
Appendix J – Construction Environment Management Plan (Ross Swift Ecology Ltd)

ROSS SWIFT ECOLOGY LTD.

ECOLOGICAL AND ENVIRONMENTAL CONSULTANCY

Nore River Facilities Kilkenny

**CONSTRUCTION ENVIRONMENTAL
MANAGEMENT PLAN**

DOCUMENT CONTROL SHEET

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1.0 INTRODUCTION

Ross Swift Ecology (RSE) Ltd. was commissioned to prepare a Construction Environmental Management Plan for the proposed development within the grounds of County Hall, Johns Street Lower, Collegepark, Kilkenny, Co. Kilkenny.

Description of Development

The proposed development of consists of the construction of a riverside facilities centre comprising of the demolition of an existing single-storey maintenance store and removal of selected on-site vegetation to facilitate the works. The construction of a single-storey facilities block with a flat, intensive green roof build-up, containing toilets, universally accessible bathroom, changing places facility, showering / changing cubicles, cleaner's store, outdoor showers, an external plant area, storage lockers, wash trough, and a drying room. The construction of a single storey adjoining community block with an asymmetrical pitched roof containing a community room, associated kitchenette, and a plant room / central information point. An adjoining external covered terrace area with a flat intensive green roof build-up. A single-storey storage block with an asymmetrical pitched roof containing equipment storage, a dragon-boat / rowing boat storage, and a maintenance store. A single-storey adjoining block with a mono-pitched roof containing a boat / general storage area. A hard landscaped pedestrian central space with raised central planter / seating, planted areas, boat wash-down area and associated surface water UV filtration system. A shared surface including a central set-down / vehicular turning area for boat loading / unloading and pedestrian use generally. An access route to river over berm comprising a sloped access path with associated retaining wall, steps, landings, balustrading, and associated handrails. A raised walkway from top of berm to pontoon with associated balustrading / handrails. A part fixed / part floating access pontoon within the river. Site services connections and drainage works including connection to existing public foul and stormwater system. A universally accessible parking bay and covered bicycle parking area. Public lighting to all pedestrian / vehicular / parking areas and all necessary landscaping, site boundary and site development works.

The proposed development will take approximately 18 months to complete. The pontoon will take approximately 15 weeks to complete and will be moored off driven steel piles. The piles will be driven from a rig on a floating barge. The piles will be driven from a rig on a floating barge. The underside of the bank seat will be above the existing water level, with bank seat of precast concrete blocks anchored to the ground with screw anchors / driven piles. This will be done as the same time as the pontoon supports. All works will be undertaken in accordance with *The Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters* (IFI, 2016).

1.1 PURPOSE OF THE CEMP

The purpose of this CEMP is to communicate key environmental obligations that apply to all site personnel, sub-contractors, and visitors to the site, while carrying out construction activities as part of the proposed development. The CEMP defines the approach to



environmental management at the proposed development site, outlining the work practices, construction procedures and responsibilities to be undertaken during the construction phase. Compliance with the CEMP, the procedures, work practices and controls must be mandatory and must be adhered to by all personnel and sub-contractors employed during the construction phase. The CEMP outlines, where necessary, the control measures that are required to avoid, minimise, or mitigate potential effects on the environment and surrounding area. This document has been prepared based upon the information provided during the planning stage, supplied by the applicants and their representatives, with respect to the proposed development.

1.2 CEMP FORMAT

The CEMP is a live document, which will be updated throughout the project lifecycle. This document will provide a framework for environmental management and will clearly identify the management processes that will be implemented onsite, whilst also seeking to ensure compliance with relevant environmental legislation, local authority planning conditions and government policy objectives. This document provides a detailed overview of crucial environmental management considerations for the project at this stage, while also allowing for further refinement as the project progresses through the construction stages. This CEMP will also provide a mechanism for monitoring and auditing environmental management performance and compliance for the duration of the project. The appointed Contractor will develop this CEMP further as and when new relevant environmental issues or considerations are identified. The CEMP is a “live” document and must be reviewed and updated as necessary throughout the construction phase.

1.3 COMMUNICATION

Upon planning approval, the applicants must appoint a construction works contractor to the proposed development. This CEMP must be communicated to all site personnel during site inductions and briefings. All site personnel must be responsible for undertaking their work in an environmentally sustainable manner and must be encouraged to provide feedback and comments on environmental performance at the site and suggestions for improvement. The construction works contractor must appoint a Project Manager to the proposed development. Any environmental issues, accidents or incidents must be reported to the Project Manager as soon as possible, who in turn must inform the applicants.

2.0 PROJECT DETAILS

2.1 LOCATION

The proposed development is located within the grounds of County Hall, Johns Street Lower, Collegepark, Kilkenny, Co. Kilkenny. See **Figure 2.1** below. Part of the site is located within the River Nore which is designated as part of the River Barrow and River Nore SAC and River Nore SPA. The River Nore is located along the south boundary of the site and is the location of the proposed pontoon. The site can be accessed from Maudlin Street via the internal road of County Hall. Maudlin operates a one-way system. County Hall entrance is approximately



235m from Johns Street Upper and 280m to the Dublin Road and a further 870m this road connects to Kilkenny Ring Road.

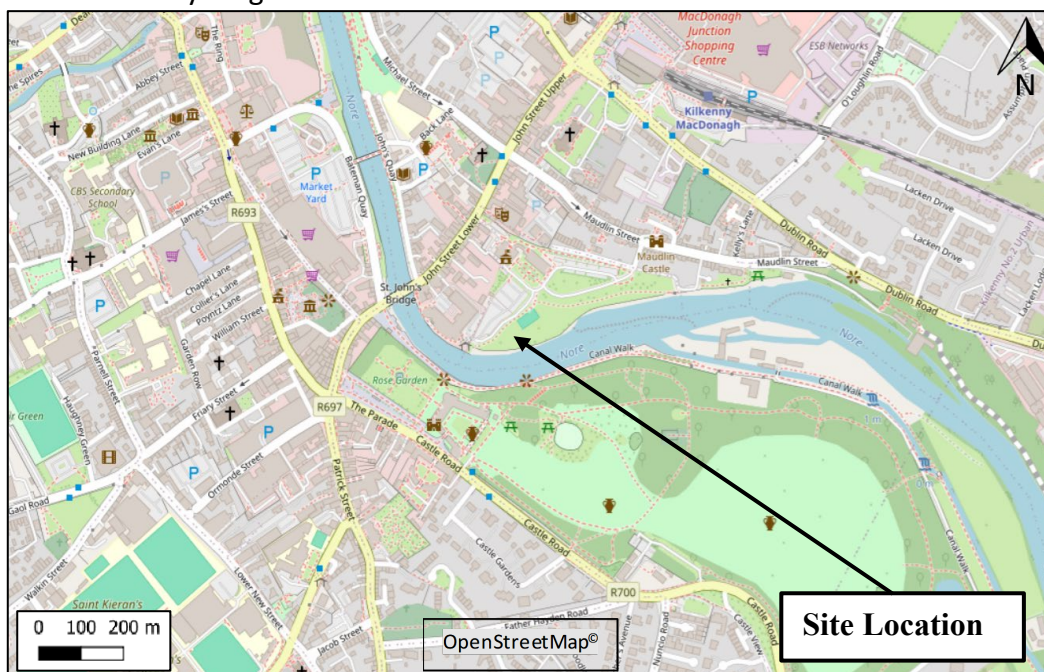


Figure 2.1: Location of Development Site at County Hall, Collegepark, Kilkenny, Co. Kilkenny.

2.2 CONTEXT

The proposed development of the riverside facilities centre, pontoon, services, landscaping and all associated works. As good environmental practice, this CEMP has been prepared, to ensure construction works must be undertaken in an environmentally sensitive manner in particular works within the River Nore.

The CEMP is designed to be implemented across all areas of work under the contractor's and any subcontractor's work. The main objectives of the CEMP are as follows:

- Provide a reference document for the management of environmental issues during the construction stage of the proposed residential development.
- Describe the proposed works and the existing environment. Identify potential receptors that may require the implementation of environmental control measures.
- Describe and explain how the proposed development will interact with the existing infrastructure and ground conditions.
- Briefly outline the proposed construction elements and phasing.
- List and outline the roles and responsibilities of project personnel with respect to the required environmental management on-site.
- Outline how complaints shall be managed and how the project based environmental auditing will be structured.
- Record environmental risks and identify how they will be managed during the construction period.



- Explain how environmental legislation, planning consent conditions, policy, good practice, and those of the environmental regulatory authorities and third parties shall be adhered to.
- Provide a directory of environmental control measures that will be utilised during the construction phase of the project.
- Summarise the protocols for the management and response to environmental incidents during the construction phase.
- Identify potential external bodies that the management team may need to liaise with during the course of the project.

The contractor will, as necessary, develop this CEMP further following appointment and prior to commencing works on site. Implementation of the CEMP will ensure disruption and nuisance are kept to a minimum.

2.3 ENVIRONMENTAL BASELINE

The proposed development site, measuring approximately 0.24ha is located within Kilkenny City in close proximity to the River Nore. The land use of the area is predominately urban with public amenities, residential housing, commercial developments and historical sites.

See accompany **Archaeological Desktop Assessment** by **Cultural Resource Management and Planning Ltd.** Figure 2.2 below shows the location of recorded archaeological sites.



Figure 2.2: Recorded archaeological sites (red dots) within the 200m study area (shaded yellow), subject site defined by red line

2.3.1 Biodiversity



Part of the site assessments was to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. This was done by Dr Ross Donnelly-Swift on the 27th of April 2024. The habitat survey was undertaken in accordance with the standard methodologies outlined in Fossitt’s “A Guide to Habitats in Ireland”, and the Heritage Council guidelines, “Best Practice Guidance for Habitat Survey and Mapping”, (Smith et al., 2011). The identified habitats at the proposed development site and within the vicinity of the site, as per the Fossitt habitat classification scheme, are summarised in Table 2.3 below. See accompanying **Ecological Impact Assessment** (Document Reference: **ECIA_RSE_30052024**) for a Photo Log of the site assessment.

INVASIVE SPECIES

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011, save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows, or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence. Materials containing invasive species are considered “controlled waste” and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011, it is a legal requirement to obtain a license to move “vector materials” listed in the Third Schedule, Part 3. Three invasive plant species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) were recorded during the site assessment:

- Indian Balsam (*Impatiens glandulifera*) - High Impact Invasive – **Main Concern**
- Giant Hogweed (*Heracleum mantegazzianum*) - High Impact Invasive – **Main Concern**
- Spanish Bluebell (*Hyacinthoides hispanica*) - Invasive Species

See Ecological Impact Assessment (Document Reference: **ECIA_RSE_30052024**) for locations and details of these invasive species.

DESIGNATED SITES

Table 2.4: Protected Sites and Distance from Development Site

| SITE NAME | DESIGNATION | SITE CODE | DISTANCE | S-P-R |
|-----------------------------|-------------|-----------|----------------------|-------|
| River Barrow and River Nore | SAC | 002162 | Within Site Boundary | Yes |
| River Nore | SPA | 004233 | Within Site Boundary | Yes |
| Thomastown Quarry | SAC | 002252 | 14.5km SE | No |
| Seas off Wexford | SPA | 004237 | 59km SE | No |
| Hook Head | SAC | 000764 | 60.5m SE | No |

See accompany **Natura Impact Statement** (Document Reference: **NIS_RSE_30052024**) for details on the Qualifying Interests and the assessment of impact from the proposed



development. In addition, this report contains information on Water Quality of the River Nore as per the Water Framework Directive.

