CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

FOR

KILTERNAN VILLAGE

STRATEGIC HOUSING DEVELOPMENT

AT

WAYSIDE, ENNISKERRY ROAD AND
GLENAMUCK ROAD, KILTERNAN, DUBLIN 18

JUNE 2022

ON BEHALF OF

Liscove Limited

Prepared by
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1 INTRODUCTION

This Construction Environmental Management Plan (hereinafter CEMP) has been prepared by Enviroguide Consulting on behalf of Liscove Limited (the Applicant) for the Proposed Strategic Housing Development at lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18 including a dwelling known as 'Rockville', Enniskerry Road, Kilternan, Dublin 18, D18 Y199 (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

Liscove Limited intend to apply to An Bord Pleanála for permission for a strategic housing development at this 10.8 Ha site at lands at Wayside, Enniskerry Road and Glenamuck Road, Kilternan, Dublin 18, which include a derelict dwelling known as 'Rockville' and associated derelict outbuildings, Enniskerry Road, Kilternan, Dublin 18, D18 Y199. The site is generally bounded by the Glenamuck Road to the north; Kilternan Country Market and the Sancta Maria property to the north and west; a recently constructed residential development named "Rockville" to the north-east; the Enniskerry Road to the south-west; dwellings to the south; and lands that will facilitate the future Glenamuck Link Distributor Road to the east.

The site is of the Proposed Development currently largely greenfield with hedgerows and treelines, and the surrounding area is predominantly residential and agricultural. Part of the Site's frontage lies directly opposite Our Lady of the Wayside Church, Kilternan. The lands are located in the village of Kilternan, Co. Dublin, approximately 1.9 km to the south-west of the M50 and Carrickmines Retail Park.

The Site Location is presented in Figure 2-1.

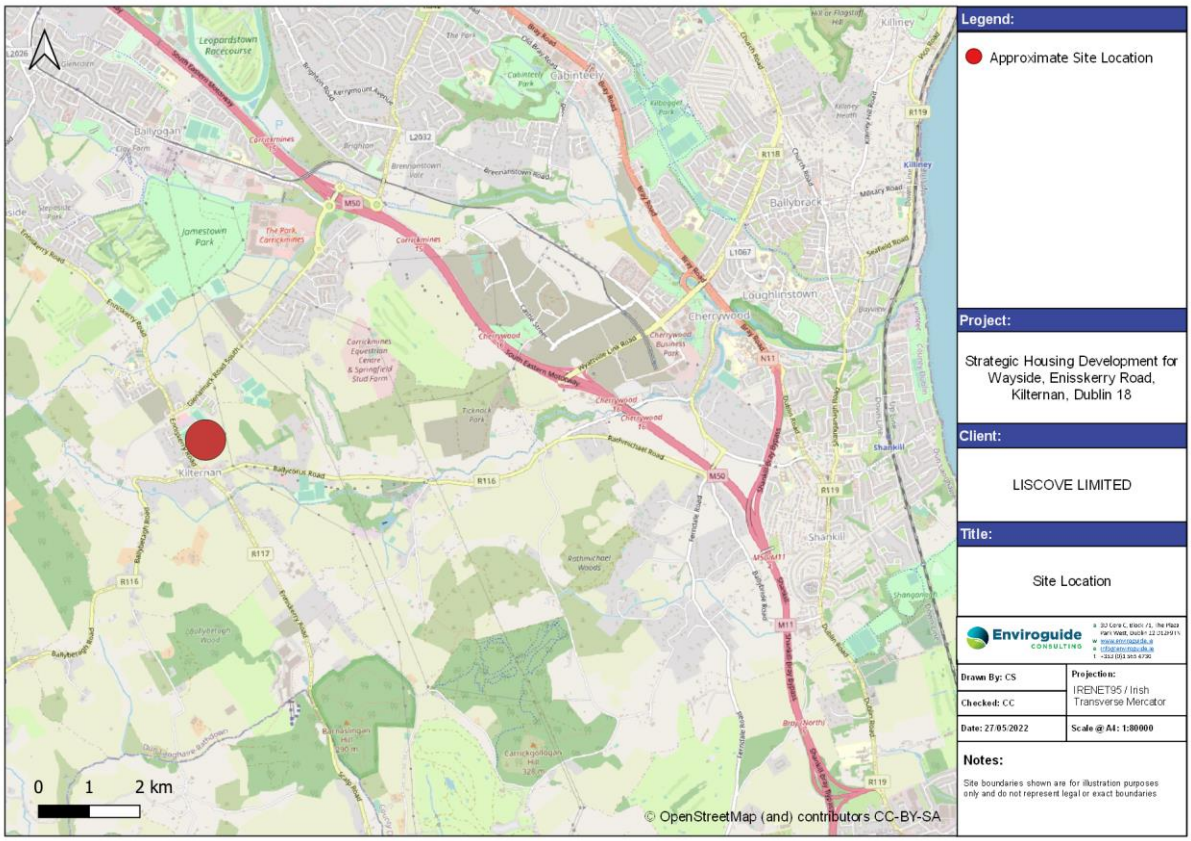

FIGURE 2-1 SITE LOCATION

2.2 Proposed Development

The Proposed Development will consist of the demolition of 573.2 sq m of existing structures on site comprising a derelict dwelling known as 'Rockville' and associated derelict outbuildings; and the provision of a mixed use development on a developable site area of c. 10.8 hectares (Ha) consisting of 383 No. residential units (165 No. houses, 118 No. duplex units and 100 No. apartments) and a Neighbourhood Centre, which will provide a creche (439 sq m), office (317 sq m), medical (147 sq m), retail (857 sq m), convenience retail (431 sq m) and a community facility (321 sq m).

