OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (OCEMP)

FOR

PROPOSED DEVELOPMENT

AT

BELGARD SQUARE EAST, BELGARD ROAD, TALLAGHT, DUBLIN 24

June 2022

ON BEHALF OF

RAVENSBROOK LIMITED

Prepared by
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DOCUMENT CONTROL SHEET

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1 INTRODUCTION

Enviroguide Consulting (hereafter referred to as Enviroguide) was retained by Ravensbrook Limited (hereafter referred to as the Applicant) to prepare this Outline (pre-construction) Construction and Environmental Management Plan (CEMP) for the proposed strategic housing development (the Proposed Development) at Belgard Square East, Belgard Road and Blessington Road, Tallaght, Dublin 24 (the Site).

The 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 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 the detailed design information once known and the Construction Management Team (CMT) is appointed.

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

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

- Construction Director;
- Construction Manager;
- Construction Management Team (CMT);
- Environmental Officer;
- Site Supervisors; and
- Other Relevant Personnel.

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 proposed development and ensure that construction activities so far as is practical 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 appointed 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 during the construction phase of the proposed development. This CEMP seeks to promote best environmental practices on-site for the duration of the construction phase.

This CEMP will provide a framework to:

- Comply with all relevant conditions attached to the Grant of Planning Permission by An Bord Pleanála (ABP) (once issued);
- Provide a plan for achieving and implementing construction related measures identified in design drawings and documents including:
    - CS Consulting Group Ltd., 2022. Engineering Services Report Proposed Mixed-Use Development Belgard Square East, Belgard Road and Blessington Road, Dublin 24.;
    - CS Consulting Group Ltd., 2022. Construction Environmental Management Plan Proposed Mixed-Use Development Belgard Square East, Belgard Road and Blessington Road, Dublin 24;
    - CS Consulting Group Ltd., 2022. Construction and Demolition Waste Management Plan Proposed Mixed-Use Development Belgard Square East, Belgard Road and Blessington Road, Dublin 24;
    - CS Consulting Group Ltd., 2022. Traffic and Transport Assessment Proposed Mixed-Use Development Belgard Square East, Belgard Road and Blessington Road, Dublin 24;
    - Enviroguide Consulting, May 2022. Ecological Impact Assessment Report for Proposed Residential Development at Belgard Square East, Belgard Road, Tallaght, Dublin 24 (hereafter referred to as the EcIA Report);
    - Enviroguide Consulting, May 2022. Appropriate Assessment Screening Report for Proposed Residential Development at Belgard Square East, Belgard Road, Tallaght, Dublin 24 (hereafter referred to as the AA Screening Report).
    - Henry J Lyons, November 2020. GA-00-Groundfloor Plan (Drawing No. BR-HJL-00-00-DR-A-1010); and
    - Ash Ecology & Environmental Ltd., 2021 Bat Survey Report, Belgard Square East, Belgard Road and Blessington Road, Tallaght, Dublin 24
- Promote best environmental on-site practices for the duration of the Construction Phase.

1.3 'Live document'

The CEMP that will be prepared by the appointed Contractor will be a 'live' document and as such will be reviewed on a regular basis. Updates to the CEMP may be necessary to address changes in environmental management practices and/or contractors. Updates to the CEMP may be necessary to include specifics of the detailed design and construction methods to ensure compliance with the mitigation measures specified in this CEMP.

The procedures described in this pre-construction Outline CEMP contain all relevant detailed to address and mitigate any identified environmental impacts and will be incorporated in the CEMP to be prepared by the Contractor. These procedures will be audited throughout the project construction phase to ensure compliance with the requirements and details of this Outline CEMP. All documentation required by this CEMP such as plans, programmes and operating procedures will, once received by the Contractor, be appended to this document, and reviewed and updated as part of the overall CEMP for the proposed development.

2 PROPOSED DEVELOPMENT DESCRIPTION

2.1 Site Location and Description

The Proposed Development Site is located within a retail estate on Belgard Road, Tallaght, Co. Dublin.

The Site is approximately 1.26 Hectares (Ha) and is currently a vacant lot that is bound on the east by the Belgard Road, and to the north by the Old Blessington Road, and the southern and western boundaries are adjoined by retails units.

A site location plan is presented in Figure 2-1.