2.4 CONSTRUCTION PROJECT DESCRIPTION

The construction of proposed development will be undertaken on behalf of developer, hereafter referred to as “the construction works contractor”.

A designated waste area and designated area of any waste materials located away from any manholes, drainage systems and the flood zone of the River Nore must be established by the construction works contractor within the development site boundary, appropriate measures must be taken to prevent all potential runoff into the River Nore during construction works.

2.4.1 Construction Schedule

Upon approval of the CEMP by competent authority, the construction schedule will be finalised at a detailed design stage. The proposed development would include the following main construction activities:

| |
|---|
| Site Preparation |
| <ul style="list-style-type: none"> ▪ Completion of any required archaeological testing prior to construction. See accompanying Archaeological Report by Cultural Resource Management and Planning Ltd. ▪ Mobilisation of personnel and equipment to site. ▪ Site inductions and relevant training. ▪ Erection of health and safety / construction works signage. ▪ Installation of external lighting as required. ▪ Site clearance, including any vegetation removal. ▪ Asbestos survey of outbuilding (maintenance store) ▪ Demolition of the outbuilding (maintenance store) |
| Remediation Works at Proposed Site and Associated Works |
| <ul style="list-style-type: none"> ▪ Excavations and earth moving activity. ▪ Stockpiling of material for use in site reinstatement activities. ▪ Installation of silt control features where appropriate, such as silt fencing. ▪ Cover of drainage network along access road with silt mats. ▪ Works to facilitate access to the site. ▪ Pouring of concrete. |
| Works at River Nore |
| <ul style="list-style-type: none"> ▪ Erection of health and safety / construction works signage. ▪ Site clearance, including any vegetation removal. ▪ Excavations and earth moving activity. |



- Stockpiling of soils for use in site reinstatement activities.
- Installation of silt control features where appropriate, such as silt fencing.
- Installation of the water quality controls.
- Securing site to ensure no fauna can access the construction area.
- Installation of otter proof fencing.
- Ensure biosecurity measures are in put into place.

Reinstatement and Completion of Construction Works

- Reseeding of riparian zone with suitable vegetation. See **Ecological Impact Assessment** and **Landscape Plan** by Cathal Meara Landscape Architecture.
- Finishing of proposed development site.
- Removal from site of any excess materials remaining following reinstatement works.
- Removal of any control features once stabilisation has taken place.
- Removal of temporary storage of excavated materials has been removed;

2.4.2 Main Stages of Construction

Site Compound

The construction compound will be constructed early in the project in order to provide site offices and accommodation for staff and for the delivery of materials. Temporary foul water storage will be constructed at this time to temporarily store the compound foul water. The compound will also be used as a secure material staging area for raw materials that will be utilised during the construction phase. The compound will be used as a secure storage area for construction materials and excess spoil and also contain temporary site units to provide welfare facilities for site personnel. Facilities will include office space, meeting rooms, canteen area, a drying room and sanitary provisions.

Site Clearance and Excavations

During site clearance works, any excess material at the site will be either stored for re-use in construction activities at the development site or removed to a licenced waste facility. During excavation works, subsoil and topsoil must be temporarily stored for re-use in reinstatement where possible. Any excess materials must be transported offsite by a licenced contractor for disposal at a suitably licenced facility. Alternatively, should excess excavated materials/soils be classified as a by-product under Article 27 of the Waste Directive Regulations, 2011, and if the proposed end use meets the requirements of the Article 27 regulations, excavated soils could be directed for local use. The storage of excavated material on site must be temporary, until the completion of site reinstatement activities.

Hazardous Waste Survey

A hazardous waste survey will be carried out by a competent and licenced contractor. Any hazardous waste such as asbestos will be removed by specialist contractors and disposed at a suitable waste facility. The risk associated with exposure to asbestos relates to the possibility that the fibres within the asbestos containing material (ACM) can become released into the air and are then inhaled. Breathing in air containing asbestos fibres can lead to asbestos-related diseases. Inhaled asbestos fibres contribute to increased risk of lung cancer, asbestosis and mesothelioma. Asbestos cement products, floor tiles and bitumen felt tiles are



considered a low-risk asbestos containing material. This is due to the products being considered low risk of asbestos being released from these materials during normal circumstances. All material containing asbestos should be sent to a licenced waste facility for correct disposal and treatment. Laboratory test results should be submitted with the waste material to enable the waste facility to follow best management and disposal procedures.

Demolition of Building

The contractor will consider; (i) The age of the structure, (ii) Its previous use (iii) Nearby buildings or structures, (IV) The weight of removed material, (V) The type of construction, (VI) Materials must be removed from the site in a timely manner and not stocked piled for long periods of time (VII) The demolition plan should identify the sequence required to prevent accidental collapse of the structure, (VIII) Deliberate controlled collapse with safe zones and restricted access and (IX) Installing protective cladding and lining to limit dust and noise during works.

Provision / Upgrade of Services & Drainage

Following site clearance and excavations, works must commence on the installation / upgrade of underground utilities to the site required for water supply, wastewater, electricity, and telecommunications. Wastewater from the proposed development will be discharged to the existing sewer line after upgrading the connection. The drainage system will be SuDS compliant with attenuation systems on site. There will be UV filtration system and biosecurity wash down area for operational activities. See accompanying **Engineering Reports** and site layout by DRA Consulting Engineers (Document Reference **22175-Civil Eng Report-240418**).

Construction of Development

Following site clearance, excavations and works for the provision of services, works must commence on the construction of the development. The pouring of concrete foundations must be always supervised. The pontoon will be supported by piling; piling works by inserting steel into the riverbed. The deep insertion of these elements ensures a sturdier base for the pontoon and ensures it will not be removed during floods.

Site Reinstatement and Landscaping

Landscaping works as per Cathal Meara Landscape Architecture will take place at the proposed site must include the removal of any hardcore surfaces, removal of any stockpiled material from excavations, the removal of construction plant, equipment and signage, the reseeded/replanting of exposed soil where required and the planting of trees and ornamental flora as per **Dwg No: 2413-LA-P001**.

2.4.3 Construction Working Hours

It is anticipated that construction works must be undertaken during standard construction hours, as follows:

| | | |
|-------|--------|-----------------|
| Start | Finish | Days |
| 8am | 6pm | Monday – Friday |



8am

1pm

Saturday

No works will take place on Sundays or Bank Holidays. It should be noted that there may be times where it is necessary to undertake construction works outside of the times mentioned above, for example concrete pours. In such cases, notification must be given where necessary to the relevant bodies and any potentially effected local residents in good time and prior to specified works commencing.

If works are within shorter daylight time, then all works along the riparian zone and within the River Nore will finish at least 1 hour before sunset and not commence until 1 hour after sunrise

2.4.4 Construction Plant and Equipment

The construction plant and equipment likely to be used during the construction phase of the project are included in the table below. It should be noted that this list is not exhaustive.

Table 2.4: Likely Construction Plant and Equipment Required

| ACTIVITY | POSSIBLE PLANT / EQUIPMENT REQUIRED |
|------------------------------------|---|
| Site Clearance and Excavations | Excavator Dumper trucks Bulldozer Graders Rollers |
| Construction of Building | Tracked Excavator JCB Site Dumper Cement Mixer |
| Construction of Pontoon | Barge Pile Driving Rig |
| Site Reinstatement and Landscaping | Tracked Excavator Site Dumper JCB |

Piles and equipment will be stored on the pontoon for installation in accordance with the maximum permitted deck load detailed in the stability calculations and as required to trim the barge. Piles can be self-loaded by the side grip rig from the storage location once the rig is on the barge. The barge can be self-propelled however a pioneer workboat can be on site to assist with manoeuvring particularly where access is tight to reduce the potential risk of any collisions.

2.4.5 Security Arrangements

The construction works contractor must ensure the proposed development site is secured, to provide the safety of all potentially affected parties, including staff, contractors, traffic, pedestrians, and wildlife. Only authorised personnel must be allowed onto the development



site. The site must be secured by construction fencing, hoarding or another suitable site barrier system to protect against unauthorised entry. The construction works contractor must implement the appropriate security arrangements, including signing in / out procedures, signage and out-of-hours security.

2.4.6 Health and Safety

All activities undertaken at the proposed development site during the construction phase shall be in accordance with the requirements of the Safety, Health, and Welfare at Work Act 2005, as amended, and the Safety, Health and Welfare at Work (Construction) Regulations, 2013. As required by the 2013 regulations, a Health and Safety Plan must be prepared by the construction works contractor, which must address health and safety issues from the design stages through to the completion of construction works. This plan must be updated and reviewed as required as the proposed development progresses. Prior to works commencing onsite, all site personnel, including sub-contractors, must receive induction training that must incorporate health and safety requirements and good practice. Site induction must be mandatory for all employees, sub-contractors, and visitors to the development site. Specific training must be provided, where necessary.

All construction personnel, contractors and visitors to the site must always wear the following appropriate Personnel Protective Equipment as a minimum:

- Safety helmet.
- Hi-visibility clothing (coat or vest).
- Safety boots.
- Eye protection as identified for specific activities.

Regular site safety audits must be undertaken throughout the construction phase to ensure the rules and regulations established for the site are always complied with.

As the proposed development site is predominately artificial surfaces and amenity grassland it is considered unlikely that the site must contain contaminated material. However, in the unlikely event contaminated material is encountered during construction works, appropriate measures wo must be undertaken in compliance with relevant waste legislation. The relevant authorities must be notified where required.

2.4.7 Construction Signage and Labelling

Environmental signage and labelling must be used to inform site personnel of environmental requirements and restrictions with regards construction activities, in addition to promoting environmental good practice at the development site. The construction works contractor must erect the appropriate signage and label all relevant areas and receptacles. Examples must include designated storage areas for potentially polluting materials and waste and site environmental rules. The construction works contractor must erect the appropriate signage and label all relevant areas and receptacles.



Figure 2.3: Examples of Signage and Fencing to Secure Construction Site

2.4.8 Construction Method Statement

Prior to works commencing, the construction works contractor must prepare and provide to the clients a detailed Construction Method Statement, which must address all construction works required for the proposed development. The construction works contractor must maintain a register of all method statements for the project, in addition to a register of all site personnel trained on the method statements.

2.5 Pest Control

The development contractor will ensure the prevention of pests or vermin and facilitate regular disposal of food and material attractive to pests. If infestation occurs the contractor will take appropriate action to eliminate and prevent further occurrence, including the contracting of a pest control contractor and the establishment of a pest baiting programme, where required.



3.0 ENVIRONMENTAL MANAGEMENT

3.1 ENVIRONMENTAL MANAGEMENT SYSTEMS

An Environmental Management System (EMS) must be put in place by the construction works contractor. The EMS must consider any planning conditions imposed on the site for the construction phase and, in accordance with the relevant guidelines, must be appropriate to the scale of the operation. The construction works contractor must implement several environmental management procedures, including but not limited to the following:

- Awareness and Training.
- Environmental Emergency Response.
- Record Keeping, Auditing and Monitoring.
- Environmental Complaints Procedure.
- Protection of Flora and Fauna.
- Protection of Soil, Groundwater and Surface Water Quality.
- Chemical and Hazardous Material Management.
- Noise Management.
- Dust Management.
- Waste Management.

The CEMP must be updated as necessary to ensure that all measures detailed within the environmental management procedures have been addressed within the CEMP.

3.2 KEY ROLES AND RESPONSIBILITIES

The Construction Works Contractor (CWC) must put an experienced construction management team in place. The Project Manager must have overall responsibility for environmental management at the proposed development site. The indicative roles and responsibilities for the relevant site personnel are detailed below.