The 383 No. residential units will consist of:

- 27 No. 1 bedroom units (19 No. apartments and 8 No. duplexes)
- 128 No. 2 bedroom units (78 No. apartments and 50 No. duplexes)
- 171 No. 3 bedroom units (108 No. houses, 3 No. apartments and 60 No. duplexes) and
- 57 No. 4 bedroom units (57 No. houses).

The Proposed Development will range in height from 2 No. to 5 No. storeys (including podium/undercroft level in Apartment Blocks C and D and in the Neighbourhood Centre).

The Proposed Development also provides: pedestrian links from Enniskerry Road and within the site to the neighbouring "Rockville" development to the north-east and a pedestrian/cycle route through the Dingle Way from Enniskerry Road to the future Glenamuck Link Distributor Road; 678 No. car parking spaces (110 No. in the undercroft of Blocks C and D and the Neighbourhood Centre and 568 No. at surface level) including 16 No. mobility impaired spaces, 73 No. electric vehicle spaces, 1 No. car share space, 4 No. drop-off spaces/loading bays; motorcycle parking; bicycle parking; bin storage; the decommissioning of the existing telecommunications mast at ground level and provision of new telecommunications infrastructure at roof level of the Neighbourhood Centre including shrouds, antennas and microwave link dishes (18 No. antennas and 6 No. transmission dishes, all enclosed in 9 No. shrouds together with all associated equipment); private balconies, terraces and gardens; hard and soft landscaping; sedum roofs; solar panels; boundary treatments; lighting; substations; plant; and all other associated site works above and below ground. The Proposed Development has a gross floor space of 43,120 sq m in addition to undercroft levels (under Apartment Blocks C and D measuring 1,347 sq m and under the Neighbourhood Centre measuring 2,183 sq m, which includes parking spaces, external storage, bin storage, bike storage and plant).

Road works are also proposed to facilitate access to the Proposed Development from the Enniskerry Road; to the approved Part 8 Enniskerry Road/Glenamuck Road Junction Upgrade Scheme on Glenamuck Road (DLRCC Part 8 Ref PC/IC/01/17); and to the approved Glenamuck District Roads Scheme (GDRS) (ABP Ref: HA06D.303945) on the Glenamuck Link Distributor Road (GLDR). Drainage and water works are also proposed to connect to services on the Glenamuck Road and Enniskerry Road.

At the Glenamuck Road access point, this will include works, inclusive of any necessary tie-ins, to the footpath and cycle track to create a side road access junction incorporating the provision of an uncontrolled pedestrian crossing across the side road junction on a raised table and the changing of the cycle track to a cycle lane at road level as the cycle facility passes the side road junction. Surface water and foul drainage infrastructure is proposed towards the north of the site into the drainage infrastructure to be constructed as part of the Part 8 scheme.

Potable water is to be provided from the existing piped infrastructure adjacent to the site along Glenamuck Road. These interfacing works are proposed on an area measuring 0.05 Ha.

At the GLDR access point, this will include works, inclusive of any necessary tie-ins, to the footpath and cycle track to create a side road access junction incorporating the provision of short section of shared path and an uncontrolled shared pedestrian and cyclist crossing across the side road junction on a raised table. The works will also include the provision of a toucan crossing, inclusive of the necessary traffic signal equipment, immediately south of the access point to facilitate pedestrian and cyclist movement across the mainline road. All works at the GLDR access point will include the provision of the necessary tactile paving layouts and are provided on an area measuring 0.06 Ha.

At the Enniskerry Road, works are proposed to facilitate 3 No. new accesses for the Proposed Development along with modifications to Enniskerry Road. The 3 No. side road priority access junctions incorporate the provision of an uncontrolled pedestrian crossing across the side road junction on a raised table. The modifications to Enniskerry Road fronting the development (circa 320 metres) includes the narrowing of the carriageway down to 6.5 metres (i.e., a 3.25 metre running lane in each direction) from the front of the kerb on western side of Enniskerry Road. The remaining former carriageway, which varies in width of c. 2 metres, will be reallocated for other road users and will include the introduction of a widened pedestrian footpath and landscaped buffer on the eastern side of the road adjoining the Proposed Development. The above works are inclusive of all necessary tie-in works such as new kerb along eastern side of Enniskerry Road, drainage details, road marking, signage and public lighting. Potable water is to be provided from the existing piped infrastructure adjacent to the site along the Enniskerry Road. The interface works on Enniskerry Road measures 0.19 Ha.

Surface water and foul drainage infrastructure is proposed to connect into and through the existing/permitted Rockville developments (DLR Reg. Refs. D17A/0793, D18A/0566 and D20A/0015) on a total area measuring 0.09 ha.

The combined developable site area, drainage and roads works areas provide a total application site area of c. 11.2 Ha.

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

FIGURE 2-2 SITE LAYOUT PLAN

3 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT

3.1 Programme

The construction of the Proposed Development is intended to take place in five phases (Phase 1, 2, 3, 4 and 5) starting from the Central Western portion of the site moving in an anti-clockwise direction through Phase 2 to the East and Phase 3 to the North. The southern two sections of the site will be completed next, starting in the south-eastern corner of the site (Phase 4) and moving south westerly to Phase 5. The proposed sequence of construction outlined below is subject to confirmation once the building contract has been awarded and on completion of the Detailed Construction Management Plan for agreement with the relevant Local Authority. The overall duration of the project is estimated to be 5 no. years in total, with some phases overlapping.