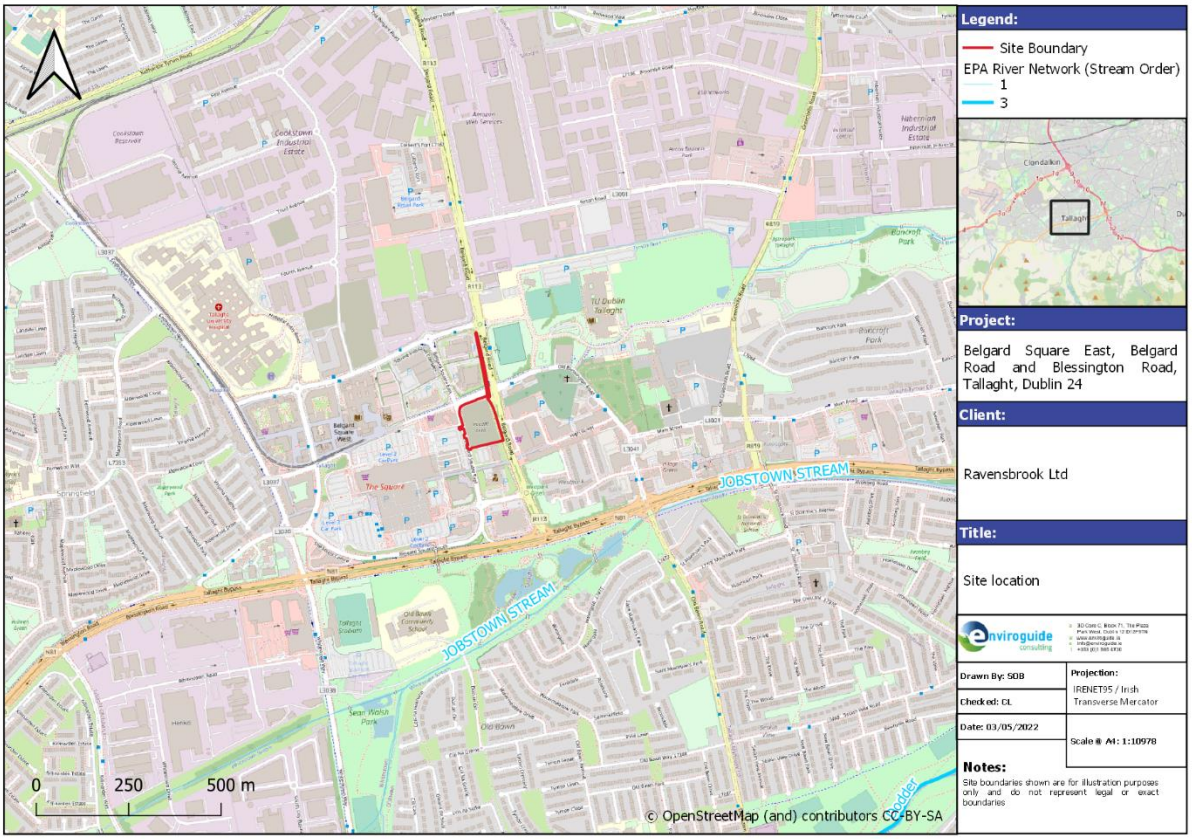

Figure 2-1: Site Location

2.2 Proposed Development

The proposed strategic housing development comprises a mixed-use development including 310 no. “Build-to-Rent” residential apartments and commercial use (c. 2,289 sqm) on a c. 1.26 ha site at Belgard Square East, Belgard Road and Blessington Road, Tallaght, Dublin 24.

The proposed development will consist of the demolition of existing boundary wall and construction of:

1. 2,289 sqm of commercial floor area across 10 no. units including retail, office (Class 2 financial/professional services and Class 3 office), café, licenced restaurant, and a 257sqm crèche at ground and first floor levels;

2. 310 no. build to rent residential apartments including 99 no. one bedroom units and 203 no. 2 bedroom units and 8 no. three bedroom units, within a part 6 to part 12 no. storey development across 3 blocks over partial basement;
3. 2,223 sqm of communal external amenity space provided in the form of a ground floor garden and external terraces at fifth, sixth, seventh and eighth floor levels; 1,026 sqm of public open space provided in the form of a central courtyard and landscaped areas at site perimeters;
4. c. 1,785 sqm of resident support facilities and services and amenities provided at basement, ground and first floor levels;
5. Vehicular access to the basement development will be from a new access point from Belgard Square East;
6. A new tertiary access road will be provided at the south of the site linking Belgard Square East and Belgard Road;
7. Provision of 130 no. car parking spaces (8 no. club car spaces and 6 no. disabled access spaces) at basement level and 5 no. set down spaces comprised of 4 no. serving the creche and 1 no. disabled access space at ground level, layby on Belgard Square East, 6 no. motorcycle spaces and 743 no. bicycle parking spaces;
8. Provision of 4 no. Ø0.3m microwave link dishes to be mounted on 2 no. steel support pole affixed to lift shaft overrun, all enclosed in radio friendly GRP shrouds, together with associated equipment at roof level at Block B; and
9. Provision of 3 no. ESB substations with switch rooms and plant rooms at basement level, hard and soft landscaped areas, bin and bicycle stores, public lighting, attenuation, green roof, plant at roof level, service connections and all ancillary site development works.

3 CONSTRUCTION SCHEDULE AND WORKS MANAGEMENT

3.1 Programme

It is anticipated that the construction programme for the proposed development will be undertaken over a period of 24 months. The construction programme and phasing are detailed in the Outline Construction Management Plan for the Proposed Development (CS Consulting Group Ltd., 2022a).

3.2 Working Hours

Normal site working hours will apply to the construction phase of the project.

No works are envisaged to be carried out on Sundays or Bank Holidays.

In the event of a requirement to work Sundays/Bank Holidays, a written submission seeking authorisation will be made to South Dublin County Council (hereafter referred to as SDCC).

Works will take account of any restrictions identified in the grant of planning (once issued).

3.3 Site Construction Compound

All construction support related activities including office facilities, welfare facilities such as toilets and canteen will be contained within the site compound. The site compound will be located within the site boundary in a location appropriate to the development phase. Materials handling and storage including waste will be contained within the boundary of the site.

All waste storage areas will be identified by clear legible signage and recorded on a site layout drawing which will be maintained onsite.

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 main construction traffic generating activity will be associated with the export of demolition waste materials from the demolition of existing buildings and surplus soil and stone arising from ground works.

There will be no deliveries to the site or removal of materials outside of normal site hours.

In advance of construction works commencing onsite, the appointed Contractor will prepare a Construction Traffic Management Plan (CTMP) in consultation with SDCC and in accordance with the requirements of the Construction Management Plan. The plan will detail all information regarding the traffic management required to complete the project works, inclusive of:

- Traffic management plans;
- Erection, supervision and removal details;
- Implementation phases of the project; and
- Risk assessment for the works.