Project Manager

The Project Manager's responsibilities are as follows:

- Management of the project.
- Implementing the Construction Environmental Management Plan.
- Monitoring the performance of the CEMP and maintaining records to demonstrate compliance with the CEMP and Construction Method Statement.
- Updating the Construction Environmental Management Plan as required.
- Ensuring no deterioration of the environment occurs because of the project.
- Co-ordinating the construction team.
- Implementing the Health and Safety Plan and associated responsibilities.
- Production of construction programmes.
- Maintaining of relevant records and registers.



- Ensuring site personnel receive induction and are provided with the relevant information relating to the protection of the environment during works.
- Dealing with any queries or complaints from the public.
- Maintaining a project diary.
- Ensure a Pollution Incident Response Plan.

Resource and Waste Manager

The Resource and Waste Manager must report to the Project Manager. Their responsibilities are as follows:

- Appoint specialist resources or environmental specialists as required and confirm that these specialist resources or environmental specialists attend site and report in accordance with the CEMP.
- Prepare, implement, manage, review and revise the CEMP.
- Manage and mitigate potential construction impacts arising from the activities of the Contractor and Subcontractors in accordance with the CEMP. Implementation of the CEMP procedures.
- Ensure that the works are constructed in line with the CEMP and planning conditions.
- Complete any corrective actions identified by the Site Manager and provide status reports as requested by the manager.
- Liaise with the local authorities or statutory bodies as the named point of contact for managing environmental issues for the proposed development.
- Notify the site manager and the Client of any environmental control measures failures.
- Schedule or carryout any routine environmental monitoring, recording and reporting.
- Undertake CEMP audits and report on action items.
- Attend routine meetings to ensure environmental issues are discussed and addressed by the project team.
- Provide support and training to the workforce with regard to understanding environmental aspects, impacts, regulatory requirements, best practice, constraints and methods of working.
- Chair weekly toolbox talks to site staff. The toolbox talks deal with all relevant aspects of the CEMP that are working or need improvement.
- Develop, maintain and audit the CEMP (and supporting documents/plans) to ensure all aspects, impacts and statutory requirements etc. are reflected in the CEMP.
- Manage all requirements of the project Construction Waste Management Plan (CWMP)waste management plan (WMP).

Site Engineer

The Site Engineer must report to the Project Manager. Their responsibilities are as follows:

- Ensuring that all aspects of the project comply with the CEMP.
- Materials procurement.
- Design of Temporary Works.
- Administration.
- Programming and planning.
- Implementing the Health and Safety Plan.
- Maintaining a project diary.



EHS Officer

The EHS Officer must report to the Project Manager. Their responsibilities are as follows:

- Ensuring the Health and Safety Plan is implemented.
- Ensuring the Construction Environmental Management Plan is being implemented and always followed.
- Ensure all contractors are aware of the Pollution Incident Response Plan and the procedures to follow.
- Updating the Construction Environmental Management Plan as required.
- Ensuring all personnel have received safety inductions.
- Investigating any accidents, incidents or near misses.
- Ensuring relevant personnel have received training in environmental issues.
- Undertaking site audits on a regular basis.

All Staff and Sub-contractors

All site personnel and sub-contractors have the following responsibilities:

- Ensuring the requirements of the CEMP are followed.
- Co-operate with the Project Manager and EHS Officer in the implementation and development of the CEMP.
- Co-operate as required with site inspections and audits.
- Report all incidents, accidents and near misses to the Project Manager and/or EHS Officer.

Archaeological Contractor

Pre-construction archaeological surveys will be required under Licence by the Department of Housing Local Government and Heritage prior to construction works commencing. An experienced and competent licence-eligible archaeologist will acquire any licenses/consents as required. All findings and proposed mitigation measures by the component archaeologist must be adhered to by the contractor. These findings must be made available to the competent authority and the construction contractor must engage directly with the competent archaeologist on any proposed mitigation prior to any works taking place.

Mitigation strategies aimed at preventing or minimising the impact of development can include:

- Preservation of archaeological remains in situ;
- Design solutions to avoid or protect archaeological remains, and
- A programme of archaeological investigation and recording and dissemination of the results.



Ecological Clerk of Works

The contractor will appoint a suitably experienced and competent Ecological Clerk of Works (EcoW) to supervise all pre-construction ecological surveying, implementation and overseeing of ecological mitigation measures and ensuring that activities on site are conducted in accordance with the planning permission as they pertain to ecological matters and specifically any works that could have an effect on protected habitats or species. The ECoW must possess training, experience and knowledge appropriate to the role. An NFQ Level 8 qualification or equivalent or other acceptable qualification in ecology or environmental biology; and demonstrable experience in the protection of European sites. In exercising their functions, the ECoW will be required to keep a monitoring file, and this will be made available for inspection or audit by the Client, NPWS or IFI at any time.

3.3 REGULATIONS AND REQUIREMENTS

3.3.1 Legislative Context

The following list of acts and regulations, which is not exhaustive, must be complied with by the construction works contractor throughout the proposed project:

- The Wildlife Act, 1976 and Wildlife (Amendment) Act, 2000.
- European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. No. 477 of 2011) and (Amendment) Regulations, 2015 (S.I. No. 355 of 2015), transposing the Habitats Directive 92/43/EEC (as amended) and Birds Directive 2009/147/EC.
- The Flora (Protection) (S.I. No. 235 of 2022).
- The Fisheries (Consolidation) Act, 1959, as amended.
- Fisheries (Amendment) Act, 1999.
- European Communities (Quality of Salmonid Waters) Regulations, 1988 (S.I. No. 293 of 1988).
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009 (S.I. No. 272 of 2009).
- Water Framework Directive (2000/60/EC).
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and 2016 (S.I. No. 366 of 2016).
- Water Framework Directive (2000/60/EC).
- European Communities Environmental Objectives (Groundwater) Regulations, 2010 (S.I. No. 9 of 2010) and 2016 (S.I. No. 366 of 2016).
- Air Pollution Act, 1987.
- Air Quality Standards Regulations, 2011 (S.I. No. 180 of 2011), transposing the Ambient Air Quality and Cleaner Air for Europe (CAFE) Directive (2008/50/EC).
- The EPA Act (Noise) Regulations 1994 (S.I. No. 179 of 1994).
- European Communities (Construction Plant and Equipment) Permissible Noise Levels Regulations, 1988 (S.I. No. 320 of 1988), as amended.



- European Communities (Noise Emission by Equipment for Use Outdoors) Regulations, 2001 (S.I. No. 632 of 2001).
- Council Directive 1999/31/EC on the Landfilling of Waste and Council Directive 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills.
- Waste Management Act 1996 (No. 10 of 1996) as amended 2001 (No. 36 of 2001), 2003 (No 27 of 2003) and 2011 (No. 20 of 2011).
- European Communities (Waste Directive) Regulations 2011 (S.I. No. 126 of 2011) as amended.
- Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007) as amended.
- Waste Management (Facility Permit and Registration) Regulation 2007 (S.I. No. 821 of 2007) as amended.
- Waste Management (Licensing) Regulations 2000 (S.I. No.185 of 2000) as amended.
- European Union (Packaging) Regulations 2014 (S.I. No. 282 of 2014) as amended.
- Waste Management (Planning) Regulations 1997 (S.I. No. 137 of 1997) as amended.
- Waste Management (Landfill Levy) Regulations 2015 (S.I.No. 189 of 2015)
- European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014).
- Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended.
- Waste Management (Shipments of Waste) Regulations 2007 (S.I. No. 419 of 2007) as amended.
- European Communities (Transfrontier Shipment of Waste) Regulations 1994 (SI 121 of 1994).
- Environmental Protection Act 1992 (S.I. No. 7 of 1992) as amended.
- Litter Pollution Act 1997 (Act No. 12 of 1997) as amended.
- Planning and Development Act 2000 (S.I. No. 30 of 2000).

3.3.2 Relevant Guidelines

The following list guidance documents, which is not exhaustive, must be consulted as relevant by the construction works contractor throughout the proposed project:

- Environmental Good Practice on Site (CIRIA, 2015).
- Control of Water Pollution from Construction Sites; guidance for consultants and contractors (CIRIA, 2001).
- Control of Water Pollution from Construction Sites – Guide to Good Practice (CIRIA, 2002).
- The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (National Roads Authority (NRA), 2010).
- Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes (NRA, 2006a).
- Guidelines for the Treatment of Bats during the Construction of National Road Schemes (NRA, 2006c).



- Bat Mitigation Guidelines for Ireland (Kelleher and Marnell, 2006).
- Bats & Lighting: Guidance Notes for Planners, Engineers, Architects and Developers (Bat Conservation Ireland, 2010).
- Assessment of dust from demolition and construction 2014 (Institute of Air Quality Management, 2014).
- Guidelines for the Treatment of Noise and Vibration in National Road Schemes (NRA, 2004).
- Code of practice for noise and vibration control on construction and open sites (British Standard 5228-1, 2009).
- Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG, 2006).

3.4 ENVIRONMENTAL AWARENESS AND TRAINING

Prior to works commencing onsite, this CEMP and its contents must be communicated to all site personnel, including sub-contractors, as part of induction training. Site induction must be mandatory for all employees, sub-contractors, and visitors to the development site. The site induction must include the following aspects:

- Organisational structure of the construction team.
- Key environmental roles and responsibilities.
- Communications and contacts.
- Sensitive environmental receptors.
- Incident and emergency response.
- General good environmental practices.

Specific training must be provided, where necessary, to nominated personnel to address any incidents or emergencies that could have a potential to cause environmental pollution. This training must be provided to staff via toolbox talks, and may address issues such as the following:

- Water Pollution.
- Spill Control.
- Noise Pollution.
- Dust Pollution.
- Waste Management.

3.5 DOCUMENT REVIEW AND UPDATES

To ensure the CEMP remains “fit for purpose”, it must be reviewed and updated as necessary throughout the construction phase to ensure that it continues to facilitate efficient and



effective delivery of the project environmental commitments for the protection of the environment.

The CEMP must be reviewed to address, for example, the following;

- Any recommendations, comments or observations received by the competent authority following the submission of the CEMP for approval.
- Any requirements or issues highlighted by prescribed bodies such as the NPWS and IFI.
- To ensure it reflects best practice at the time of construction.
- To ensure it incorporates findings from previous inspections and audits undertaken by the construction works contractor.
- To ensure it incorporates findings and/or recommendations arising from the site meetings between the construction works contractor and clients.

The Project Manager and EHS Officer must be responsible for the review of the CEMP and must ensure that any revisions to the CEMP are effectively communicated as appropriate to onsite personnel and sub-contractors.

3.6 ENVIRONMENTAL COMMITMENTS

The clients recognise that construction works have the potential to adversely impact upon the environment and must therefore ensure that the construction works contractor is committed to the effective implementation of the CEMP. Compliance with the CEMP, including all procedures, work practices and controls, must be mandatory by all personnel and sub-contractors employed during the construction phase. The CEMP outlines the necessary control measures that are required to avoid, minimise, or mitigate potential effects on the environment.

The Project Manager, Quality Manager and EHS Officer will be responsible for the implementation of the CEMP throughout construction works. The Project Manager will be responsible for monitoring the performance of the CEMP and maintaining records to demonstrate compliance with the CEMP and will be assisted by the EHS Officer.

