush of new seedling. Grubbing of mature stands as a sole attempt at control is not recommended for the same reason. After uprooting, it is essential to plant the ground in order to prevent a flush of new seedling growth. When it is cut, Buddleia grows back from the stump very vigorously. Mowing of young plants does not provide control as they re-sprout with vigour. Where removal of mature plants is not feasible in the short term, the flower heads will be cut off in June before seed set. Chemical control recommended practice for the application of herbicides requires cutting back of plants to a basal stump during active growth (late spring to early summer) which is then treated (brushed on) immediately with a systemic weed killer mix (Starr et al, 2003). Foliar application of approved herbicides may be adequate for limited infestations of younger plants but will be followed up at 6 monthly intervals. At this point it must be stressed that all Plant Protection Products must be used in accordance with the product label and with Good Plant Protection Practice as prescribed in the European Communities (Authorisation, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). Again, it should be noted that it is an offence to use Plant Protection Products in a manner other than that specified on the label. The methods outlined are not in accordance with the product label and so it will be necessary to discuss the use of such methods with the Pesticides Control Service with a view to seeking approval under the derogation procedures provided under the Plant Protection Regulations.

##### Sycamore

Manual removal of sycamore seedlings and saplings is recommended, i.e. hand pulling and digging up, but the roots must be completely removed, or cut stumps must be treated with herbicide in order to prevent regeneration, however this should be a last resort (Weber, 2003; Cross & Collins, 2017).

##### Himalayan Honeysuckle

This species originates from western China and spreads mostly by bird dispersed seeds, and vegetatively when dislodged stem pieces are in contact with moist soil and form roots. This plant can be removed via physical or chemical approaches. Seedlings and smaller plants of Himalayan Honeysuckle can be hand pulled or dug out. A range of treatments can be used

on larger plants, including cutting stems back to near ground level and painting the cut stem with a suitable herbicide (the cut-paint method) or injection of a suitable herbicide into drill holes at the base of the plant (the drill-fill method). Plants can also be sprayed with selective or non-selective herbicides. Herbicide treatments will be used in late spring before the plants produce flowers and fruits. Follow-up treatments may be needed, as larger plants often re-shoot. Dense infestations can be slashed in winter before they bear fruit, the cut material disposed of safely and the regrowth sprayed in spring (Muyt, 2001).

**6.4.3.8 Timing of vegetation clearance**

The following table provides guidance for when vegetation clearance is permissible. Information sources include The Bat Survey Report, and *The Wildlife (Amendment) Act, 2000*.

**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		<p style="text-align: center;"><u>Nesting bird season</u>                      No clearance of vegetation or works to relevant structures permitted unless confirmed to be devoid of nesting birds by an ecologist.</p>						Vegetation clearance permissible			
Bats	Tree felling to be avoided								Preferred period for tree-felling		Tree felling to be avoided	

The preferred period for vegetation clearance is within the month of October (**Error! Reference source not found.**). Vegetation will be removed in sections working in a consistent direction to prevent entrapment of protected fauna potentially present. Vegetation clearance will take place under the supervision of an ecologist to avoid any potential impact on bats or breeding birds.

**6.4.3.9 Biosecurity**

In addition, the following will be adhered to, to avoid the introduction of invasive species to the Proposed Development Site during both the Construction and Operational Phases.

- The contractor will be aware of biosecurity issues and will inform sub-contractors through the induction process. Any vehicles which have been used in the management of invasive species are required to be cleaned before leaving the Site of contamination, thereby not introducing the risk of cross contamination to other sites.
- Any material required on the Site will be sourced from a stock that has been screened for the presence of any invasive species by a suitably qualified ecologist and where it is confirmed that none are present.
- Personnel working on contaminated sites will be made aware of their responsibilities in cleaning equipment and PPE before visiting Site.

#### 6.4.4 Control of Light

To protect bats and other wildlife from lighting associated Operational Phase of the Proposed Development, the following Bat Conservation Trust (BCT) Lighting Guidelines (BCT, 2018) are incorporated in the lighting plan.

- *All luminaires used will lack UV/IR elements to reduce impact.*
- *LED luminaires will be used due to the fact that 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).*
- *Column heights will be carefully considered to minimise light spill. The shortest column height allowed will be used where possible.*
- *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.*
- *As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed if deemed necessary by a suitable qualified bat ecologist.*

The lighting along the River Owenabue walkway will be composed of low level (950mm) lighting bollards. These bollards comply with the above BCT guidelines and have an asymmetric light output to light the pathway area only. This will prevent excessive lighting of the River Owenabue and adjacent treelines which is important foraging and commuting habitat for bats and other wildlife.