All traffic management measures will be implemented, maintained and removed by competent personnel holding CSCS Signing, Lighting and Guarding certification.

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

It is not envisaged that road closures will be required during the construction phase however, if required, applications to SDCC for permits and approval for road restrictions will be made. Where required, the CTMP will be updated to identify the impact / procedures on local roads and construction work on / across or along public roads.

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

A site compound will be established prior to the commencement of construction work onsite. The specific details of the site management including establishing the compound are provided in the Outline Construction Management Plan for the Proposed Development (CS Consulting Group Ltd., 2022a).

Prevention of unauthorised access to the site is a very high priority and will be vigorously managed throughout the construction period. The Proposed Development lands have existing boundaries that prevent access and egress to the site. However, upon appointment, the Contractor will ensure that the site entrances and boundaries are appropriately secured with lockable gates and supplemental hoarding/fencing which will be erected as required to ensure the security of the site. Regular inspections of the gates/fencing/hoarding will be undertaken to ensure the integrity of the site security and safety measures.

Site access for all personnel and visitors will be controlled and all visitors will report to the site offices prior to entering the construction area.

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.

3.6 Site Tidiness & Housekeeping

Further to measures described in the previous sections, a high standard of housekeeping will be maintained in all areas of site for the duration of the construction phase of the proposed development. All contractors will be required to operate onsite using good housekeeping practices. Work areas will be left in a clean state by construction personnel. The site induction course will communicate the requirement for site housekeeping and tidiness.

Further to 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;
- The site induction course will communicate the requirement for site housekeeping and tidiness;
- Contractors will ensure that road edges and footpaths are swept on a regular basis;
- Contractors will ensure that work areas will be left in a clean state;

- All Contractors will be responsible for the clearance of their plant, equipment, and any temporary buildings upon completion of construction; and
- Most importantly, the site will be left in a safe condition.

3.7 Communication & Consultation

The Main Contractor will prepare a Project Communications Management Plan in accordance with the requirements of the Construction Management Plan (CMP) and the Project Communications Officer (refer to Section 4.1.6) will undertake any required third-party communication and liaise directly with landowners/local authorities/members of the public, etc. as required by the project.

3.7.1 Advance Works Notice

The Communications Management Plan will specify any requirements in relation to 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.

3.7.2 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 Construction Manager / Construction Management Team (CMT) (refer to Section 4.1).

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 rumble, clatters, intermittent, 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 Construction Manager / Construction Management Team (CMT) (refer to Section 4.1).

All enquiries and complaints received will be investigated by the Construction Manager / Construction Management Team (CMT) (refer to Section 4.1). 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.

3.8 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 Traffic Management Procedures in the CTMP and CMP which will be developed in advance on works commencing onsite. The Main Contractor will ensure that measures are in place to prevent any nuisance and debris on public roads adjoining the site associated with the construction works. As a minimum, the Main Contractor will ensure, where appropriate:

- A sufficient number of wheel wash facilities or alternative suitable measures are provided at each egress point from the site for site vehicles (e.g., hauliers removing surplus soil during bulk excavations). All site vehicles will be required to pass through the wheel wash where required;
- Road sweepers (vacuum type) will be available for use on used on public roads where required for the duration of the construction works;
- Maintenance of road gullies/drains will undertaken by the Contractor where required for the during of the construction works; and
- Any specific recommendations regarding construction traffic management required by SDCC and/or identified in the grant of planning (once issued) will be strictly adhered to.

4 CONSTRUCTION ENVIRONMENTAL MANAGEMENT TEAM

4.1 Project Roles and Responsibilities

The roles and responsibilities of personnel and the lines of communication specific to Environmental Management are outlined in the following sections.

The Main Contractor will have overall responsibility for the implementation of the CEMP and appointing the following roles and responsibilities within the CMT.

The roles and responsibilities are indicative and may be amended over the course of the project.

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 all contractors 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;
- 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) which will be developed in advance of construction works commencing onsite. 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 salvage;
- 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 on an ad-hoc basis where 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:

- Preparation of the CEMP, environmental control plans, supporting procedures;
- Advising the site management on environmental matters as appropriate;
- Carrying out environmental surveys (e.g., monitoring of noise, water, dust, etc.) as required;
- Generating reports as required to show environmental data trends and incidents;
- Advising on the production of written method statements and site environmental rules and on the arrangements to bring these to the attention of the workforce as required; 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 Ecological Clerk of Works (EcCOW)(as required)

Where the need for a Project Ecologist Clerk of Works (EcCOW) is identified in any environmental assessments, the EcCOW will report to the Environmental Officer and is responsible for the ensuring any protection measures for sensitive habitats and species encountered during the construction phase of the project in accordance with the conditions of the planning (once granted). The responsibilities and duties of the Project EcCOW will include the following:

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

4.1.6 Project Communications Officer

The Project Communications Officer will report to the Construction Manager and is 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 and Construction Manager are 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.

4.1.7 Site Supervisors

All Site Supervisors are required to:

- Read, understand, and implement the CEMP;
- 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.

4.1.8 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

Ravensbrook 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 on an ongoing basis, 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 to the construction manager, environmental officer, or site supervisor no matter how small;
- 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;
- Where possible carry out any oil or lubricant changes and maintenance offsite;
- All waste must be sent to the designated site waste management areas for interim storage pending compliant removal from site. All hazardous waste will be segregated from non-hazardous waste.
- 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.) will 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 site supervisor and/or environmental officer for further information.

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

The training of site construction staff is the responsibility of the Construction Manager / 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 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; and
- 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;
- Fuel and Oil Storage; 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

This CEMP will be updated as required throughout the works and submitted should there be any amendments to any of the following:

- Project specific construction requirements;
- Legislative requirements; and
- The company CEMP and/or EMS.