3.7 COORDINATION WITH EXTERNAL ENTITIES

In the event of an environmental incident at the site, the construction works contractor must follow the Emergency Management Plan as appropriate. The construction works contractor must liaise with the relevant third parties as appropriate, which may include the following:

- Emergency Services.
- National Parks and Wildlife Service.
- Inland Fisheries Ireland.
- Environmental Protection Agency



4.0 ENVIRONMENTAL IMPACTS

4.1 AIR QUALITY IMPACTS

Generally, the primary potential air quality impact or nuisance associated with construction activities is dust. Excavations and earth moving operations may generate quantities of construction dust, particularly in drier weather conditions. The extent of any construction dust generation depends on the nature of the construction dust (soils, sands, gravels, silts etc.) and the construction activity. The potential for construction dust dispersion depends on the local meteorological conditions such as rainfall, wind speed and wind direction.

The issue of construction dust dispersion may be exaggerated with vehicles transporting sand/gravels/concrete/aggregates to and from the site, having the potential to cause an environmental nuisance to use of the local road. Dust is normally defined as particulate matter in the size range of 1 - 75µm in diameter, with particles less than 1µm being classified as smoke or fumes. Particles greater than 10µm are associated with public perception and nuisance. Dusts are normally present in the atmosphere at varying levels of concentration and can have a wide variety of man-made and natural origins including:

- Products of combustion from e.g., fires, power stations and motor vehicles.
- Mechanical handling of minerals and allied materials.
- Industrial activities.

Dust particles are dispersed by their suspension and entrainment in airflow. Dispersal is affected by the particle size, shape, and density, as well as wind speed and other climatic effects. Smaller dust particles remain airborne for longer, dispersing widely and depositing more slowly over a wider area.

The main potential sources of air borne dust from construction activities are as follows:

- Construction vehicles, construction traffic and haulage routes.
- Excavation works and earth-moving activities.
- Materials (particularly excavated soils) handling, storage, and stockpiling.

Construction dust control is a common part of construction management practices. The effect of construction activities on air quality, in particular construction dust, must not be significant following the implementation of standard working practices and the proposed environmental control measures outlined in Section 5.1.

4.2 SURFACE WATER, GROUNDWATER, AND SOIL IMPACTS

During construction works, the main potential impacts upon surface water quality, groundwater quality and soils would be the release of suspended solids during soil disturbance works and the release of potentially polluting substances, such as hydrocarbons (fuels and oils) and uncured concrete.



Suspended solids could become entrained in surface water run-off and could affect aquatic habitats through deposition. An increase in sediments has the potential to impact upon fish by damaging gravel beds required for spawning, smothering fish eggs and in extreme cases, by interfering with the gills of fish. An increase in suspended solids has the potential to reduce water clarity, which can impact the light penetration of water and may also affect certain behaviours of aquatic fauna such as foraging success. Aquatic flora and fauna could also be impacted upon by an increase in nutrients which are bound to suspended solids. A significant increase in nutrients can result in excessive eutrophication, leading to deoxygenation of waters and subsequent asphyxia of aquatic species.

Another potential source of contamination to surface water quality during construction works would be the potential release of uncured concrete. In the event of uncured concrete entering surface water, the pH would be altered locally, potentially causing an adverse impact upon aquatic flora and fauna and causing an alteration to the waterbody substrate.

As part of the site is at the River Nore the potential for construction works to impact upon surface water quality would not be significant on water quality if guidelines and regulations are strictly adhered to. Mitigation Measures to protect groundwater will be implemented during the construction phase.

A potential source of chemical contamination would be from the release of hydrocarbons from construction plant and equipment. Hydrocarbons can affect water quality, potentially resulting in toxic and / or de-oxygenating conditions for aquatic flora and fauna. Pollution could occur in several ways, such as neglected spillages, the storage handling and transfer of oil and chemicals and refuelling of vehicles.

With regards the stripping of soils and subsoils at the development site, excavated subsoils and soils would be reused in the reinstatement process where possible. Therefore, there would be no significant impact upon soils due to excavation activities. Specialist machinery would be used during construction works to minimise the potential compaction of soils and subsoils. Control measures must be put in place to ensure that no deterioration in watercourses will arise as a result of the construction of the proposed development.

4.3 TERRESTRIAL BIODIVERSITY IMPACTS

Construction activities have the potential to impact upon terrestrial biodiversity through destruction and loss of habitat, disturbance due to noise and dust, the potential introduction of invasive species and light pollution. The construction phase of the development would not result in a direct and permanent loss of any habitat of significance. The main development site is comprised of artificial surfaces and grassland. The works at the pontoon will be temporary with the riparian zone replanted with native species. The River Nore is high in ecological value with works for the pontoon located at this river. The majority of the flora found within the site are not of conservation status or of high ecological value.

Dust emissions may arise during construction activities, during earth-moving works, which may have the potential to impact upon photosynthesis, respiration, and transpiration processes of flora due to the blocking of leaf stomata and have the potential to cause nuisance



to fauna. Given the transient nature of construction works, and the scale of the development, the potential impact to flora and fauna would not be considered significant. Construction work has the potential to disturb fauna due to the generation of construction noise. However, construction noise would not be considered to pose a significant risk to fauna owing to the transient nature of works and given that all vehicles where possible would be equipped with mufflers to suppress noise, as is standard practice. Piling will be done using vibration hammer to limit the impact of noise on the receiving environment. As the site is located beside a built-up area with residences and commercial enterprises nearby, any fauna in the vicinity would be accustomed to elevated noise levels which are typical of urban settings. Where possible, no construction works will be conducted outside of normal working hours, therefore there would be no significant disturbance to nocturnal species.

During construction works, there is potential for invasive species to be introduced to the site through the movement of materials, such as soil and stone, and the arrival of construction plant and equipment from an area with invasive species. Materials containing invasive species such as Japanese Knotweed (*Fallopia japonica*) or Indian Balsam (*Impatiens glandulifera*) are considered “controlled waste” and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), it is a legal requirement to obtain a license to move “vector materials” listed in the Third Schedule, Part 3. Under Regulation 49(2) of the aforementioned regulations, it is an offence to plant, disperse, allow or cause to disperse, spread or otherwise cause to grow in any place any plant which is included in Part 1 of the Third Schedule.

Artificial lighting has the potential to negatively impact upon nocturnal species, particularly bat species, as illumination can impact upon their roosting sites, commuting routes and foraging areas. While some bat species, such as Leisler’s bats (*Nyctalus leisleri*), may take advantage of prey concentrating around light sources, other bat species are sensitive to lighting and will avoid artificially lit up areas. Otter will also be impacted by artificial light. Measures, as outlined in Section 5.3, would therefore be implemented by the construction works contractor to reduce the potential impact of light pollution. The potential impact of construction works upon aquatic flora and fauna due to a potential deterioration in water quality are discussed in Section 4.2 above.

4.4 NOISE IMPACTS

Construction noise, while inherently noisy and disruptive, is temporary in duration. It is anticipated that the construction of the proposed development will take approximately 18 months to complete. The works involving heavy machinery for the purposes of excavation, the preparation of building foundations and passing construction traffic usually cause the most disturbances to nearby residents.

Generally, the type of works involved at this development site will include the following:

- Excavation/Levelling: Excavator, dump truck & dozer.
- Foundations: Excavations, cement mixers & concrete vibrators and piling.
- General Construction: Masonry construction, services, drainage and surfacing etc.



There are currently no published Irish guidance documents relating to permissible noise levels that may be generated during the construction phase of a project. However, the National Road Authority (NRA) has published the document “Good Practice Guidance for the Treatment of Noise during the Planning of National Road Schemes”, 2014. This document provides a useful reference for assessing construction noise of the proposed development. The NRA considers that the noise levels provided in the table below are typically deemed acceptable.

Table 4.1: NRA Acceptable Noise Levels

| DAYS / TIMES | LAEQ (1HR) DB | LPA (MAX)SLOW DB |
|--|---------------|------------------|
| Monday to Friday (07:00 to 19:00hrs) | 70 | 80 |
| Monday to Friday (07:00 to 22:00hrs) | 60 | 65 |
| Saturday (08:00 to 16:30hrs) | 65 | 75 |
| Sundays and Bank Holidays (08:00 to 16:30hrs) | 60 | 65 |

4.5 TRAFFIC IMPACTS

Construction works have the potential to impact upon traffic volumes in the area, which may subsequently impact upon the generation of noise and dust emissions.

Traffic impacts may arise via the following:

- Delivery of construction plant and equipment to the site.
- Delivery of raw materials to the site.
- Vehicle movements from staff, sub-contractors and site visitors travelling to and from the site.
- Vehicle movements associated with waste removal at the site.

4.6 WASTE MANAGEMENT IMPACTS

It is anticipated that the following categories of waste may be generated during the construction of the project:

Table 4.2: Categories of Waste Generated During Construction

| WASTE TYPE | EWG CODE | ORIGIN |
|------------|----------|---|
| Concrete | 17 01 01 | Waste concrete may arise due to surplus concrete from pouring activities. |



| WASTE TYPE | EW C CODE | ORIGIN |
|---|---------------|--|
| Wood | 17 02 01 | Wood waste may arise during construction works, including building and shuttering works, due to damaged / defected wood, off-cuts, and surplus wood. |
| Glass | 17 02 02 | Glass waste may arise due to damaged / defected glass and accidental breakages. |
| Plastic | 17 02 03 | Plastic waste may arise due to damaged / defected products. |
| Metals (including alloys) | 17 04 01 - 07 | Waste metal may arise due to damaged / defected metal, off-cuts, and surplus metal. |
| Soils and Stones | 17 05 04 | Excavated soils and stones waste would arise during site excavations and earth-moving activities. |
| Insulation materials and asbestos containing construction materials | 17 06 | Waste may arise due to damaged / defected insulation panels and off-cuts. |
| Biodegradable waste | 20 02 01 | Green waste would arise during site clearance works, with the removal of existing vegetation at the site. |

Other waste materials which may arise during construction works in small volumes include:

- Waste Oils and Liquid Fuels – EWC 13 02 and EWC 13 07.
- Waste from Electrical and Electronic Equipment – EWC 16 02.
- Cables – EWC 17 04 11.
- Paints – EWC 20 01 28.
- Wood Preservatives – EWC 03 02.
- Batteries – EWC 16 06.

Wastes from EWC fractions EWC 03 02, EWC 13 02, EWC 13 07, EWC 16 02 and EWC 16 06 may be hazardous.

Throughout the construction phase, wastes generated must be managed by the construction works contractor in order of priority in accordance with Section 21A of the Waste Management Act 1996, as amended, as per the waste hierarchy below.



Figure 4.1: The Waste Hierarchy; The most preferred option is to prevent waste, and the least preferred choice is disposal in landfill sites.

4.6.1 WASTE STORAGE

A designated waste storage area must be established within the proposed development footprint at County Hall which must be kept away from any drainage network or potential to impact on the River Nore by the construction works contractor.

Suitable waste receptacles / skips must be provided by the appointed waste contractor(s) during the construction phase, with skips / bins allocated to specific waste streams to avoid contamination. Waste receptacles must be appropriately labelled. Waste receptacles will be located the front open area of the site.

Where waste fuels and oils are generated, they must be stored within a bunded container within the designated waste storage area.

Any hazardous materials must be stored separately from non-hazardous waste and must be stored within bunded containers / upon a bund where appropriate.

The removal of waste from the site must be undertaken on a regular basis, preventing large volumes of waste accumulating onsite.



4.6.2 WASTE CONTRACTORS

The waste contractor(s) appointed for the project must have experience in construction waste management and must be appropriately licenced, holding the relevant waste collection permit and/or waste licences for the types of waste anticipated to be generated during construction works. Wastes from the site must be recycled / recovered or disposed of at suitably licenced waste facilities.