The sequencing of the five phases of the Proposed Development is intended to proceed as follows:

- Phase 1 (18 months) – Central Western portion of the site consisting of 91 residential units (made up of houses and duplexes), all associated landscaping works and drainage for Phase 1. The Main Public Open Space, Central Green Way Link, Dingle Way and off-site drainage through southern lands. Access to Glenamuck Link Distributor Road (GLDR) will also be formed in this phase (if the GLDR is in place). Demolition works will take place in Phase 1.

- Phase 2 and Phase 2A (24 months) – Central Eastern portion of the site and the Neighbourhood Centre consisting of 126 residential units (73 in Phase 2 and 53 in Phase 2A) made up of houses, duplexes, and apartments along with all associated landscaping works. The main drainage for Phase 2 and the Neighbourhood Centre will be completed. Access to GLDR will be constructed if not completed in Phase 1.
- Phase 3 (12 months) – North-eastern portion of the site consisting of 59 residential units made up of apartments, with all associated landscaping works, along with the creation of a new access to Glenamuck Road and drainage for Phase 3.
- Phase 4 (18 months) – South-eastern portion of the site consisting of 97 residential units made up of apartments, with all associated landscaping works and drainage for Phase 4.
- Phase 5 (8 months) – South-western portion of the site consisting of 10 residential units made up of apartments, with all associated landscaping work and drainage for Phase 5.

The Construction Phasing Plan is illustrated in Figure 3-1.

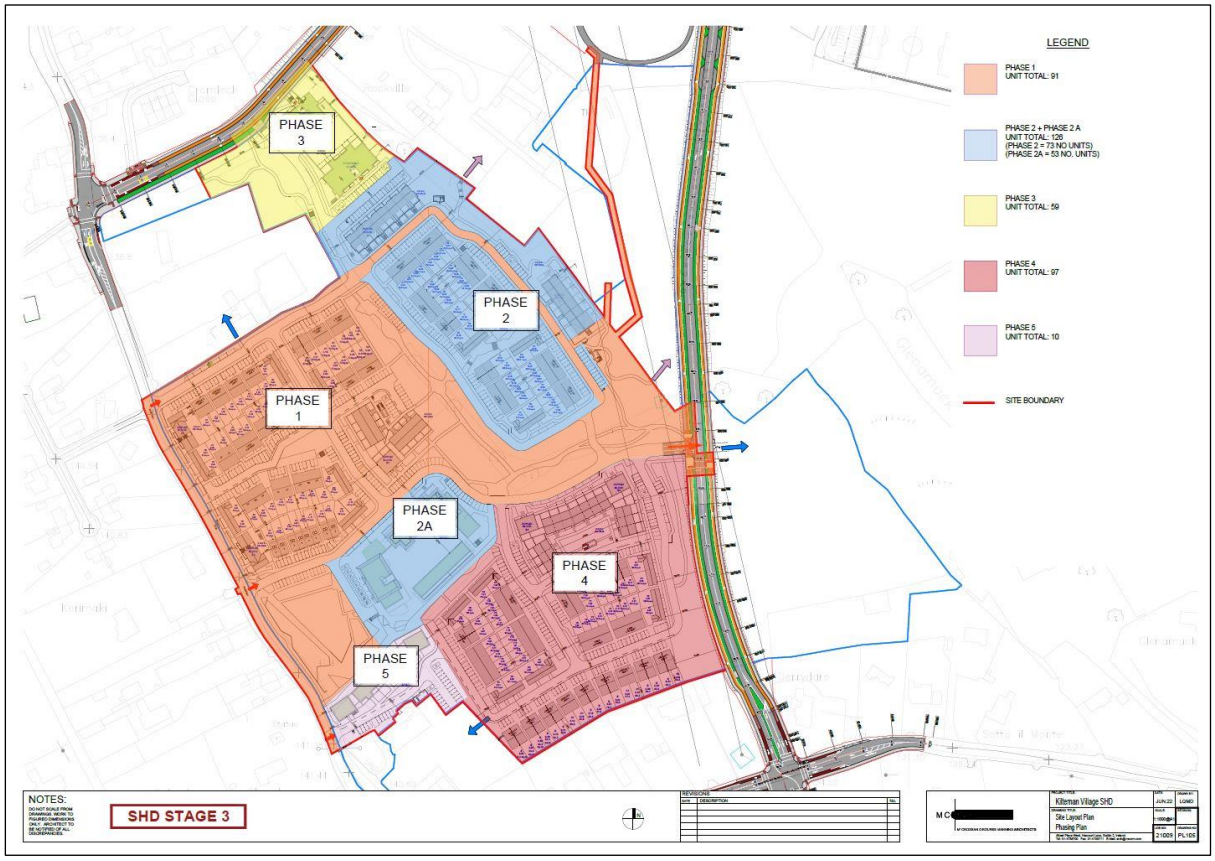

FIGURE 3-1 CONSTRUCTION PHASING PLAN

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 19:00 Monday to Friday (excluding bank holidays) and 07:00 to 14:00 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 Dun Laoghaire Rathdown County Council (DLRCC). 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 construction site compound, which will be established at the site and the working area will be fenced off to provide a secure site. Due to the scale of development and the phased approach to development this compound will move positions throughout the Construction Phase. An indicative construction site compound strategy is illustrated in Figure 3-2. 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.