#### 6.4.5 Control of 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 all 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 – Vibration, Environmental Protection Agency Act 1992 Sections 106-108, including all Local Authority specific requirements for this specific site.

Work methods will be implemented to ensure minimal noise and vibration are created; methods will include:

- Limiting the hours during which site activities likely to create high levels of noise or vibration are permitted.
- Establishing channels of communication between the contractor/developer and Local Authority.
- Appointing a site representative responsible for matters relating to noise, vibration, and other impacts of site activity
- Notifying the neighbouring community of any forthcoming unusual construction activities

- All complaints will be recorded and investigated. If it is found that the complaint is legitimate, amelioration measures will be introduced to negate the re-occurrence.

Furthermore, it is also proposed that a variety of practicable control measures be employed. This will include the following:

- Selection of plant of low inherent potential for generation of noise and / or vibration.
- Plant and equipment will be properly maintained.
- Erection of barriers as necessary around plant of high impact.
- Situate noisy/vibratory plant as far away from sensitive properties as permitted by site constraints and the use of vibration isolated structures where necessary.
- Any plant that is not in use for extended periods of time will be switched off.
- All access roads will be kept even so as to mitigate the potential for vibration from lorries.
- Appropriate signs will be erected both reminding and requesting site personnel to keep noise to a minimum within the construction site.

For controlling vibration reference should be made to BS 5228:2009+A1:2014 which offers detailed guidance on the control of vibration from demolition and construction activities. In general, BS5228:2009+A1:2014 advises the following:

- Use rubber linings in, for example, chutes and dumpers to reduce impact noise.
- Minimize drop height of materials.
- Regular and effective maintenance by trained personnel should be carried out to reduce vibration from plant and machinery.
- Hand demolition, cutting of the separate on joints of the buildings in advance and small robotic breakers and 'munchers'.

#### **6.4.5.1 Monitoring of Noise and Vibration**

A noise and monitoring specialist will be appointed to carry out quarterly monitoring of noise and vibration, with the first monitoring commencing the first week of construction. The monitoring will be carried out at the nearest sensitive locations which are presented in Table 6-2.

**TABLE 6-2: Sensitive Receptor Locations**

Name	Type	Coordinates		Orientation Relative to Site Boundary	Distance from the Site Boundary
Alandale	Residential	51.81215	-8.39564	South	Alandale
Abbey Lodge	Residential	51.81209	-8.39685	South	Abbey Lodge
Cahirmore	Residential	51.81165	-8.39738	South	Cahirmore
Saint Raphael's	Residential	51.81168	-8.39675	South	Saint Raphael's
Bella Vista	Residential	51.81172	-8.39652	South	Bella Vista
Greenaun	Residential	51.81173	-8.39631	South	Greenaun

Rockboro	Residential	51.81174	-8.39613	South	Rockboro
Kilmoney Rd Lower	Residential	51.81175	-8.39582	South	Kilmoney Rd Lower
Carrigaline Chiropractic	Health	51.81173	-8.39564	South	Carrigaline Chiropractic
Owenabue Lodge	Residential	51.81180	-8.39527	South	Owenabue Lodge

#### 6.4.6 Control of Air Quality

It is not expected that adverse air quality impacts are likely to occur at sensitive receptors as a result of the Proposed Development. However, in order to sufficiently mitigate any likely air quality impacts associated with emissions from the site and vehicles / machinery, a schedule of appropriate mitigation measures, as outlined below, will be employed as necessary during the Construction Phase of the Proposed Development to prevent any such impacts occurring:

- Engines and exhaust systems will be maintained so that exhaust emissions do not breach stationary emission limits set for the vehicle / equipment type and mode of operation.
- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Use mains electricity or battery powered equipment wherever practicable in place of diesel- or petrol-powered generators.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)
- No burning of materials will be permitted on site.
- Water sprays and cannons will be used where possible during cutting, with protective measures applied to retained finishes local to the cutting.
- Prior to commencement, the Main Contractor will be required to identify the construction operations which are likely to generate emissions and to draw up action plans to minimise emissions.

#### 6.4.7 Control of Dust

In order to prevent dust being generated during the Construction Phase, permanent controls using best available technology will be employed by the appointed Main Contractor. Where preventing dust is not reasonably practicable then it will be reduced as far as reasonably practicable.