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

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 re-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 is regulated by a number of documents:

- Planning Conditions; and
- 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 once these planning conditions are known.

6.2.2 Environmental Assessments and Reports

The Contractor will ensure the implementation of all environmental and ecological control and mitigation measures identified in the CEMP. The Contractor will also ensure implementation of control measures identified in the following documents which will be included in the live CEMP:

- EIA Screening Report;
- Planning Environmental Report;
- Construction Management Plan;
- Demolition and Construction Waste Management Plan;
- EcIA Report;
- AA Screening Report; and
- Bat Survey and Assessment Reports

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 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; and
- 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.

6.3.3 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 and 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 and maintained within the records appended to the CEMP prepared and implemented by the Contractor.

The specific environmental monitoring requirements relating to the control of potential impacts are detailed in the Operation Controls section (Section 6.4) of the CEMP.

6.3.4 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 OCEMP 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

Appropriate storage facilities will be provided on site. Areas of high risk include:

- Fuel and chemical storage;
- Refuelling Areas;
- Site Compound; and
- Waste storage areas.

If required, fuel, oils and chemicals will be stored on an impervious base within a bund remote from any surface water drains or water courses.

All tank, container and drum storage areas will be rendered impervious to the materials stored therein. Bunds and storage areas will be designed having regard to Enterprise Ireland 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; or
- 25% of the total volume of substance that could be stored within the bunded area.

6.4.2 Control of Emissions to Surface Water and Drainage

As part of the overall construction methodology, the potential for sediment and water pollution risks arising from construction-related surface water runoff will be considered to prevent any fugitive discharge to surface water and drainage.

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 contractor will cooperate fully with SDCC and other stakeholders in this regard.

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;
- Enterprise Ireland BPGCS005, Oil Storage Guidelines;
- 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); and

Inland Fisheries Ireland (2016). Guidelines on Protection of Fisheries during Construction Works in and Adjacent to Waters.

The following standard operational measures will protect surface waters during the Construction Phase of the Proposed Development:

- There will be no direct discharge to surface water courses or drains during the construction works. There are no open surface water courses at the site and the closest watercourse is the Jobstown Stream approximately 0.4km south of the site;
- Existing storm drain inlets which could receive stormwater from construction activities will be protected throughout the construction phase. Inlet protection will be installed before in advance of works commencing onsite;
- Run-off from the working site or any areas of exposed soil must be channelled and intercepted at regular intervals for discharge to silt-traps or lagoons. Surface water run-off will be treated using silt trays/settlement ponds and temporary interceptors and traps will be installed to treat water until such time as permanent drainage infrastructure is constructed;
- Any discharge of treated water to public surface water sewer will be under consent from Irish Water;
- Pumping of concrete will be monitored to ensure that there is no accidental discharge;
- There will be no mixer washings or excess concrete discharged on site. All excess concrete is to be removed from Site and all washout of concrete chutes to be captured in a tank which will be removed offsite for disposal at an authorised waste facility;
- If cast-in-place concrete is required, all work must be carried out in the dry and effectively isolated from any existing onsite drainage networks and groundwater;
- A regular review of weather forecasts of extreme heavy rainfall will be conducted, and a contingency plan will be prepared for before and after such events to minimise any potential nuisances. As the risk of the break-out of silt laden run-off is higher during these weather conditions, no work will be carried out during such periods where possible;
- Any imported materials will be placed in designated locations and double handling will be avoided. Where this is not possible, designated temporary material storage areas will be used as identified by the contractor. Temporary storage areas will be located at least 10m away from any open drains which will be protected for the duration of the works or temporary diversion put in place;
- All containment and treatment facilities will be regularly inspected and maintained;
- Refuelling of plant during the Construction Phase will be carried out in accordance with standard best practice. Refuelling will only be carried out at designated, impermeable refuelling station locations onsite with appropriate containment in place. Each station will be fully equipped for spill response and a specially trained and dedicated Environmental and Emergency Spill Response Team will be appointed before the commencement of works on site;
- Where possible any oil and lubricant changes and maintenance will take place offsite.

- Only emergency breakdown maintenance will be carried out on site. Drip trays and spill kits will be available on site to ensure that any spills from vehicles are contained and removed off site;
- All personnel working on site will be trained in pollution incident control response. Emergency silt control & spillage response procedures contained within the CEMP will ensure that appropriate information will be available on site outlining the spillage response procedures and a contingency plan to contain silt during an incident;
- Any other diesel, fuel or hydraulic oils stored on site will be stored in bunded storage tanks- 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);
- Portaloos and/or containerised toilets and welfare units will be used to provide facilities for site personnel. All associated waste will be removed from site by a licenced waste disposal contractor and records will be maintained;
- In the unlikely event that material becomes contaminated for example by a fuel spill onsite or a burst / leaking hydraulic hose, a documented procedure for contaminated material will be prepared and adopted by the appointed contractor prior to excavation works commencing on site. These documents will detail how contaminated material will be appropriately handled during the excavation phase;
- Any wastewater generated on-site during the Construction Phase will be stored and disposed of appropriately by discharge to foul sewer drainage network located in Belgard Square East under consent from Irish Water or tankering offsite. Under no circumstances will any untreated wastewater generated onsite (e.g., from equipment washing, road sweeping etc.) be released into nearby ditches or watercourses;
- Groundwater may be encountered during the construction works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents;
- If required, disposal of treated groundwater / surface water to foul sewer will require a Discharge Licence issued under Section 16 of the Local Government (Water Pollution) Acts and Regulations and must be obtained from Irish Water; and
- Excavations and stockpiled soils will be constructed/located/sheeted in a manner that ensures water is contained within the site boundary.