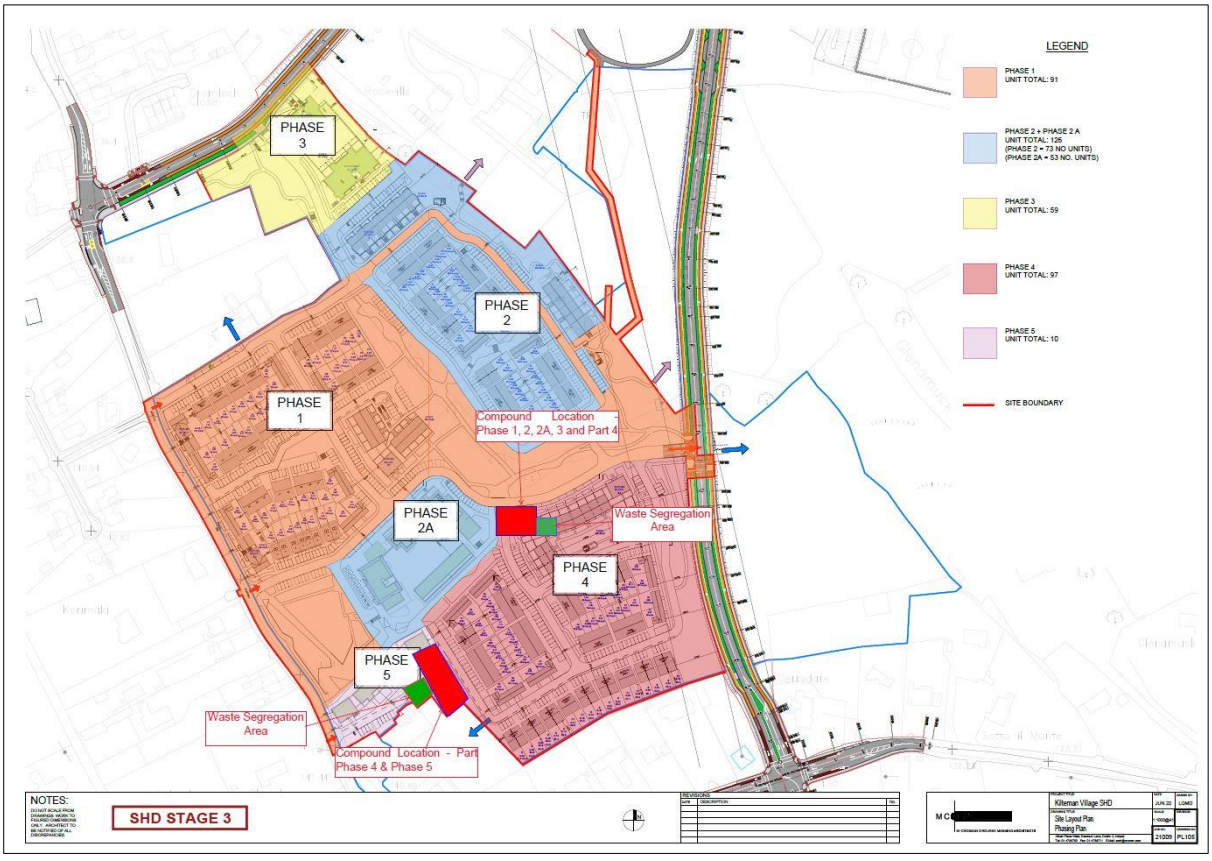

FIGURE 3-2 INDICATIVE CONSTRUCTION SITE COMPOUND STRATEGY

The construction compound will accommodate a site office and staff welfare facilities (including a canteen, drying room, toilets and first aid) as well as storage areas for materials, waste areas and plant and machinery. All surplus plant and materials shall be stored in this location when not in use and will be secured here at night when the site is not operational.

Outside of the main construction compound locations, there may be a number of smaller local work compounds throughout the site which may be used by the Main Contractor for staff welfare facilities, to store materials for short term use and for plant to park overnight.

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 Outline Construction Traffic Management Plan, which is included in the Outline Construction Management Plan (*Atkins, 2022*). 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 and Heavy Goods Vehicles (HGV's) will access the Site through a main entrance from the Glenamuck Road. For Phase 1 of the Proposed Development it has been assumed that the Glenamuck District Roads Scheme (GDRS) will not be available and therefore it is likely that construction traffic and HGV's will utilise Junction 15 of the M50, coming from the north or south to access the Glenamuck Road North Roundabout and travel west along the Glenamuck Road before accessing the R117 and entering the site of the Proposed Development. Construction traffic leaving the site are likely to will utilise the same route in reverse.

For Phase 2 to 5 it has been assumed that the GDRS will be available. Therefore, it is likely that HGV's will utilise Junction 15 of the M50, coming from the north or south to access the Glenamuck Road, before accessing the Glenamuck District Distributor Road (GDDR) and from there the Glenamuck Link Distributor Road (GLDR) before accessing the site via new junction

onto the GLDR. Construction traffic leaving the site are likely to will utilise the same route in reverse. Sightlines will be provided, as required for the public road design speed.