In order to sufficiently mitigate any impacts associated with dust generation at the site, a Dust Management Plan (DMP) will be developed and implemented. The DMP may include measures to control other emissions, at the request of the Local Authority. The DMP will include a program for dust monitoring and for conducting regular onsite and offsite dust

inspections. The level of detail to be included in the DMP will depend on the risk, and should include, as a minimum, the recommended mitigation measures included in this document.

Dust deposition, dust flux, or real-time PM<sub>10</sub> continuous monitoring locations will be agreed with the Local Authority. Baseline monitoring will commence at least three months before work commences onsite, and/or before work on specific phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Monitoring of dust deposition will be undertaken at the nominated boundary locations to ensure that dust levels comply with the TA Lift limit value of 350mg/(m<sup>2</sup>/day) based on a 30-day average using Bergerhoff gauges (Limits to be agreed with local authority).

The Main Contractor will be required to allocate suitably qualified and experienced personnel to ensure that the generation of dust is minimised and effectively controlled. The appointed personnel will:

- Carry out daily inspections onsite and at the site boundary, record inspection results, and make an inspection log available to the local authority when asked.
- Carry out off-site inspections of receptors (including roads) to monitor dust, including regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- 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.

The Main Contractor will plan the site layout so that machinery and dust causing activities are located away from receptors, as far as is possible, and will implement additional control measures including:

- Erecting solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on Site.
- Fully enclosing specific operations where there is a high potential for dust production and the Site is active for an extensive period.
- Remove materials that have a potential to produce dust from Site as soon as possible, unless being re-used on Site.
- Netting will be provided to enclose scaffolding to mitigate escape of air borne dust from the existing buildings.
- Piling machinery will be shrouded when operating near to boundaries.
- Dust emissions over the site boundary will be minimised using static sprinklers or other watering methods as necessary.

- Water sprays for dust suppression will be affixed to mechanical excavators/munchers involved in demolition works.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Demolition waste will be removed from site as quickly as possible to minimise risk of dust generation and any fine material will be covered with a tarpaulin or similar material and tied down.
- In areas of poor natural ventilation, dust capture/extraction methods will be employed by the Main Contractor.

Wherever construction activities that have the potential to create dust are taking place at the site of the Proposed Development, the following control measures will be implemented:

- Cutting, grinding or sawing equipment will be fitted with, or used in conjunction with, suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems.
- Chutes, conveyors and covered skips will be used for moving and storing dusty materials.
- Drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment will be minimised and fine water sprays will be used 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.
- 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 overflowing during delivery.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.
- 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. Site roads (particularly unpaved roads) can be a significant source of fugitive dust from construction sites if control measures are not in place. The most effective means of suppressing dust emissions from unpaved roads is to apply speed restrictions of 15 km/hr. Studies show that these measures can have a control efficiency ranging from 25 to 80%. Additional dust control measures for site roads include:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- 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).
- If practicable, the wheel wash facility will be employed at the exit of 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.
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates will be located at least 10 m from receptors where possible.

Public roads outside the Site will be regularly inspected for cleanliness, as a minimum daily, and cleaned as necessary. A road sweeper will be made available to ensure that public roads are kept free of debris. Vehicles delivering material with potential for dust emissions to an off-site location will be enclosed or covered with tarpaulin always to restrict the escape of dust.

#### **6.4.8 Control of Traffic**

During the construction phase the appointed Works Contractor on site will be responsible for the planning, design, implementation, maintenance and removal of traffic safety and management measures required in order to facilitate and complete the works. The closure of the any roads to traffic during the works period will not be permitted.

The Contractor should be aware that during working hours it is a specific requirement of the Contract that STOP/GO under the control of flagmen be employed for traffic management operations. Two-way traffic should be provided at all times with STOP/GO only permitted during peak hour traffic periods, between 07.00-09.00 in the AM peak traffic period and between 16:30-18:00 in the PM peak period.

The Contractor will notify all businesses within the extent of the Works of the start date and duration of the Works through a letter/email drop 2 weeks in advance of the start date. Further information leaflets will be issued at monthly intervals throughout the duration of the Works or as may be required to advise of any interference with access.

During the construction phase the appointed Works Contractor will comply at all times with the requirements of the Department of the Environment Chapter 8 -Traffic Signs Manual, Temporary Traffic Management Design Guidance, Temporary Traffic Management Operations Guidance, Temporary Traffic Measures and Signs for Roadworks and also the Guidance for the



Control and Management of Traffic at Road Works (Second Edition, 2010) prepared by the Local Government Management Services Board and any additional requirements detailed in the Design Manual for Roads and Bridges.

The design and implementation of Traffic Safety and Management measures will be conducted by a Traffic Management Design Specialist appointed by the Contractor.