6.4.3 Control of Emissions to Ground and Groundwater

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 contractor will cooperate fully with SDCC and other stakeholders in this regard.

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;
- Enterprise Ireland BPGCS005, Oil Storage Guideline;
- 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 following standard operational measures will protect surface waters during the construction phase of the proposed development:

- Shallow groundwater may be encountered during the construction works in particular during basement excavation works. Where water must be pumped from the excavations, water will be managed in accordance with best practice standards (i.e., CIRIA – C750) and regulatory consents;
- If required, disposal of treated groundwater / surface water to foul sewer will require a Discharge Licence issued under Section 16 of the Local Government (Water Pollution) Acts and Regulations and must be obtained from Irish Water;
- Measures set out in Section 6.4.1 Control Fuel and Chemical Storage, will serve to protect soil and groundwater;
- The piling method employed by the contractor will prevent any potential impact to soil and groundwater;
- All ready-mixed concrete will be delivered to the Site by truck. Concrete mixer trucks will not be permitted to wash out on-site with the exception of cleaning the chute into a container which will then be emptied into a tank to be removed from site; and
- The Main Contractor is to ensure that no contaminated water/liquids leave the site as surface water run-off or enter the local storm drainage system. Excavations and potentially contaminated stockpiled soils will be constructed/located/sheeted in a manner that ensures contaminated water generation is prevented.

6.4.3.1 Control of Potentially Contaminated Soil and other Materials

The Main Contractor will undertake all ground works to ensure appropriate measures for dealing with any potentially contaminated soil are implemented where required.

The management of all surplus and waste materials including soil will be undertaken in accordance with the CDWMP, which will be developed in advance of construction works commencing onsite, and appropriate statutory requirements.

Records will be maintained according to the waste records procedures set out in the CDWMP.

A soil excavation plan will be developed by the contractor in advance of excavation works commencing onsite. Where required, the plan will take into account the findings of previous site investigations and materials / waste classification results.

The procedures for stockpile management outlined in this CEMP will be implemented for the management of excavated materials in order to protect ground and surface water and minimise airborne dust.

Where required, the importation of aggregates or topsoil will be subject to control procedures which will include off-site assessment for suitability for use prior to acceptance for use at the

site. Contract and procurement procedures will be in place to ensure that all aggregates and fill material that may be required for the development are sourced from reputable suppliers operating in a sustainable manner and in accordance with industry conformity/compliance standards and statutory obligations.

Any unsuitable material identified prior to unloading / placement on-site will be rejected and removed from the site

6.4.4 Controls to Protect Biodiversity

All works will be undertaken in accordance with any mitigation measures and procedures outlined in this CEMP, the EcIA Report, the AA Screening Report and any other ecological / bat survey reports undertaken at the site to ensure the protection of local ecology or on any designated nature conservation sites associated with the Construction Phase of the Proposed Development

A Project EcCOW (refer to Section 4.1.5) will be engaged on an ad-hoc basis where required in any environmental assessments completed for the proposed development.

The following construction mitigation measures will be implemented in relation to the protection of biodiversity (habitats and sensitive species and other key ecological receptors), where the predicted impact of dust deposition, noise and emissions to ground or surface water and soils can be further reduced by mitigation implementation.
A project ecologist and environmental consultant will be appointed as appropriate throughout the construction phase.

- **Noise and dust;** control measures as detailed in this plan;
- areas for demolition and excavation will be clearly delineated to avoid accidental excavation or demolition;
- **Surface water;** management measures to address construction-related discharges to surface water courses and drainage will be implemented in order to control release of hydrocarbons, polluting chemicals, sediment/silt and contaminated waters where and if required and managed in accordance with the procedures as outlined in Section 6.4.2. Water will not be discharged directly to surface water courses, noting that the closest water course is 400m from the Site. Water will only be discharged to sewer under consent from SDCC or Irish Water;
- **Bats:** Measures to reduce the impacts on Bats related to lighting as recommended in the EcIA(Enviroguide Consulting, 2022) including the Bat Survey Report (Ash Ecology & Environmental Ltd., 2021) will include:
    - Where required, tree-felling, using heavy plant and chainsaw, will be undertaken in the period late August to late October / early November in accordance with the procedures outlined in the Bat Survey Report and in consultation with the project EcIA;
    - Lighting will only be installed where necessary for public safety in known Bat Foraging and Roosting locations. These lights have been designed and selected with specific shutters and filters to minimise any potential for back spills into the sensitive locations while still providing the primary function of safely lighting the pedestrian routes;
    - Lighting controls and dimming will be utilised for post-curfew times; and
    - To minimize bat disturbance, the design avoids the use of bright surfaces and incorporates darker colour lamp heads and poles to reduce reflectance.

- **Nesting Birds:** If required, vegetation clearance will take place outside the breeding bird season (i.e., start of September to end of February, inclusive) under in consultation with the project EcCOW to avoid any potential impact on breeding birds. Where this seasonal restriction cannot be, a check for active nests will be carried out immediately prior to any site clearance and if identified, a derogation licence will be required from the NPWS; and
- **Invasive Species:** No significant species non-native/invasive plant were recorded at the Site during the survey on the 11th of October 2021 (e.g. Japanese Knotweed) however some medium impact species were noted (e.g Butterfly Bush *Buddleja davidi*) (Enviroguide Consulting 2022).
  Invasive species identified at the site prior to demolition and construction works will be managed in accordance with best-practice guidelines and in consultation with the relevant qualified invasive species professional. Where identified, the removal and disposal will be carried out in accordance with appropriate guidelines such as TII (formerly NRA) Guidelines on The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (2010), with consideration given to the prevention of spread of these plants.