During the Construction Phase, surplus soil and stones and other waste materials will be transported offsite and stone fill, building and finishing materials will be imported to the site. It is estimated that the number of HGV daily two-way movements associated with exported & import of material will decrease gradually as the 5 no. Construction Phases advance. The HGV movements per phase are set out in Table 3-1.

TABLE 3-1 HGV DAILY TWO-WAY MOVEMENTS ASSOCIATED WITH EXPORT & IMPORT OF MATERIAL

Phase	No. of daily HGV movements to Site	No. of daily HGV move-ments away from Site	Daily Total Per Phase
1	8	10	18
2 and 2a	6	8	14
3	4	2	6
4	4	6	10
5	2	4	6

It is anticipated that these vehicle movements would occur outside peak times of avoid delays on the road network and minimise lost time and costs.

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

Hoarding will be required to secure the 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 additional 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 Siochana 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 6.4.4 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 Outline Construction Traffic Management Plan (*Atkins, 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 DLRCC 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

Liscove 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 Proposed Development. These procedures together with the site Environmental Policy will be made available in the main offices and at the main Environmental Health and Safety 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.

Any diesel, fuel or hydraulic oils stored onsite will be stored in bunded storage tanks in a dedicated impermeable area a least 30m from watercourses. The bunded area will have a volume of at least 110% of the volume of the stored materials as per best practice guidelines (Enterprise Ireland, BPGCS005) and will be properly secured against unauthorised access or vandalism. There will be clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage.

The appointed Contractor for the Construction Phase of the Proposed Development will ensure that all plant and equipment utilised on-site is in good working condition. Any equipment not meeting the required standard will not be permitted for use within the Proposed Development site. Only emergency breakdown maintenance will be carried out on-site. Drip trays and spill kits will be available on-site to ensure that any spills from vehicles are contained and removed off-site.

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 break-down 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

There may also be the requirement for use of portable generators or similar fuel containing equipment during the Construction Phase of the Proposed Development, which will be placed on suitable drip trays. Regular monitoring of drip tray content will be undertaken to ensure sufficient capacity is maintained at all times.

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 or in a delivery bowser dedicated to that purpose
- In the case of a bowser, the driver or supervising foreman will check the delivery bowser daily for leakage
- The driver will be issued with, and will carry at all times, absorbent sheets, and granules to collect any spillages that may accidentally occur
- All deliveries to on-site vehicles will be supervised and records will be kept and retained onsite of delivery dates and volumes
- 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.

Waste oils and hydraulic fluids will be collected in bunded containers and removed from the Proposed Development for disposal or recycling.

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.
- 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 surface water, groundwater or soil.
- 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.

- 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 DLRCC
  - 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 Exportation of Soil and Bedrock

Prior to excavation, a detailed review of the final cut and fill model will be carried out to confirm cut and fill volumes. Detailed quantities of material to be excavated will be verified through accurate survey techniques and detailed in the CDWMP (Enviroguide Consulting, 2022a) which will be further developed by the appointed Contractor in advance of works commencing.

All surplus materials and any waste will be removed off-site in accordance with the requirements outlined in the CDWMP (Enviroguide Consulting, 2022a) and will be managed in accordance with all legal obligations.

The re-use of soil offsite will be undertaken in accordance with all statutory requirements and obligations including where appropriate re-use 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 re-use as a by-product and other waste materials arising from the Construction Phase will be removed offsite by an authorised contractor and sent to the appropriately authorised (licensed/permitted) receiving waste facilities. 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 either; possess a waste collection permit or, to engage specialist waste service contractors who will possess the requisite authorisations, for the collection and movement of waste off-site. Material will be brought to an authorised facility that has been adequate assessed and any potential impacts mitigated as part of statutory consent procedures. Accordingly, there will be no impact on any off-site destination site associated with the Construction Phase of the Proposed Development.

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 site shall 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 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 or similar approved will be installed at the egress point and road sweeper will be deployed where necessary to ensure that public roads are kept free of debris.

6.4.2.4 Reuse of Soil and Stone

The reuse of excavated soil and stone for the Proposed Development (i.e., for structural fill, non-structural fill and landscaping) will be subject to 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.

6.4.2.5 Management and Control of Soils and Stockpiles

Where possible, stockpiling of soil and stone on-site will be avoided. However, in the event that stockpiling is required, stockpiled materials pending removal off-site or reuse on-site will be located in in designated areas only and there will be no storage of materials within 10m of any open ditches / watercourses at the Proposed Development site. Where required during periods of wet weather appropriate containment measures will be implemented to prevent excessive runoff and entrainment of sediment. These will include battering of stockpiles, covering of stockpiles with tarpaulins and use of sandbags to contain any runoff from the stockpiles.

The extent of the required work area and batter for bulk excavation at the site will be minimised where appropriate to prevent unnecessary excavation of soil and tracking over soil and subsoil

outside of the excavation work areas as a result of compaction and rutting from construction traffic.

Dedicated internal haul routes will 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 which are outside of the areas where excavation to ensure soil structure is maintained.

Segregation and storage of soils for re-use onsite or removal offsite and waste for disposal off site will be segregated and temporarily stored on-site pending removal or for reuse onsite in accordance with the CMP, CEMP and the CDWMP.