#### **6.4.8.1.1 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

### **6.4.9 Control of Waste and Waste Management**

Waste management during the Construction Phase will be managed in accordance with the Construction and Demolition Waste Management Plan prepared by Enviroguide Consulting (2022) for the Proposed Development. Waste will be managed in compliance with the Waste Management Act 1996 (as amended) and all subordinate legislation. Measures to minimise waste generation, promote re-use and recycling and recovery of wastes will be implemented throughout the Construction Phase.

Waste will be stored onsite in such a manner as to:

- Prevent environmental pollution.
- Minimise nuisance generation such as dust.
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery.

In the event that hazardous soil, or historically deposited waste is encountered during the site bulk excavation phase, the contractor will notify Cork County Council and provide a Hazardous/Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal/treatment, in addition to information on the proposed authorised waste collector(s). According to the CDWMP, it is anticipated that there will be no asbestos containing materials (ACMs) generated during the Construction Phase of the Proposed Development. If ACMs are identified on site at a later stage, a full asbestos report will be carried out. Removal of asbestos or ACMs will be carried out by a suitably qualified contractor and ACM's will only be removed from site by a suitably permitted/licenced waste contractor. in accordance with S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.

#### **6.4.9.1 Monitoring**

The monitoring of C&D waste during the Construction Phase of the Proposed Development is recommended to ensure that impacts are not experienced beyond the Site boundary. The Main Contractor will be responsible for monitoring and record keeping in respect of waste leaving the facility and that these records will be maintained on site.

#### **6.4.10 Control of Impacts on Archaeology and Heritage**

As described in the Environmental Impact Assessment Report for the Proposed Development, a programme of geophysical survey will be undertaken across the undisturbed portions of the Proposed Development site prior to the commencement of the Proposed Development. This will be followed by a programme of linear archaeological test trenching which will include targeted investigations of any geophysical anomalies that are of archaeological potential. These investigations will be carried out under licences issued by the National Monuments Service.

The area of hardstand within the site will act as a constraint that will preclude geophysical or trenching investigations. In the event that this feature, which was constructed at the location of a potential subcircular feature identified on aerial imagery as part of this assessment, is removed at any point during or subsequent to the Relief Road construction works or during any works associated with the Proposed Development, then this work will be archaeologically supervised and the underlying surface of the natural subsoil will then be carefully cleaned back and appraised for the presence of any potential unrecorded archaeological features.

If archaeological features are revealed during the testing programme or during any inspection of the hardstanding area (should it be removed), these features will be recorded in written, drawn and photographic formats and left in-situ within securely cordoned off areas until consultations are undertaken with the National Monuments Service to determine appropriate future mitigation strategies, which may entail preservation by avoidance or preservation by record through full archaeological excavation.

##### **6.4.10.1 Monitoring**

There are a number of obligatory processes to be undertaken as part of archaeological licence applications for site investigation works and these will allow for monitoring of the successful implementation of the pre-construction archaeological mitigation measures. Method statements detailing the proposed strategy for site investigations will be submitted for approval to the National Monuments Service as part of the licence application process. These will clearly outline the proposed extent of works and outline the consultation process to be enacted in the event that any unrecorded archaeological sites or other features of cultural heritage significance are identified. A report will be compiled on all site investigations which will clearly present the results in written, drawn, and photographic formats. Copies of these reports will be submitted to the National Monuments Service, Cork County Council and the National Museum of Ireland. In the event that any sub-surface archaeological deposits, features or artefacts are identified during site investigations, the Planning Authority and the National Monuments Service will be consulted to determine further appropriate mitigation measures which may entail preservation in situ, by avoidance or preservation by record through full archaeological excavation.

## **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 Construction Management Plan 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, implementing any necessary mitigation measures as discussed in Section 6.3 and Section 6.4 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 Section 6.4 of this CEMP, once correctly implemented, will reduce the likelihood of the occurrence of an environmental incident (emergency) as identified in Section 5.2 of this CEMP.

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 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.

The general required 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 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 will 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 spills 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 spills 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 Officer 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 Officer.

In the event of spillages or other incidents steps will be taken to prevent environmental pollution, for example through 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. This site environmental register will be a register of regulatory, legal and other requirements, and this will be developed to summarise the environmental legislation, (as well as other requirements) that the project must adhere to. This legislation will be available through the construction manager's office on site. This register will be a controlled document, and as such will be reviewed and updated on a minimum six-monthly basis.

## 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. This register will be a controlled document, and as such will be reviewed and updated on a minimum six-monthly basis by the Environmental Officer.

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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