The Contractor must ensure compliance with; **Best practice guidelines for the preparation of resource & waste management plans for construction & demolition projects (2021) EPA. ISBN-978-1-80009-007-1**



All waste removed off site will be recorded on the waste dispatch log.

A copy of all waste permits and licences should be provided to the Resource Manager before works commence and held throughout the construction phase.

The resource manager must ensure that copies of all waste contractors' collection permits and licences must be available for inspection, as discussed in the "Record Keeping" section below.

4.6.3 RECORDS

For each waste movement and for each type of waste, the construction works contractor must obtain a signed waste docket from the waste contractor.

The following information shall be recorded for each load of waste exported off-site:

- Time and date of transfer,
- Waste Type LoW Code and description.
- Tonnage of waste collected.
- Haulage contractor's name, address Waste Collection Permit Number, truck registration and haulage ticket /docket number.
- Disposal contractor / facility name, address, and Waste Permit / Licence number.
- Description of how waste at facility shall be treated i.e., disposal / recovery / export.
- Confirmation of waste acceptance letter received in the case of soil and stones.

5.0 ENVIRONMENTAL CONTROL MEASURES

5.1 DUST MANAGEMENT AND AIR QUALITY CONTROLS

The following dust control measures must be implemented by the construction works contractor for the duration of the construction of the proposed development:

- Guidelines published by the Institute of Air Quality Management (IAQM), "Assessment of dust from demolition and construction 2014" will be followed.
- Material handling systems and site stockpiling of materials must be designed and laid out to minimise exposure to wind.
- Prolonged storage of materials onsite must be avoided.
- When transporting materials to and from the site, vehicles must be fitted with covers where possible to prevent material loss.
- Public roads outside the site must be regularly inspected for cleanliness and cleaned as necessary. A road sweeper will be used if required.



- Re-seeding and planting must be undertaken where required to promote the rapid stabilisation of soils.
- Regular visual inspections must be undertaken around the proposed site boundary to monitor the effectiveness of dust control measures.
- Stripping of topsoil will be carried out in a controlled and carefully managed way and coordinated with the proposed phasing of the development. At any given time, the extent of topsoil strip (and consequent exposure of subsoil) will be limited to the immediate vicinity of active work areas.
- 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 dust management plan will be regularly monitored and assessed; and
- The specification of effective measures to deal with any complaints received.

Should additional dust control measures be required, for instance during particularly dry weather, dust suppression measures will be undertaken, including the following:

- Water misting plant, such as bowsers and sprays will be used as required and where necessary.
- Where practicable, stockpiles of excavated soils and exposed surfaces will be dampened down via misting plant.
- Avoid unnecessary vehicle movements and manoeuvring, and limit speeds on site so as to minimise the generation of airborne dust.
- During dry periods, dust emissions from heavily trafficked locations (on and off site) will be controlled by spraying surfaces with water and wetting agents.
- 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.
- A road sweeper vehicle shall be used to clean soiled public roads in the vicinity of the site.
- A wheel wash unit shall be installed at the site exit to wash down the wheels of all trucks exiting the site.
- The overloading of tipper trucks exiting the site shall not be permitted.
- Aggregates will be transported to and from the site in covered trucks.
- Where the likelihood of windblown fugitive dust emissions is high and during dry weather conditions, dusty site surfaces will be sprayed by a mobile tanker bowser.
- Exhaust emissions from vehicles operating within the construction site, including trucks, excavators, diesel generators or other plant equipment, will be controlled by the contractor by ensuring that emissions from vehicles are minimised by routine servicing of vehicles and plant, rather than just following breakdowns; the positioning of exhausts at a height to ensure adequate local dispersal of emissions, the avoidance of engines running unnecessarily and the use of low emission fuels.
- All plant not in operation shall be turned off and idling engines shall not be permitted for excessive periods.



- Material handling systems and site stockpiling of materials will be designed and laid out to minimise exposure to wind. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.
- Material stockpiles containing fine or dusty elements including topsoil shall be covered with tarpaulins.
- Where drilling or pavement cutting, grinding or similar types of stone finishing operations are taking place, measures to control dust emissions will be used to prevent unnecessary dust emissions by the erection of wind breaks or barriers. All concrete cutting equipment shall be fitted with a water dampening system.

5.2 SURFACE WATER, GROUNDWATER AND SOIL CONTAMINATION CONTROL

- Management and auditing procedures, including toolbox talks to personnel will be put in place to ensure that any works which have the potential to impact on the aquatic environment are being carried out in accordance with required permits, licences, certificates and planning permissions.
- The construction works contractor must adhere to standard construction best practice, and following the Construction Industry Research and Information Association (CIRIA) guidelines *“Control of Water Pollution from Construction Sites; guidance for consultants and contractors”* 2001 and *“Control of Water Pollution from Construction Sites – Guide to Good Practice”*, 2002.
- The 2016 guidelines published by Inland Fisheries Ireland, *“Guidelines on Protection of Fisheries During Construction Works in and adjacent to Waters”* must be followed.
- To minimise any potential impacts on salmonid fish, pontoon works must be undertaken in the July to September period where possible, which would avoid the salmonid spawning season. Should pontoon works be required outside the July – September timeframe, works must only commence upon prior agreement with IFI.
- For works at the River Nore a pump will be used to take water out of the proposed working area surrounded by sandbag berm this pump must be fitted with a filter, to prevent entry of aquatic fauna into the pump and to limit the potential disturbance to the watercourse bed due to sediments.
- Sediment laden water must be directed to a settlement pond (location to be agreed with EcoW). Sediments must either percolate to ground or the water can be pumped into a silt buster.
- Should water be encountered during any excavation works (outside River Nore), water will be pumped to a contained system such as a water tank with a filter or a settlement pond. This settlement tank must have adequate capacity, and water must be filtered before discharging.
- Under no circumstances must sediment water be discharged to the River Nore or drainage network.
- Pumping operations must be supervised at all times and will be done to keep the working area dry.



- Sandbags to be double bagged and of sufficient height to allow for changes in River Nore volume and flow rates.
- A geotextile filter or impermeable layer will be fitted on the retained water side of the barrier to prevent seepage of silt through the barrier into the main river water body.
- Water levels in River Nore to be taken daily and daily monitoring of the weather forecast to ensure there is no risk of flooding during construction works at the pontoon.
- Rainfall radar will be monitored (<https://www.met.ie/>) in advance and if any significant rainfall event will occur then works will not go ahead or will stop.
- If there is a potential flood risk, then all works will stop and removal of any potential contaminants from the River Nore working area.
- Monitoring of water quality of the River Nore for suspended solids must be undertaken throughout the construction phase.
- Silt control features must be inspected on a daily basis and maintained as appropriate.
- Extra precautions such as placing an absorbent boom along the River Nore, that is securely and closely anchored to the banks during works for the pontoon.
- Riparian vegetation to be replanted with appropriate native species (See EclA report) and under supervision of the ECoW.
- Bank protection works should be carried out with suitable material and not liable to erosion/undercutting or to cause sedimentation. The riparian zone must also be taken into account when undertaking these works.
- To enable regrowth and prevent erosion at the banks the use of Bio-degradable Geo-textile matting and prefabricated planting pockets and vegetated plots to be used. Geo-textile matting needs to be firmly secured to the bank to stop slippage and washout during high flows.
- Disturbance or removal of vegetation shall not exceed the minimum necessary to complete operations.
- The use of wet concrete will be restricted within the riparian zone of the River Nore with precast concrete to be prioritised where possible.
- The use of hand tools and hand power tools are to be given priority where possible when doing any instream works at the River Nore.
- Additional otter-proof fencing to be used along boundary of the pontoon location to prevent any otter from accessing the area.
- Prior to any works, an additional pre-construction ecological survey will be undertaken to ensure that protected fauna such as otter are not within the construction site. Should any holt be encountered during the pre-construction surveys, it will be subject to exclusion procedures as outlined in the TII/NRA guidelines (2006).
- Surface water runoff from areas stripped of topsoil will be directed to temporary on-site settlement tanker where measures will be implemented to capture and treat sediment laden runoff prior to discharge of surface water at a controlled rate.



- All pouring of concrete, sealing of joints, application of water-proofing paint or protective systems, curing agents etc shall be completed in dry weather.
- Topsoil stockpiles will be protected for the duration of the works and not located in areas where sediment laden runoff may enter existing surface water drains or flow towards the River Nore.
- Daily visual inspections must be undertaken of the site access road to ensure no silt-laden surface water runoff leaves the site, with the potential to either join with any adjacent surface water drainage systems within the vicinity or travel to along the road network to the road network to River Nore.
- Where spoil is generated, this must only be stored temporarily. A designated spoil area must be established by the construction works contractor within site footprint at the site. Where possible, spoil must be covered or alternatively, graded to avoid ponding or water saturation.
- Should water be encountered during any construction works (outside the main River Nore channel), water must be pumped to a constructed silt control feature, such as a suitable tank or tanker. A filter must be provided at the pump inlet. Water must from the tank/tanker must not be discharged directly to any watercourse, drainage ditch or manhole. Pumping operations must be supervised at all times.
- Manhole covers and stormwater gullies will be protected by silt blanket.
- All activities must be planned outside periods of heavy rainfall, to limit the potential for suspended solids to become entrained within surface water run-off.
- All construction plant machinery and equipment must be maintained in good working order and regularly inspected.
- A designated area for the storage of hydrocarbons must be established by the construction works contractor and inspected on a regular basis.
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, must be readily available onsite.
- The construction works contractor must ensure the relevant site personnel are trained in spillage control.
- In the unlikely event of a suspected deterioration in water quality within the River Nore, due to construction works at the development site, works must immediately cease, an investigation into the cause undertaken and the relevant NPWS and Inland Fisheries Ireland personnel informed.

Additional controls to reduce the potential impact upon soils include the following:

- Specialist machinery (such as tracked machinery) must be used to minimise the potential compaction of soils.
- Excavated materials must be stockpiled onsite, segregated into topsoil and subsoils, and reused in reinstatement activities where possible.



- Any fill and aggregate material required onsite must be sourced from reputable, local quarries.

5.3 BIODIVERSITY PROTECTION PROTOCOL

It is considered that the implementation of the controls and measures outlined in Sections 5.1 – 5.8 will reduce any potential adverse impacts upon the biodiversity in the area. The following control measures are also recommended to ensure that the proposed construction works must not have any significant impact upon biodiversity:

- If works should take place beside any trees that will remain as part of the landscape plan, then a root protection zone will be established to ensure no construction works will disturb the root zone.
- The Tree protection will be done with regard to the **British standard BS 5837:2012 Trees** in relation to design and construction recommendations this standard gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with structures.
- No mature protected parkland trees will be removed however all trees will be protected from construction works, no storing material within the root zone and ensure no damage to bark and branches from machinery.
- The construction works contractor will adhere to the NRA's document "**Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes**", 2006. In particular, the construction works contractor will adhere to the guidelines with regards soakaway, sewage system and drainage ponds area and the determination of the root protection area of the existing trees to be retained within the development site.
- All plant material to be supplied and planted following **B.S 3936 Nursery stock specification**.
- All plant material to be inspected by the Landscape Architect and ECoW prior to planting.
- Linear planting beds to be 450mm good quality topsoil to **BS 3882 British Standard Topsoil** (Certs required, LA to inspect prior to commencement on site).
- Planting pits shall be excavated not more than 2 days prior to planting.
- Retention planting bed: Infilled with Engineered soil Batch mixed with 70% inert material 10mm size, 20% Green waste compost, 10% Sandy silt loam supplied and mixed by Enrich.ie or Equal and approved.
- Tree pit shall be excavated not more than 2 days prior to planting.
- Tree to be planted upright with collar at finished soil level and back filled with previously prepared planting material.