For any excavated material identified for removal offsite, while assessment and approval of acceptance at a destination reuse 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;
- Soil waste categories will be individually segregated; and all segregation, storage and stockpiling locations will be clearly delineated on the site drawings;
- Erroneous pieces of concrete will be screened from the stockpiled soils and segregated separately;
- Soil stockpiles will be sealed to prevent run-off from the stockpiled material generation and/or the generation of dust; and
- Any waste that will be temporarily stored / stockpiled only 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 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; and
- Stockpiles will not be located near Proposed Development site boundaries or sensitive receptors and a set-back of 100m will be 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 disposal. An excavation/stockpile register shall 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 re-use, 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 Degradation of Soils

The segregation and stockpiling of soil and stone at the Proposed Development site pending reuse or removal offsite will be carefully managed and maintained in order to minimise potential impact on soil quality. Handling of the stockpiled soil and stone will be minimised and will not be disturbed once formed. Stockpiles will be formed to minimise infiltration or accumulations of rainwater in the stockpiles.

6.4.2.7 Export of Resource (soil and stone)

Prior to excavation, a detailed review of the final cut and fill model will be carried out to confirm cut and fill volumes. Detailed quantities of material to be excavated will be verified through accurate survey techniques and detailed in the CDWMP (Enviroguide Consulting, 2022a) which will be further developed by the appointed Contractor in advance of works commencing.

All surplus materials and any waste will be removed off-site in accordance with the requirements outlined in the CDWMP (Enviroguide Consulting, 2022a) and will be managed in accordance with all legal obligations.

The re-use of soil offsite will be undertaken in accordance with all statutory requirements and obligations including where appropriate re-use 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 re-use as a by-product and other waste materials arising from the Construction Phase will be removed offsite by an authorised contractor and sent to the appropriately authorised (licensed/permitted) receiving waste facilities. 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 either; possess a waste collection permit or, to engage specialist waste service contractors who will possess the requisite authorisations, for the collection and movement of waste off-site. Material will be brought to an authorised facility that has been adequate assessed and any potential impacts mitigated as part of statutory consent procedures. Accordingly, there will be no impact on any off-site destination site associated with the Construction Phase of the Proposed Development.

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 site shall 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 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 or similar approved will be installed at the egress point and road sweeper will be deployed where necessary to ensure that public roads are kept free of debris.

6.4.2.8 Import of Aggregates

Contract and procurement procedures will ensure that all aggregates and fill material required are sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity and compliance standards and statutory obligations.

The importation of aggregates will be subject to management and control procedures which will include testing and assessment of the suitability for use in accordance with engineering and environmental specifications for the Proposed Development including the suitability of material that may be imported in accordance with an Article 27 By-Product Notification. Therefore, any unsuitable material will be identified and avoided prior to importation to the Proposed Development site.

6.4.2.9 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).

Pre-cast concrete will be used where technically feasible to meet the design requirements for the Proposed Development. Where cast-in-place concrete is required, all work will be carried out to avoid any contamination of the receiving geological environment through the use of appropriate design and methods implemented by the appointed Contractor and in accordance with industry standards.

All ready-mixed concrete will be delivered to the Proposed Development Site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out.

The following measures will be implemented where poured concrete is being used on site:

- The production, transport and placement of all cementitious materials will be strictly planned and supervised. Site batching/production of concrete will not be carried out on site.
- Shutters will be designed to prevent failure. Grout loss will be prevented from shuttered pours by ensuring that all joints between panels achieve a close fit or that they are sealed.
- Where concrete is to be placed by means of a skip, the opening gate of the delivery chute will be securely fastened to prevent accidental opening.
- Where possible, concrete skips, pumps and machine buckets will be prevented from slewing over water when placing concrete.
- 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 for appropriate compliant removal offsite, and
- Surplus concrete will be returned to batch plant after completion of a pour.

6.4.2.10 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*).

Foul water discharge from the temporary welfare units at the site during the Construction Phase will be either tankered off-site in accordance with waste management legislation or discharged under temporary consent to the IW mains foul network for treatment at Shanganagh WWTP subject to agreement with Irish Water.

6.4.2.11 Emergency Procedures

Emergency procedures will be developed by the appointed Contractor in advance of works commencing and spillage kits will be available on-site including in vehicles operating on-site. Construction staff will be familiar with emergency procedures for in the event of accidental fuel spillages. Remedial action will be immediately implemented to address any potential impacts in accordance with industry standards and legislative requirements.

- Any required emergency 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 standards;
- All construction works staff will be familiar with emergency procedures for in the event of accidental fuel spillages; and
- All construction works staff on-site will be fully trained on the use of equipment.

This procedure will be undertaken in accordance with industry best practice procedures and standards. These measures will ensure that there is minimal risk to the receiving hydrological and hydrogeological environment associated with the Construction Phase of the Proposed Development. These measures will also ensure that there is minimal risk to soils and geology associated with the Construction Phase of the Proposed Development.