6.4.5 Control of Light

The working hours set out in Section 3.2 will ensure that no excess night-time light emissions will be generated at the Proposed Development Site, thereby causing no nuisances to sensitive receptors in the vicinity.

No lighting will be left illuminated overnight except that which is necessary to ensure the security of the Site.

6.4.6 Control of Noise and Vibration

All works will be undertaken in accordance with any mitigation measures and procedures outlined in this CEMP, the EcIA Report, the AA Screening Report and any other ecological / bat survey reports undertaken at the site in order to minimise the potential effect of noise and vibration from the construction phase of the development. The Construction Phase of the Proposed Development will comply with best practice control measures from construction sites for noise and vibration from the following documents:

- BS 5228-1 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites. Noise;
- BS 5228-2 (2009 +A1 2014) Code of Practice for Noise and Vibration Control on Construction and Open Sites. Vibration;
- National Roads Authority, 2004. Guidelines for the Treatment of Noise and Vibration in National Road Schemes;
- BS 6187:2011. Code of Practice for Full and Partial Demolition; and
- BS 7385:1993. Evaluation and Measurement for Vibration in Buildings. Guide to Damage Levels from Groundborne Vibration.

6.4.6.1 Control of Noise

Short-term increases in disturbance levels as a direct result of human activity and through increased generation of noise during the Construction Phase can have a range of impacts

depending upon the sensitivity of the ecological receptor, the nature and duration of the disturbance and its timing.

Noise generated during the Construction Phase of the Proposed Development could cause temporary disturbance to a number of faunal species in the vicinity of the Site of the Proposed Development. To mitigate this disturbance, the following measures will be implemented:

Noise mitigation measures will include where deemed necessary, but not be limited to:

- Establish channels of communication between the Contactor, local authority, and other stakeholders where appropriate;
- The appointed Environmental Officer will engage with neighbours on a weekly basis and keep them appraised of the pending works on site and address any concerns raised;
- The appointed Environmental Officer will be responsible for all matters relating to noise;
- All site staff will be briefed on noise mitigation measure and of best practicable means to be employed to control noise;
- All plant operators to be qualified in their specific piece of plant;
- Limiting the hours during which site activities likely to create high levels of noise are permitted (refer Section 3.2). Should there be a need to work outside of these hours, SDCC will be notified, and permission sought for the works (application must be made to the Council a minimum of FOUR (4No.) days prior to commencing the proposed works);
- Site hoarding will be erected to maximise the reduction in noise levels;
- Minimise opening and shutting of gates through good coordination of deliveries and vehicle movements;
- Identification of dedicated delivery areas. Minimise drop heights for materials or ensure a resilient material underlies;
- The best means practicable, including proper maintenance and servicing of plant, will be employed to minimise the noise produced by on site operations;
- Proper balancing of plant items with rotating parts;
- Assessment of any item of plant to generate noise will be assessed prior to the item being brought onto the site with regard to the following:
    - Consideration of Alternatives;
    - Information to be submitted by the Contractor; and
    - In-situ Noise Measurement.
- Selection of plant with low inherent potential for generating noise. Each item of plant and equipment will comply with the noise limits quoted in the relevant EC Directive 2000/14/EC;
- All plant and equipment will be fitted with the manufacturers' proprietary acoustic enclosures;
- Use of alternative reversing alarm systems on plant machinery. The design of the site layout will ensure that reversing is kept to a minimum;
- No plant used on site will be permitted to cause an ongoing public nuisance due to noise;
- Where noise originates from resonating body panels and cover plates, additional stiffening ribs or materials will be safely applied where appropriate;

- Use all plant and equipment only for the tasks for which it has been designed;
- Siting of plant as far away from sensitive receptors as permitted by site constraints.
- Avoidance of unnecessary revving of engines and switch off plant items when not required;
- If required partial or full enclosures for fixed plant will be employed;
- Where possible, plant and equipment will be powered by mains electricity rather than generators;
- Internal haul routes will be well maintained, and steep gradients will be avoided; and
- Noise monitoring if required during critical activities, at times of potential increased noise generating activities and during critical periods and at sensitive locations (e.g., rock breaking).

All construction works will be required to operate within the Construction Noise Limits outlined in *Table 6-1* as follows:

Table 6-1: Maximum Permissible Noise Levels

Days and Times	Noise Levels (dB re. $2x10^{-5}$ Pa)	
	$L_{Aeq(1hr)}$	L_{Amax}
Monday to Friday 07:00 to 19:00hrs	70	80
*Monday to Friday 19:00 to 22:00hrs	60*	65*
Saturdays 08:00 to 16:30hrs	65	75
*Sundays & Bank Holidays 08:00 to 16:30hrs	60*	65*
*Construction activity at these marked times, other than that required in respect of emergency works, will normally require the explicit permission of the relevant local authority. Source: National Roads Authority, 2004. Guidelines for the Treatment of Noise and Vibration in National Road Schemes.		

The Contractor will be required to take specific noise abatement measures where deemed necessary, and to comply with the recommendations of BS 5228-1:2009+A1:2014.

6.4.6.2 Control of Vibration

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

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

6.4.6.3 Monitoring for Noise and Vibration

Noise monitoring will be undertaken during critical activities as required by the conditions of the grant of planning (once known).