- Imported Topsoil Imported topsoil shall be to **BS 3882: 2007** *Specification for topsoil and requirements for use*.
- All topsoil shall be stacked in heaps, not exceeding 2m high.
- Time scale for implementation: Deciduous trees and shrubs - Late October to late March. Herbaceous plants: September/October and March/April. Container grown plants: At any time if conditions are favourable
- All construction works will be confined as far as possible to the development footprint.
- Where possible, no construction works will be conducted outside of normal working hours, to reduce potential noise disturbance to nocturnal species.
- Should a protected fauna species such as Badger or roosting Bat be found during the construction works, an officer of the NPWS must be notified prior to the resumption of construction works.
- A pre site clearance survey by the Ecological Clerk of Works (ECoW) will be done to ensure there are no Hedgehogs within the site boundary.
- Where possible, any vegetation removal works will be scheduled outside of the 1st of March to the 31st of August period, so as not to disturb nesting bird species.
- If any felling of moderate bat roost potential trees are required this can only undertaken in the period late August to late October/early November.
- Felled trees should be left for 48 hours, to allow for any potential bats to escape.
- No Badger sett or evidence of badger was found during the site assessment. A preconstruction survey of the site for protected species such as Badger must be done prior to any site clearance works by the ECoW.

Construction works have the potential to impact upon bat species and otter due to lighting disturbance on commuting and foraging habitat. Therefore, the following measures must be implemented by the construction works contractor:

- No Construction works in the hours of darkness, when bats are active (April – October), must be kept to a minimum.
- Should lighting be required during construction works, it will be of a low height (without compromising safe working conditions) to ensure minimal light spill. Where possible and where practicable to do so, timers or motion sensors must be used.
- Directional lighting will be used where possible, by use of louvres or shields fitted to the lighting.
- White light emitting diode (LED) will be used where possible, which is considered to be a low impact in comparison to other lighting types.
- Works at the River Nore will be **strictly** confined to daylight hours (not between dusk and dawn) and no artificial lighting of the river can take place.
- No constructions to take place within River Nore for the pontoon until after dawn and finish before dusk.

5.4 INVASIVE SPECIES CONTROL AND BIOSECURITY MEASURES

The following controls for the prevention / treatment of invasive flora species must be implemented throughout the construction phase of the development:



- Regular site inspections must be undertaken to ensure that no growth of invasive species has taken place.
- All relevant construction personnel must be trained in invasive flora species (main species of concern) identification and control measures.
- Material/soil should not be imported to the site if the presence of any invasive species is found, in particular Himalayan/ Indian balsam (*Impatiens glandulifera*) and Giant Hogweed (*Heracleum mantegazzianum*).
- The construction works contractor must ensure that all equipment and plant is inspected for the presence of invasive species and thoroughly washed prior to arriving to, and leaving from, the development site.
- The National Roads Authority's Guidelines on "*The Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads*" will be followed.
- Herbicide application should only be carried out by suitably qualified contractors or operators with strict reference to the product label, local land use, health and safety considerations and any pertinent regulations. All herbicide treatment must comply with the pesticide regulations S.I. No. 155/2012 - European Communities (Sustainable Use of Pesticides) Regulations 2012 or any amended or current regulations at the time of use.
- Regular site inspections must be undertaken to ensure that no growth of invasive species has taken place.
- Only suitably licenced and trained personnel should use herbicides, following guidelines and instructions on correct use.
- Herbicides should not be used in or adjacent to watercourses unless application is targeted in the control of invasive species such as Giant hogweed (*Heracleum mantegazzianum*).
- If an invasive species of flora is found growing at the site (within the riparian zone), then an **Invasive Species Management Plan** must be put in place such as Best Practice Management Guidelines on Indian Balsam (Kelly, Maguire, and Cosgrove, 2008).
- A pre site invasive species assessment of the site will be carried out by the Ecological Clerk of Works.

Measures to take for the control of Indian balsam (*Impatiens glandulifera*)

Himalayan balsam is a tall, erect, globous annual found along river sides, ditches and wet woodlands. It flowers can be dark pink, light pink and white. It was introduced in 1839 from the Himalayas and is an invasive species in Ireland. The species does not spread by vegetative means (fragments of root or stem). However, plants can regrow in the same season if not cut below first and root stock remains intact. The plant produces seeds once it has reached its full height, plants can seed at heights under 15cm in certain conditions. Himalayan Balsam seeds persist in soil for approximately 18 months. Seeds can be spread by various mean including water flow (the seeds float) and through fauna activity. Germination requires a period of cold stratification.



Small, localised infestations can be controlled reasonably easily. The aims of a Himalayan Balsam Management Plan should be include killing the existing plants and eradicating any remaining seed bank. Plants can be killed by hand pulling, cutting the stem below the first node or by applying herbicide (note applying herbicide is not recommended along a watercourse for this species given the less impact mechanical methods have). Monitoring with follow up treatment, when necessary, should be maintained until at least four years has passed with no Himalayan Balsam growth. Complete eradication should be applied systematically along a watercourse as plants upstream will spread seeds downstream.

- Himalayan/Indian balsam (*Impatiens glandulifera*) has a very shallow root system with control by hand an easier option over herbicide use. Pulling by hand must be done prior to flower development as seed dispersal will occur if plant is disturbed.
- Uprooted plants can be left to air dry and decompose on a non-permeable membrane. This method is highly suited to dealing with initial outbreaks of the species and in areas with sensitive native species.
- Re-seeding of bare soil will be undertaken as soon as possible, where required, to promote the rapid stabilisation of soils.
- Appropriate weed management plan should be put in place to help establish any landscaped areas.
- Any vegetation cutting must only occur once control of Himalayan balsam (*Impatiens glandulifera*) has occurred.

Giant hogweed (*Heracleum mantegazzianum*) is tall with thick bristly stems that are often purple-blotched. Flowers from April to June, whereas giant hogweed tends to flower later in June and July. The flowers are white and held in umbels, (flat-topped clusters, like those of carrots or cow parsley), with all the flowers in the umbel facing upwards. The flower heads can be as large as 60cm (2ft) across. It can reach a height of 3.5m or more and has a spread of about 1-2m. Giant hogweed is usually biennial, forming a rosette of jagged, lobed leaves in the first year before sending up a flower spike in the second year and then setting seed. True biennials only live for two years, dying after flowering, but giant hogweed does not always behave as a true biennial and in fact some are perennial, coming up year after year.

Giant hogweed is an IAS regulated under the EU (Birds and Natural Habitats) Regulation, SI 477, which makes it an offence to knowingly disperse it. It is also regarded as a Species of European Concern, EU Regulation (1143/2014). It causes severe phytophotodermatitis on contact and even young plants represent a serious public health hazard. One plant can produce thousands of seeds. The plant's very large leaves mean that it shades out less vigorous native plants in its immediate vicinity, with the resultant loss of dependant insects and other animals. As a consequence of out-competing native riverside plants, banks can be left bare in the winter and susceptible to erosion during spates and floods.

- Spraying of Giant Hogweed with Glyphosate is the most effective treatment option available. The soil beneath an established stand of Giant Hogweed will contain a large



number of seeds that will continue to produce new plants. Herbicides can be used to achieve short-term control of the plant.

- Small infestations of Giant Hogweed can be controlled by digging out the whole plant. This should be done in April or May,
- Re-seeding of bare soil will be undertaken as soon as possible, where required, to promote the rapid stabilisation of soils;
- Never cut or trim flowering plants as this will disperse seeds over wider area.
- A construction exclusion zone must be put in place around the Giant hogweed. It should be cut every 2 weeks in spring. It is not advisable to attempt cutting plants that are taller than 1.5 m.
- This will be determined by the size and area of the Giant hogweed as the rhizomes came spread from the plant.
- Chemical control methods, such as the use of systemic herbicides, will be required for invasive plant species that are encouraged by ground disturbance and those species that have extensive root systems.
- The optimum application timing is before flowering, ensuring that all foliage is well covered. In mixed stands, use a weed wipe when plants are about 1m tall between March and May. If necessary, spraying can continue throughout the summer. With follow up treatments needed.
- If Giant Hogweed is to be buried on site or disposed off-site, then glyphosate formulations can only be used.

Controlling giant hogweed must only be done by competent professionals. Always wear gloves, cover your arms and legs, and ideally wear a face mask when working on or near it. Cut plant debris, contaminated clothing and tools are potentially hazardous too. Wash any skin that comes in contact with the plant immediately.

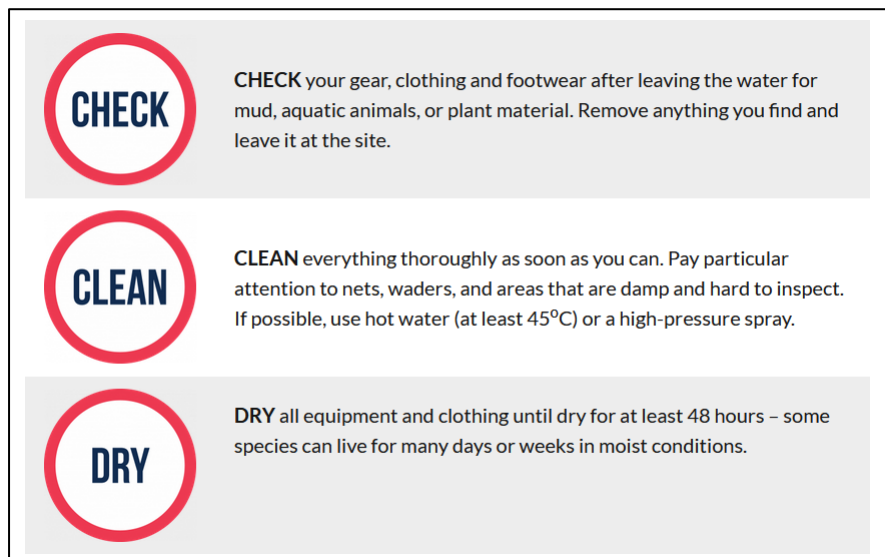
BIOSECURITY MEASURES

These measures must be taken to control the spread of Crayfish Plague and Spread of Aquatic Invasive Species

- Check all equipment and remove of any plant and animal matter before leaving a site and again before entering a new site.
- Disinfect all equipment with an approved disinfectant, this must not be done beside a watercourse.
- Items difficult to soak can be sprayed or wiped down with disinfectant.
- Ensure equipment is allowed to dry before entering a new site and any residual water is drained from boats etc before leaving a site.



- Sandbags must not have been used in different watercourse before their use in the River Nore or they must be disinfected and dried before use in the River Nore.
- Any use of an absorbent boom must be disinfected before use in any watercourse.
- Any rope or absorbent material to be disinfected and dried before use.
- Footwear to be disinfected and dried before use within the River Nore and other watercourses.
- If clothing worn previously at a different watercourse it must be washed at 65°C and/or disinfected.
- Completely dry everything for at least 48 hours before and after used in river.