6.4.3 Controls to Protect Biodiversity

6.4.4 Construction Phase

6.4.4.1 Habitats

Any vegetation (including trees or hedgerows adjacent to, or within, the Proposed Development boundary) which is to be retained shall be afforded adequate protection during the Construction Phase in accordance with the Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes (National Roads Authority, 2006b), as follows:

- All trees along the Proposed Development boundary that are to be retained, both within and adjacent to the Proposed Development boundary (where the root protection area of the tree extends into the Proposed Development boundary), will be fenced off at the outset of works and for the duration of construction to avoid structural damage to the trunk, branches or root systems of the trees as per the requirements of the British Standard (BS) 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendation. Temporary fencing will be erected at a sufficient distance from the tree so as to enclose the Root Protection Area (RPA) of the tree. The RPA will be defined based upon the recommendation of a qualified arborist.
- Where fencing is not feasible due to insufficient space, protection for the tree/hedgerow will be afforded by wrapping hessian sacking (or suitable equivalent) around the trunk of the tree and strapping stout buffer timbers around it.
- The area within the RPA will not be used for vehicle parking or the storage of materials (including soils, oils and chemicals). The storage of hazardous materials (e.g., hydrocarbons) or concrete washout areas will not be undertaken within 10 m of any retained trees, hedgerows and treelines.
- A qualified arborist shall assess the condition of, and advise on any repair works necessary to, any trees which are to be retained or that lie outside of the Proposed Development boundary but whose RPA is impacted by the works. Any remedial works required will be carried out by a qualified arborist.
- A buffer zone of at least 5m will be maintained between construction works and retained hedgerows to ensure that the root protection areas are not damaged.

6.4.4.2 Badger

As the usage of the Proposed Development site by badgers can change over time, a confirmatory pre-construction check of the Proposed Development site for new burrow entrances will be carried out immediately prior to construction works commencing to confirm their usage by badger.

Any new badger setts present will be afforded protection in line with the requirements set out in the NRA (2005) guidance document as follows:

1. Badger setts where encountered will be clearly marked and the extent of bounds prohibited for vehicles clearly marked by fencing and signage.
2. Between the months June to November, no heavy machinery shall be used within 30m of badger setts; lighter machinery (generally wheeled vehicles) shall not be used within 20m of a sett entrance; light work, such as digging by hand or scrub clearance shall not take place within 10m of sett entrances.
3. During the breeding season (December to June inclusive), none of the above works shall be undertaken within 50m of active setts, nor blasting or pile driving within 150m of active setts.
4. Works can be undertaken within these zones following consultation with the approval of and, if required, under the supervision of an ecologist with experience in badger mitigation measures.

6.4.4.3 Breeding Birds

Vegetation (e.g., hedgerows, trees, scrub and grassland) will not be removed, between the 1st of March and the 31st of August, to avoid direct impacts on nesting birds. Where the construction programme does not allow this seasonal restriction to be observed, then these areas will be inspected by a suitably qualified ecologist for the presence of breeding birds prior to clearance. Areas found not to contain nests will be cleared within three days of the nest survey. Where the vegetation is not cleared within three days of checks, a repeat check will be required. Should nesting birds be encountered during surveys, the removal of vegetation will be required to be delayed until after the nesting has finished.

6.4.4.4 Bats

- Although no evidence of bats was recorded in the buildings or PRF trees located within the Proposed Development site, precautionary mitigation has been proposed in the event that any bats are found to be roosting within the aforementioned structures, during demolition or clearance works, as the usage of the Proposed Development site by bats can change over time. A suitably qualified bat ecologist, licenced as necessary, will undertake a confirmatory preconstruction survey to assess for any changes since the planning surveys. Thereafter they will be on site during the demolition works of the building, and that if bats are encountered during any works at the site the relevant activity will be suspended until appropriate measures are enacted. A derogation licence may need to be sought from NPWS in order to permit removal of bats and mitigate for the loss of any roosts on the site. This may include measures as outlined in NRA guidance 2006c.
- Lighting proposals for the construction phase will adhere to the advice provided in Bats and Lighting – Guidance for Planners, Engineers, Architects and Developers (Bat Conservation Ireland 2010), Bats and artificial lighting in the UK Bats and the Built Environment series Guidance Note 08/18 (Institution of Lighting Professionals & Bat Conservation Trust, 2018) and Guidance Notes for the Reduction of Obtrusive Light GN01 (Institute of Lighting Professionals, 2011). Construction stage lighting details shall be reviewed by a qualified bat ecologist. If necessary, the bat ecologist shall recommend adjustments to directional lighting (e.g. through cowls, shields or louvres) to restrict light spill in sensitive areas.

6.4.5 Operational Phase

6.4.5.1 Habitats

Mitigation measures are not required as no Operational Phase impacts are predicted on habitats as a result of the Proposed Development.

6.4.5.2 Badger

Mitigation measures are not required as no Operational Phase impacts are predicted on badgers as a result of the Proposed Development.

6.4.5.3 Breeding Birds

As an enhancement measure for the loss of nesting habitat and in order to provide additional nesting opportunities for breeding birds, 6 no. 1B Schwegler nest boxes or similar will be installed within the Proposed Development site. The nest boxes will be installed at a minimum of 3m above ground level to ensure against disturbance from humans and domestic animals such as cats. The boxes will be deployed across the site in appropriate locations, as advised by a suitably qualified ecologist.

6.4.5.4 Bats

Although no bat roosts were confirmed during the surveys, additional roosting opportunities for bats are being proposed to include 6 no. Schwegler 2F bat boxes to be erected on suitable retained trees in suitable locations across the site, the location of which to be decided by a suitably qualified and experienced bat ecologist. This has been recommended as an enhancement measure for the site rather than a mitigation measure as no confirmed roosting site have been identified. This is separate to any additional bat boxes that might be conditioned by NPWS where a roost that will be lost is confirmed during pre-construction surveys.

6.4.5.5 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.