Any required monitoring will be undertaken by a specialist sub-contractor engaged by the Main Contractor to monitor, collate and report on noise vibration results for the duration of critical work activities

6.4.6.4 Liaison with the Public

The Environmental Officer will act as the designated noise liaison officer and liaison will be carried out in accordance with a Communication Management Plan (refer to Section 3.6). Any noise complaints will be managed in accordance with the complaints procedure, reported to the designated sub-contractor as applicable, and followed up in a prompt fashion. In addition, prior to particularly noisy construction activity (e.g., demolition, breaking, etc.) the designated Contractor will inform the nearest noise sensitive locations of the time and expected duration of the noisy works.

6.4.6.5 Noise and Vibration Control Inspections

Noise control inspections will be conducted at regular intervals through the construction phase of the Proposed Development.

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

- Hours of operation being correctly observed;
- Opportunities for noise control ‘at source’;
- Optimum siting of plant items;
- Plant items being left to run unnecessarily;
- Correct use of proprietary noise control measures;
- Materials handling;
- Poor maintenance; and
- Correct use of screening provided and opportunities for provision of additional screening.

6.4.7 Control of Air Quality and Dust

Prior to commencement, the Main Contractor will identify the construction operations which are likely to generate dust and draw up action plans to minimise emissions. Furthermore, the Main Contractor will prepare environmental risk assessments for all dust generating processes, which are envisaged.

In order to sufficiently mitigate any likely air quality impact, a schedule of air control measures has been formulated for the construction phase associated with the Proposed Development set out in the following sections.

6.4.7.1 Dust Control Measures -General

The aim is to ensure good site management by avoiding dust becoming airborne at source.

The siting of construction activities and storage piles will take note of the location of sensitive receptors and prevailing wind directions in order to minimise the potential for significant dust nuisance. In addition, good site management will include the ability to respond to adverse

weather conditions (e.g., wind) by either restricting operations on-site or using effective control measures quickly before the potential for nuisance occurs:

- During working hours, technical staff will be on site and available to implement dust control methods as appropriate;
- Complaint registers will be maintained on site detailing all telephone calls and letters of complaint received in connection with construction activities, together with details of any remedial actions carried out;
- The Contractor will comply with the dust control conditions at all times. Regular Toolbox Talks / briefings will be given to construction staff, subcontractors and operatives to raise awareness of the need to minimise dust. The implementation of dust suppression will be monitored, reviewed and any actions required addressed on an ongoing basis; and
- At all times, the procedures put in place will be strictly monitored and assessed.

The dust minimisation measures will be reviewed at regular intervals during the construction phase to ensure the effectiveness of the procedures in place and to maintain the goal of minimisation of dust through the use of best practise and procedures. In the event of dust nuisance occurring outside the site boundary, site activities will be reviewed, and satisfactory procedures implemented to rectify the problem. Specific dust control measures to be employed are highlighted below.

6.4.7.2 Dust Control -Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site. In situations where the source of dust is within 25m of sensitive receptors screens (permeable or semi-permeable) will be erected;
- Fully enclose specific operations where there is a high potential for dust production and the site is active for an extensive period;
- Avoid site runoff of water or mud;
- Keep site fencing, barriers and scaffolding clean using wet methods;
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below;
- Cover, seed or fence stockpiles to prevent wind whipping;
- Footpaths immediately around the site will be cleaned by hand regularly, with damping as necessary; and
- Vehicle waiting areas or hard standings will be regularly inspected and kept clean.

6.4.7.3 Dust Control – Site Roads and Track Out

Site roads (particularly unpaved) 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.

- A speed restriction of 20km/hr will be applied as an effective control measure for dust for on-site vehicles;

- 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;
- Bowsers will be available during periods of dry weather throughout the construction period. Research has found that the effect of watering is to reduce dust emissions by 50%. The bowser will be used during dry periods to ensure that unpaved areas are kept moist. The required application frequency will vary according to soil type, weather conditions and vehicular use; and any hard surface roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads will be restricted to essential site traffic only;
- Avoid dry sweeping of large areas;
- Vehicles entering and leaving sites will be covered to prevent escape of materials during transport;
- On-site haul routes will be inspected for integrity and instigate necessary repairs to the surface as soon as reasonably practicable;
- All inspections of haul routes will be inspected 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. Access roads will be cleaned at least 0.5km on either side of the approach roads to the access points;
- Unsurfaced roads will be restricted to essential traffic only;
- Where required, a wheel washing system will be implemented (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable);
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits;
- Access and exit of vehicles will be restricted to certain access/exit points and where possible will be located at least 10 m from receptors; and
- Gravel will be used at site exit points to remove caked-on dirt from tyre tracks.

6.4.7.4 Dust Control – Public Roads

Spillage and blow-off of debris, aggregates and fine material onto public roads will be reduced to a minimum by employing the following measures:

- Vehicles transporting material with potential for dust emissions to an off-site location will be enclosed or covered with a tarpaulin at all times to restrict the escape of dust;
- Public roads outside the site will be regularly inspected for cleanliness, as a minimum on a daily basis, and cleaned as necessary. A road sweeper will be deployed to ensure that public roads are kept free of debris. The frequency of cleaning will be determined by the site agent and is weather and activity dependent ; and
- Where required, the wheels of all Lorries will be washed / 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.

6.4.7.5 Dust Control -Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles;

- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable;
- Impose and signpost a maximum-speed-limit of 20km/hr on haul roads and work areas;
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials; and
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking etc).

6.4.7.6 Dust Control -Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g., suitable local exhaust ventilation systems;
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate;and
- Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

6.4.7.7 Dust Control -Waste Management

- Bonfires and burning of waste materials are prohibited.