Check-Clean-Dry (Image Source: NBDC ©)

5.5 NOISE AND VIBRATION CONTROL

The following noise control measures must be implemented by the construction works contractor for the duration of the construction of the proposed development:

- The National Roads Authority's "Guidelines for the Treatment of Noise and Vibration in National Road Schemes", the British Standard 5228: Part 1 "Code of practice for Noise Control on Construction and Open Sites" and the CIRIA 2015 "Environmental Good Practice on Site" will be followed.
- Plant and machinery used on-site must comply with the EC (Construction Plant and Equipment) Permissible Noise Levels Regulations, 1988 (S.I. No. 320 of 1988). All noise producing equipment must comply with S.I. No 632 of 2001 European Communities (Noise Emission by Equipment for Use Outdoors) Regulations 2001.
- All construction activities must take place between 8:00am and 6:00pm, Monday to Friday, and 8:00am to 1:00pm on Saturdays. Any works which, by necessity, are required to be carried out outside of these times must be notified to the relevant bodies and any potentially effected local residents in good time and prior to specified works commencing.



- No plant used on site will be permitted to cause an ongoing public nuisance due to noise.
- Where required, screens or barriers must be installed to shield particularly noisy activities.
- Piling in the River Nore will be done using vibration hammer which will significantly reduce noise and ground vibrations when using this method.
- Deliveries must be organised to arrive during daytime hours (between 8:00am and 6:00pm, Monday to Friday, and 11:00am to 1:00pm on Saturdays).
- Care must be taken when unloading vehicles to minimise noise disturbance. Materials should be lowered, not dropped, insofar as practicable and safe.
- Regular maintenance must be carried out on all construction equipment, machinery and vehicles.
- Construction plant must be operated in accordance with the operator's instructions.
- Engine and machinery covers must be maintained in good working order and must remain closed whenever machinery is in use.
- Where practicable, all mechanical plant must be fitted with effective exhaust silences and pneumatic tools fitted with mufflers or silencers.
- Any compressors required must be silenced or sound reduced models fitted with acoustic enclosures must be utilised.
- Construction plant must be selected, where possible, with low inherent potential for the generation of noise.
- Construction plant must be switched off or throttled back to a minimum when not in use.
- Staff personnel must be instructed to avoid unnecessary revving of machinery.
- Site personnel must notify the Project Manager in the event equipment or plant becomes defective, resulting in high noise emissions. Any defective plant must be kept out of service until the necessary repairs are undertaken.

5.6 IMPORTED FILL

- The source of aggregate, fill material and topsoil imported to site will be carefully selected and vetted in order to ensure that it is of a reputable origin and that it is "clean" (i.e., will not contaminate the environment).
- Project contract and procurement procedures will be developed to ensure that aggregate, fill material and topsoil are acquired from reputable sources with suitable environmental management systems as well as regulatory and legal compliance.
- No large or long-term stockpiles of fill material will be held on the site. At any time, the extent of fill material held on site will be limited to that needed in the immediate vicinity of the active work area.
- Smaller stockpiles of fill, where required, will be suitably protected to ensure no sediment laden runoff enters existing surface water drains. Such stockpiles are to be located in order to avoid double handling.

5.7 TRAFFIC CONTROL



The appointed Construction Works Contractor will develop a Traffic Management Plan (TMP) will outline measures to manage construction traffic and to minimise disruption to the local area. At a minimum the TMP will be required to include the following measures:

- Daily construction programmes will be planned to minimise disruption by staggering deliveries to avoid trucks queuing at entry to the site compound.
- Movement of ancillary, maintenance and other site vehicles will be coordinated so as not to coincide with site deliveries.
- The Contractor will be required to promote travel by sustainable modes of transport.
- Deliveries to the site must be scheduled during the construction hours of 8:00am to 6:00pm Monday to Friday, and 11:00am to 1:00pm on Saturdays and will coordinate deliveries to site so that they do not coincide with peak timings for background traffic including general morning 'rush hour' traffic from 8:00am to 9:00am and local school closures.
- Predetermined haul routes for earthworks plant and vehicles delivering construction materials to site.
- Vehicle wheel wash facilities in the vicinity of any site entrances and road sweeping to maintain the road network in the immediate vicinity of the site.
- Dust suppression measures (e.g., dampening down).
- Deliveries to the site must be via suitably contained vehicles, with sheeting and covers where required.
- The contractor shall provide for the safe passage of pedestrian and vehicular traffic and measures to keep the impact of the works on local roads, and local communities to a minimum.
- Local roads must be inspected and cleaned as necessary to ensure that access roads are kept clear of mud and debris.
- Advise haulage contractors on the appropriate routes to and from the site and to adhere to good traffic management principles.
- Materials must not be delivered to the site until required.

5.8 WASTE MANAGEMENT CONTROL

5.8.1 Waste Storage Area

A designated waste storage area located away from any drainage channels or manholes, must be established by the construction works contractor. Suitable waste receptacles / skips must be provided by the appointed waste contractor(s) during the construction phase, with skips / bins allocated to specific waste streams to avoid contamination. The number and size of waste receptacles / skips will be determined following the appointment of the waste contractor(s). Waste receptacles must be appropriately labelled.

Where waste fuels and oils are generated, they must be stored within a bunded container within the designated waste storage area. Any hazardous materials must be stored separately from non-hazardous waste and must be stored within bunded containers / upon a bund where appropriate. The removal of waste from the site must be undertaken on a regular basis, preventing large volumes of waste accumulating onsite.



5.8.2 Waste Contractors

The collection of wastes from the site must be undertaken by suitably authorised waste hauliers and must only be recycled / recovered or disposed of at suitably licenced waste facilities.

The construction works contractor must appoint a waste contractor(s) for the construction phase. The waste contractor(s) appointed for the project must have experience in construction waste management and must be appropriately licenced, holding the relevant waste collection permit and/or waste licences for the types of waste anticipated to be generated during construction works.

The waste contractor(s) must be appropriately licenced in compliance with the following regulations:

- Waste Management (Collection Permit) Regulations 2007 (S.I. No. 820 of 2007).
- Waste Management (Collection Permit) Amendment Regulations 2008 (S.I. No. 87 of 2008).
- Waste Management (Facility Permit and Registration) Regulations 2007 (S.I. No. 821 of 2007).
- Waste Management (Facility Permit and Regulations) Amendment Regulations 2008 (S.I. No. 86 of 2008).

The construction works contractor must ensure that copies of all waste contractors' collection permits and licences must be available for inspection, as discussed in the "Record Keeping" section below.

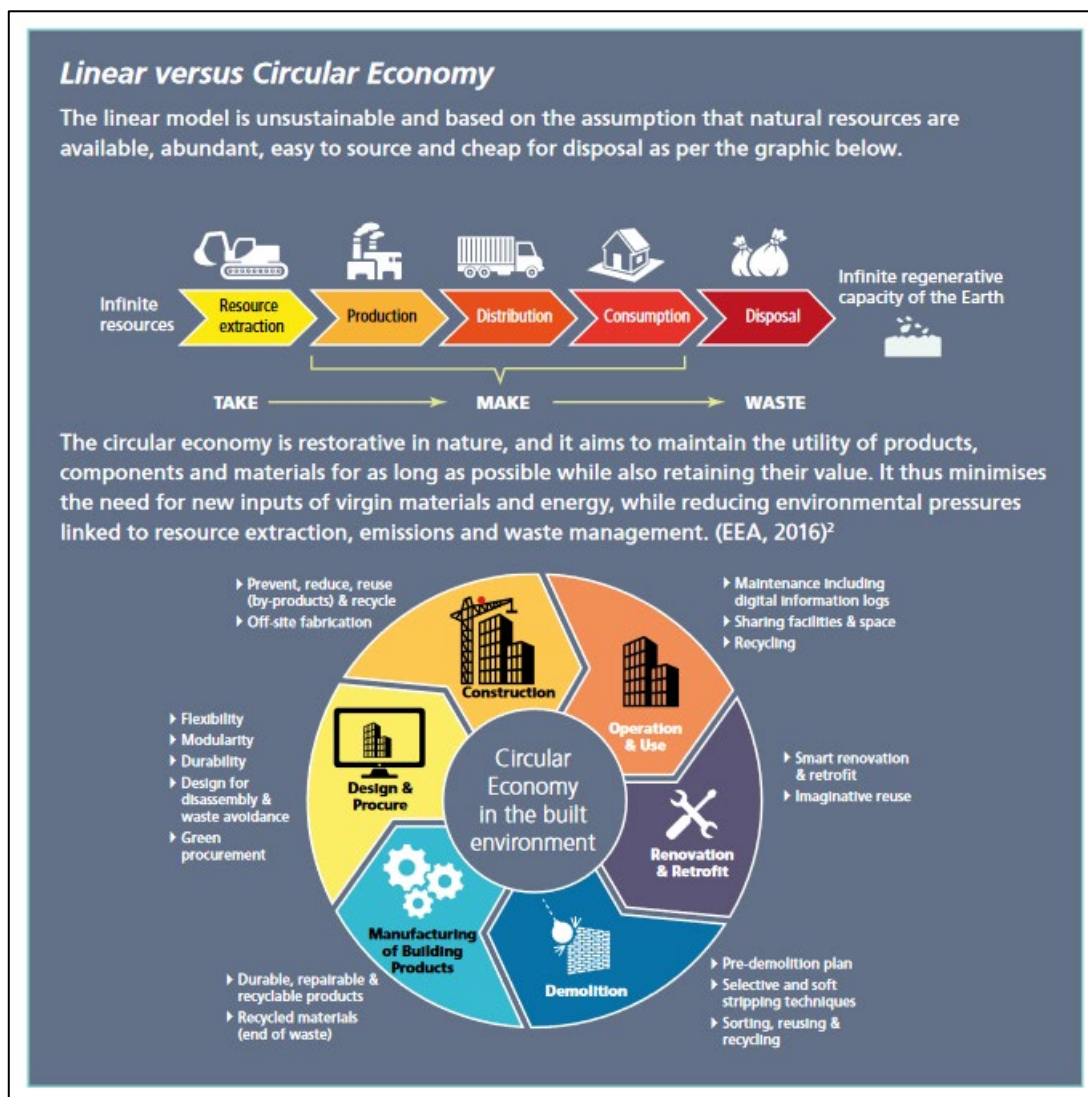
5.8.3 Waste Minimisation

Waste minimisation and prevention must be the responsibility of the construction works contractor, who must ensure the following:

- The efficient ordering and purchasing of materials to reduce surplus materials.
- Materials must be ordered in appropriate sequence to minimise materials stored on site.
- The correct storage of materials to minimise the generation of damaged materials, for example keeping materials packaged until they are ready to be used and storing materials which are vulnerable to water damage via precipitation under cover and raised above the ground.
- The handling of materials with care, to avoid undue damage.
- The return of uncured concrete to the batching plant where possible.
- The re-use of shutters for concrete works.
- Where possible, excavated subsoil and topsoil must be reused for the reinstatement of the development site.



The construction works contractor must reuse materials onsite where possible. In particular, inert wastes (such as concrete (EWC 17 01 01), bricks (EWC 17 01 02) and soils and stones (EWC 17 05 04)) must be used for infilling activities where suitable (and where required).



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5.8.4 Management of Waste Streams

As mentioned in Section 4.6 above, wastes generated must be managed by the construction works contractor in order of priority in accordance with Section 21A of the Waste Management Act 1996, as amended.

Soils and stones arising from excavations must be reused in the reinstatement where possible. This will be investigated by the construction works contractor and will be subject to appropriate testing to ensure the material is suitable for its proposed end use.

Any excess excavated soils must be collected by a licenced waste contractor and either reused for reinstatement activities at other sites if suitable or disposed of as appropriate. Alternatively, the construction works contractor will investigate if excavated soils can be



classified as a by-product under Article 27 of the Waste Directive Regulations, 2011. If a local use for the material is identified, and if the proposed end use meets the requirements of the Article 27 regulations, there will be no requirement to send this material to a waste facility.