6.4.6 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.*

6.4.7 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 Main Contractor to minimise noise from the construction operations and will comply with the mitigation measures as set out in *BS 5228-1: A1:2014 Code of practice for noise and vibration control on construction and open sites – Part 1: Noise*:

- Selection of plant with low inherent potential for generating noise.
- Siting of plant as far away from sensitive receptors as permitted by site constraints.
- Avoid unnecessary revving of engines and switch off plant items when not required.
- Keep plant machinery and vehicles adequately maintained and serviced.
- Proper balancing of plant items with rotating parts.
- Keep internal routes well maintained and avoid steep gradients.
- Minimise drop heights for materials or ensure a resilient material underlies.
- Use of alternative reversing alarm systems on plant machinery.
- Where noise becomes a source of resonating body panels and cover plates, additional stiffening ribs or materials should be safely applied where appropriate.
- Limiting the hours during which site activities likely to create high levels of noise are permitted.
- Appointing a site representative responsible for matters relating to noise.
- Monitoring typical levels of noise during critical periods and at sensitive locations.

The Main Contractor will monitor the likelihood of prolonged exposure to excessive noise and will commission a noise surveying/monitoring where necessary. The following control measures are to be implemented by the Main Contractor:

- No plant used on site will be permitted to cause an ongoing public nuisance due to noise;
- The Main Contractor will assess risk arising from noise prior to each activity taking place and determine appropriate action. The aim will be to minimise the exposure to excessive noise levels;
- If it is likely that the noise exposure exceeds Lower Action Value, then hearing protection must be made available;

- If it is likely that the noise exposure exceeds Upper Action Value, then hearing protection is mandatory to be used. The work supervisor will decide on the most suitable hearing protection to be used based on exposure and worker's personal preference (earmuffs or earplugs);
- The Main Contractor will ensure proposed measures are put in place and that their effectiveness and suitability is evaluated on regular bases;
- The Main Contractor will minimise noise at work by looking for alternative processes and/or working methods, which would make the work quieter and/or exposure times shorter;
- The Main Contractor will liaise with all sub-contractors to effectively control noise exposure;
- The number of people working near source of the noise will be minimised;
- Plant and machinery will be compliant with current legislation and fitted with silencers where possible;
- Employees must use hearing protection where its use is made compulsory;
- Hearing protection zones will be identified where necessary;
- Spot checks on appropriate use of hearing protection will be carried out;
- Operators of rock breaking machines and workers nearby must wear adequate ear protection;
- During construction, the contractor will manage the works to comply with noise limits outlined in BS 5228-1:2009+A1 2014. Part 1 – Noise;
- All plant to be serviced and maintained in good working order to ensure noise production is kept to a minimum;
- Idle plant to be switched off or throttled down to both save energy and reduce noise emissions;
- All plant operators to be qualified in their specific piece of plant;
- Compressors and generators will be sited in areas least likely to give rise to nuisance where practicable;
- If the Contractor gets a complaint about noise from a neighbour, he will act immediately to remedy the situation.

6.4.7.1 Monitoring of Noise and Vibration

The control measure outlined in Section 6.4.7 are to be implemented and furthermore, the Main Contractor will monitor the likelihood of prolonged exposure to excessive noise and commission a noise surveying/monitoring programme where necessary. Specific monitoring will be carried out at the nearest sensitive locations which are presented in Table 6-2.

TABLE 6-1: Sensitive Receptor Locations

Name	Type	Coordinates		Orientation Relative to Site Boundary	Distance from the Site Boundary
Cromlech Close / Glenamuck Road	Residential	53.240048	-6.194793	North	40m
Rockville	Residential	53.240128	-6.193471	East	30m

Wayside Cottages	Residential	53.237752	-6.195784	West	30m
Ballycorus Road	Residential	53.235937	-6.191261	South	30m

6.4.8 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.

6.4.9 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_{10} 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/(m²/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 overfilling during delivery.
- For smaller supplies of fine power 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 sur- face 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 10m 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.

6.4.10 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 any roads to traffic during the works period will not be permitted.

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.

6.4.10.1.1 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

6.4.11 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 the dedicated Waste Segregation Areas (refer to Figure 3-2 Indicative Construction Site Compound Strategy) 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 DLRCC 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 demolition works in Phase 1 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.

6.4.11.1 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.

6.4.12 Control of Impacts on Archaeology and Heritage

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

6.4.13 Control of Impacts on Landscape and Visual

The key landscape and visual mitigation measures used during the Construction Phase have been incorporated into the layout of the site and design of the proposed buildings. The

buildings will be low height (2-5 storeys), clad in a similar neutral colored material and will have a similar horizontal emphasis.

The measures proposed revolve around the implementation of appropriate site management procedures – such as the control of site lighting, storage of materials, placement of compounds, delivery of materials, car parking, etc. Visual impact during the construction phase will be mitigated somewhat through appropriate site management measures and work practices to ensure the Site is kept tidy, dust is kept to a minimum, and that any locations close to public areas are kept free from building material and site rubbish.

Site hoarding will be appropriately scaled, finished and maintained for the period of construction of each section of the works as appropriate. To reduce the potential negative impacts during the construction phase, good site management and housekeeping practices will be adhered to. The visual impact of the site compound(s) and scaffolding visible during the construction phase are of a temporary nature only and therefore require no remedial action other than as stated above.

For those trees proposed for retention, all necessary mitigation measures will be put in place in order to prevent or reduce impact to its very minimum. Mitigation measures used will need to include the erection of protective fencing at the very start of the works, ground protection installation within root zones where fencing cannot be erected to enclose the entire root zones, monitoring of the site works by the project Arboriculturist throughout the construction process and the use of tree friendly techniques and products for the construction process.

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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