6.4.7.8 Dust Control -Measures Specific to Earthworks / Groundworks

Land clearing / earth-moving during periods of high winds and dry weather conditions can be a significant source of dust.

- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will be used to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust;
- Where necessary, re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Use Hessian, mulches or tackifiers 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; and
- The number of handling operations for material will be kept to a minimum in order to ensure that dusty material is not moved or handled unnecessarily.

6.4.7.9 Dust Control – Stockpiles

Stockpiling of excavated soils and imported materials (e.g., quarry stone, sand) will be kept to a minimum and avoided where possible. However, if stockpiling of materials is required on site during the development, the location and moisture content of stockpiles are important factors which determine their potential for dust emissions. The following dust control measures will be employed as best practice where stockpiling of materials is required:

- Overburden material will be protected from exposure to wind by storing the material in sheltered regions of the site and away from sensitive areas;
- The height of stockpiles will be kept to a minimum and slopes will be gentle to avoid windblown soil dust; and
- Where materials are required to be stockpiled for longer periods of time during the development, regular watering will take place to ensure the moisture content is high enough to increase the stability of the soil and thus suppress dust. The regular watering of stockpiles has been found to have an 80% control efficiency.

6.4.7.10 Dust Control -Measures Specific to Construction

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

6.4.7.11 Dust Control -Site Management

- Regular inspections of the site and boundary will be carried out to monitor dust, records and notes on these inspections will be logged and records maintained on site in the CEMP;
- Records will be kept of 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 requested;
- 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; and
- Regular liaison meetings will be held with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.

6.4.7.12 Dust Monitoring

Daily on-site and off-site inspections will be carried out, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This will include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.

The appointed Contractor will monitor dust levels in the vicinity of the site in accordance with planning conditions (once known) and the requirements of the CMP which will be developed in advance of construction works commencing onsite.

Where required dust monitoring will be carried out at the site during critical activities. If deemed necessary, dust monitoring will be conducted using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2m above ground level. The TA Luft limit value is 350 mg/(m2*day) during the monitoring period between 28-32 days. Records will be kept of such monitoring for review by the Planning Authority (if required).

6.4.7.13 Dust Management Summary

The proactive control of fugitive dust it is necessary to ensure that the prevention of significant emissions, rather than an inefficient attempt to control them once they have been released, will contribute towards the achievement of no dust nuisance occurring during the construction phase. The key features with respect to control of dust emissions and nuisance dust will be:

- The implementation of a DMP which sets out a number of practical measures to control fugitive dust;
- The specification of a site policy on dust and the identification of the site management responsibilities for dust issues;
- The development of a documented system for managing site practices with regard to dust control;
- The development of a means by which the performance of the DMP can be monitored and assessed; and
- The specification of the measures to be taken to control dust emissions before it occurs and effective measures to deal with any complaints received.

6.4.8 Control of Waste and Waste Management

Waste management during the construction phase will be undertaken in accordance with the Construction and Demolition Waste Management Plan (CDWMP) (CS Consulting Group Ltd., 2022b).

Waste including non-hazardous and hazardous waste, will be managed in compliance with the Waste Management Act 2006(as amended) and all subordinate legislation.

- All waste leaving the site will be transported by suitable permitted contractors and taken to suitably licensed or permitted facilities; and
- All waste will be tracked to its destination and a log be drawn up on left on site. The log will include the haulier employed, the respective driver, receiving gate receipts for all waste (both demolition and excavation material) etc.

Measures to minimise waste generation, promote re-use and recycling and recovery of wastes will be implemented throughout the construction phase.

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

- Prevent environmental pollution;

- Segregate hazardous waste from non-hazardous waste and mixing will not be permitted;
- Minimise nuisance generation such as dust; and
- Maximise waste segregation to minimise potential cross contamination of waste streams and facilitate subsequent re-use, recycling, and recovery.

The CDWMP sets out the management procedures for classification of waste (refer to Section 6.1 of the CDWMP (CS Consulting Group Ltd., 2022b)), management, mitigation measures to ensure the effective of waste. The CDWMP sets out the procedures to ensure the effective and compliant management of waste if hazardous soil or historically deposited waste is encountered during construction works (refer to Section 7.2 of the CDWMP (CS Consulting Group Ltd., 2022b)).

6.4.9 Control of Impacts on Archaeology and Heritage

There are no immediate archaeological or heritage concerns on the Proposed Development Site. Should any concerns arise during excavation in relation to the discovery of potential archaeological or cultural items or areas, a project archaeologist will be engaged to assess the excavation and determine if works should be suspended pending archaeological investigations.

7 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 6.5 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.

7.1 Emergency Response

The control measures identified in the CEMP if correctly implemented will reduce the likelihood of the occurrence of an environmental incident or emergency. The emergency response procedure will ensure that all countermeasures proceed in a controlled manner so that greater damages are avoided and the possible effects upon persons, the environment and property are avoided or limited. These procedures are as follows and will be developed by the Main Contractor:

- Emergency preparedness and response procedure;
- Incident investigation procedure;
- Nonconformity, Corrective Action and Preventative Action;
- Spillage Containment Procedure; and
- Pollution Prevention Programme

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

Once the 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.

8 ENVIRONMENTAL REGULATORY REQUIREMENTS

This site environmental Register of Legislation will record regulatory and legal requirements and summarise applicable environmental legislation, (as well as other requirements) that the project must adhere to. The register will also include relevant guidelines and standards relevant to construction management and environmental protection.

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 will be 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.

9 REFERENCES

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Enviroguide Consulting, 2022. Ecological Impact Assessment Report for Proposed Residential Development at Belgard Square East, Belgard Road, Tallaght, Dublin 24.

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