In the event of any evidence of soil contamination being found during work on site, the appropriate remediation measures must be employed. Areas of potentially contaminated soil must be isolated and tested for contamination in accordance with the 2002 Landfill Directive (2003/33/EC). Any work of this nature must be carried out in consultation with, and with the approval of, the EPA and the Environmental Department of Kilkenny County Council. Pending the results of laboratory testing, this material must be excavated and exported off-site, by an appropriately Permitted Waste Contractor holding an appropriate Waste Collection permit for this hazardous material and must be sent for appropriate treatment / disposal to an appropriately Permitted / Licenced Waste Facility.

See Appendix A for example of Resource & Waste Inventory Template

5.8.5 Records

For each waste movement and for each type of waste, the construction works contractor must obtain a signed waste docket from the waste contractor, detailing the weight, type of material, destination of material and whether the material is going for recycling, recovery or disposal. The construction works contractor must retain copies of the waste contractors' relevant waste collection permits and waste licences on file throughout the construction phase.

5.9 CHEMICAL AND HAZARDOUS MATERIALS MANAGEMENT

5.8.1 Concrete

The following controls must be implemented throughout the construction phase:

- The use of pre-cast concrete where possible.
- The delivery and pouring of concrete must always be supervised.
- The pouring of concrete must be avoided during periods of expected heavy rainfall.
- Concrete must be poured directly into the shuttered formwork from the Ready-Mix Truck, reducing the risk of spillage.
- The wash-out of Ready-Mix Truck drums must not be permitted onsite, in the environs of the site, or at a location which could result in a discharge to surface water.
- Surplus uncured concrete must be returned to the batching plant where possible.

5.9.2 Hydrocarbons

The following controls for the handling and storage of hydrocarbons must be implemented throughout the construction phase:



- All construction plant machinery and equipment must be maintained in good working order and regularly inspected.
- Any fuels, oils or chemicals must be stored in accordance with the EPA guidance on the storage of materials, in a designated bunded area, with adequate bund provision to contain 110% of the largest drum volume or 25% of the total volume of containers.
- A designated area for the storage of hydrocarbons must be established by the construction works contractor and inspected on a regular basis.
- Deliveries of fuels and oils to the site must be supervised.
- Fuels / oils must be handled and stored with care to avoid spillage or leakage.
- Where appropriate, small construction plant equipment must be placed on drip trays.
- Any waste fuel / oils must be collected in bunded containers at the designated waste area and properly disposed of to an authorised waste contractor.
- Spill kits, adequately stocked with spill clean-up materials such as booms and absorbent pads, must be readily available onsite.
- In the unlikely event of a hydrocarbon spillage, contaminated spill clean-up material must be properly disposed of to an authorised waste contractor.
- The construction works contractor must ensure the relevant site personnel are trained in spillage control.
- Where construction plant shows signs of hydrocarbon leakage, site personnel must cease the operation of the item in plant in question and notify the Project Manager. Any defective plant must be kept out of service until the necessary repairs are undertaken.

5.9.3 Excavated Materials

This section should be read in conjunction with the dust control measures relating to the storage and handling of spoil outlined in Section 5.1. The following controls for the handling and storage of excavated materials must be implemented throughout the construction phase:

- Spoil must only be stored at the proposed development site temporarily. A designated spoil area must be established by the construction works contractor away from nearby drainage systems or manholes.
- Spoil must be covered or alternatively, graded, to avoid ponding and water saturation, in addition to minimising exposure to wind.
- Where required, silt fencing must be placed around spoil areas until such time as the excavated soil has been used in re-instatement works or removed offsite by a licenced waste contractor.
- Spoil must be used in the reinstatement process where possible.
- Reinstatement must be undertaken as soon as possible after excavation and earth-moving works.
- All imported fill material shall be sourced from approved sources and appropriately certified and fit for purpose. All fill material will be confirmed to be inert prior to importation to the site including confirmation of the chemical testing and a visual



assessment. Fill sourced from non-licensed/non-permitted facilities will require prior authorisation under Article 27 legislation.

5.10 EMERGENCY MANAGEMENT PLAN

An Emergency Response Plan must be prepared for the proposed development by the construction works contractor, which must cover all potential risks, including environmental risks, such as fire, explosion, accidents, spillage and leaks. Designated site personnel must be trained as first aiders and fire marshals, with additional site personnel trained in environmental emergencies such as spill response procedures.

6.0 MONITORING AND AUDITING

6.1 REPORTING AND RECORD KEEPING

The Project Manager, in conjunction with the EHS Officer, must ensure that appropriate, detailed records are maintained during the construction phase of the development. Records of all works associated with the proposed development must be completed by the construction works contractor throughout the construction phase. Environmental records must include waste and site inspection records and where relevant, environmental incident and complaints records. Other records may include Safety Data Sheet records and a copy of the Safety File. Where relevant to the associated works, statutory inspection records must be maintained for such activities as excavations and lifting gear.

Where necessary and as requested by the local authority, copies of relevant construction activity records can be made available.

In the event of an environmental incident occurring at the site with the potential to cause environmental pollution, the Project Manager must notify the clients and the relevant third parties, as outlined in Section 3.7, as soon as practicable. Such environmental incidents may include:

- Fire.
- Water pollution event.
- Hydrocarbon or chemical spill.
- Excessive noise.
- Excessive dust.

Any complaints and/or incidents must be reported to the Project Manager. The Project Manager must be responsible for developing and maintaining a register of complaints and a register of incidents, with details on follow-up actions. The Project Manager must notify the clients as soon as practicable of any environmental complaint or incident.



6.2 ENVIRONMENTAL PERFORMANCE MONITORING

6.2.1 Safety Monitoring

The EHS Officer must be present at the development site during working hours, to ensure activities are undertaken in a safe manner.

6.2.2 Environmental Monitoring

The EHS Officer must be present at the development site during working hours, to ensure activities are undertaken in an environmentally sensitive manner. The EHS Officer must undertake regular site inspections and audits, at least weekly, to monitor the environmental performance of the site and address any potential environmental issues such as dust, litter and noise. Site inspections and audits must include the following:

- Assessment of public access roads.
- Assessment of neighbouring properties.
- Chemical and hydrocarbon storage area.
- Waste storage area.
- Spoil area.

The EHS Officer must be responsible for maintaining a register of all environmental monitoring and must communicate the site's environmental performance during site meetings.

6.3 MONITORING COMPLIANCE REPORTS

As noted in Section 6.2 above, site inspections and audits must be undertaken by the EHS Officer on a regular basis, at least weekly. These site inspections and audits must monitor the environmental performance of the site.

Where works are determined to be in breach of any specifications outlined within the CEMP, the EHS Officer shall notify the Project Manager, who must raise a non-compliance report and notify the clients as soon as practicable. Non-compliance reports may also be raised as a result of an incident or potential incident, the receipt of a complaint or as a result of a regulatory inspection or audit.

The non-compliance report must include details on the nature of the non-compliance, the proposed corrective action required, action taken to prevent recurrence and verification that the corrective actions have been undertaken and the non-compliance has been closed out. Any non-compliances must be discussed at the fortnightly meetings between the construction works contractor and clients.



6.4 PROCEDURES TO REVIEW INSPECTIONS AND STEPS TO ADDRESS NON-COMPLIANCE

The Project Manager must be responsible for reviewing inspections, audits and any arising non-compliances. A review schedule must be decided upon between the construction contractors and the clients upon the approval of the CEMP by the competent authority.

The Project Manager must notify the clients as soon as practicable of any non-compliances arising during the construction of the proposed development. The Project Manager must be responsible for notifying the relevant third parties where required of non-compliances at the site and must liaise with third parties as necessary as to the outcome of the non-compliance. All non-compliances must be investigated immediately, and the construction works contractor must aim to close out non-compliances as soon as possible. As discussed in Section 6.3, the statuses of any non-compliances must be discussed at the fortnightly meetings between the construction works contractor and clients.

Where it has been determined that revisions to the CEMP are required to ensure recurrence of a non-compliance does not take place, the Project Manager and EHS Officer must make the necessary changes to the CEMP and must ensure that the revisions are effectively communicated as appropriate to onsite personnel and sub-contractors.

7.0 CONCLUSION

This outline CEMP has been submitted to demonstrate the client's commitment to Construction and Environmental Management of the proposed project. This CEMP has outlined the environmental principles that will be adopted to ensure that potential environmental impacts and health and safety issues associated with the construction processes are effectively managed, minimised and / or eliminated. The plan details the roles and responsibilities of the applicant, the site manager, project manager and site workers and how these controls are to be implemented.

The CEMP will be adopted by the appointed main contractor in due course and shall be expanded and updated to suit and to take account of any particular planning conditions that may be imposed. The CEMP is considered a "live" document and must be reviewed and updated as appropriate upon approval by the competent authority and as necessary as construction works progress.

The CEMP will require regular monitoring throughout the development programme to ensure potential risks are adequately managed throughout the construction works, as is the normal process. We have outlined that the nature of the construction of the proposed buildings and associated site works is very conventional in nature and poses negligible risk to adjoining properties. There are no particularly difficult or extremely challenging aspects to the construction and in constructions terms consider the project to be completed as outlined.

8.0 REFERENCES



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APPENDIX A

| LoW Code | Description | Volume Generated (tonnes) | Prevention (tonnes) (non-waste) | Reused (tonnes) (non-waste) | Recycled (tonnes) (waste) | Recovered (tonnes) (waste) | Disposed (tonnes) (waste) | Unit Cost Rate (€/tonne) | Total Cost (€) |
|-----------|--|---------------------------|---------------------------------|-----------------------------|---------------------------|----------------------------|---------------------------|--------------------------|----------------|
| 17 01 01 | Concrete | | | | | | | | |
| 17 01 02 | Bricks | | | | | | | | |
| 17 01 03 | Tiles and Ceramics | | | | | | | | |
| 17 02 01 | Wood | | | | | | | | |
| 17 02 02 | Glass | | | | | | | | |
| 17 02 03 | Plastic | | | | | | | | |
| 17 03 02 | Bituminous Mixtures | | | | | | | | |
| 17 04 01 | Copper Bronze Brass | | | | | | | | |
| 17 04 02 | Aluminium | | | | | | | | |
| 17 04 03 | Lead | | | | | | | | |
| 17 04 04 | Zinc | | | | | | | | |
| 17 04 05 | Iron & Steel | | | | | | | | |
| 17 04 06 | Tin | | | | | | | | |
| 17 04 07 | Mixed Metals | | | | | | | | |
| 17 04 11 | Cables | | | | | | | | |
| 17 05 04 | Soil & Stones | | | | | | | | |
| 17 06 04 | Insulation Material | | | | | | | | |
| 17 08 02 | Gypsum | | | | | | | | |
| 17 09 04 | Mixed C&D Waste | | | | | | | | |
| 17 01 06* | Mixtures of, or separate fractions of concrete, bricks, tiles and ceramics containing hazardous substances | | | | | | | | |
| 17 02 04* | Glass, plastic and wood containing or contaminated with hazardous substances | | | | | | | | |
| 17 03 01* | Bituminous mixtures containing coal tar | | | | | | | | |
| 17 04 09* | Metal waste contaminated with hazardous substances | | | | | | | | |

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|-----------|---|--|--|--|--|--|--|--|--|
| 17 05 03* | Soil and stones containing hazardous substances | | | | | | | | |
| 17 06 05* | Construction materials containing asbestos | | | | | | | | |
| | Other resources (non-waste materials) (specify as needed) | | | | | | | | |
| | Other wastes (specify as needed) | | | | | | | | |
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