MWP

Construction Environmental Management Plan (CEMP)

Cloon More Regeneration Large Residential Development (LRD), Tralee, Co. Kerry

TULFARRIS CG LTD

August 2023

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23284	6002	A	28/08/2023	ZH	CF	EOC	FINAL

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1. Introduction

Tulafarris CG Ltd. ("the Applicant") is submitting a Planning Application to Kerry County Council (KCC) for permission to construct a Residential Development at Cloon More, Tralee (hereafter referred to as the 'Project').

The project will be on an area of approximately 1.55 (ha) and includes the construction of 145 no. residential units, new vehicular and pedestrian access from the newly developed Cloon More Avenue, pedestrian and cycle access only from Boherbee road, shared open spaces, landscaping, drainage and all associated site development works. This Construction Environmental Management (CEMP) outlines construction practices and environmental management measures which are to be implemented during the construction phase.

This will be done to ensure the Project is constructed in accordance with best practice and with the minimum impact on the surrounding environment.

1.1 Purpose and Objectives

The purpose of a CEMP is to outline how the Contractor(s) will implement a Site Construction Management System to meet the specified requirements which include Contractual, Regulatory and Statutory Requirements, Environmental Mitigation Measures and Planning Conditions.

In essence this preliminary CEMP is to provide the Client and the Main Project Contractor with a practical guide to ensure compliance by all parties with Planning and Environmental requirements.

The preliminary CEMP achieves this by providing the environmental management framework to be adhered to during the pre-commencement, construction phases of the Cloon More Residential Development. It outlines the work practices, construction management procedures, management responsibilities, mitigation measures and monitoring proposals that are required to be adhered to in order to construct the works in an appropriate manner.

This CEMP is intended to be a live document whereby different stages will be completed and submitted as the development progresses.

Kerry County Development Plan, Volume 6, 'Section 1 Development Management Standards & Guidelines', contains the following policies of relevance to the CEMP for this development –

1.3.7 Construction Environmental Management Plan - *Where applicable, a CEMP will be required to be prepared by the Contractors, to ensure commitments included in the statutory approvals are adhered to.*

1.5.4.16 Construction Waste Management Plan - *A management plan for the reuse, recycling or disposal of Construction & Demolition waste will be required to be submitted as part of an application. A New Circular Economy Action Plan for a Cleaner More Competitive Europe, Waste Action Plan for a Circular Economy-Ireland's National Waste Policy 2020-2025, Best Practice Guidelines for the Preparation of Resource Management Plans for Construction & Demolition Projects, published in 2021 by Environmental Protection Agency.*

2. Site Context

2.1 Site Location and Description

The proposed development site is located within the townland of Cloon More, approximately 800m to the east of Tralee town centre. Site mainly consists of dwellings, ancillary sheds and garden space. **Figure 2-1** shows the proposed development site.

The proposed development site is bounded by the townlands of Cloonalour, Clash west, and Clash East to the north, Cloon Beg, Ballymullen and Killerisk to the south, Rathass to the east and Tralee town to the west.

The site is generally flat with a 1m change in ground level across the site. The site is currently occupied to the north by two semi-detached single storey dwellings with rear gardens extending southwards. A two-storey dwelling, Cluain Mór Guesthouse, is located within the southeast corner of the development site. The site is within a mixed urban area with Austin Stack Park GAA stadium located to the northwest and Tralee Casement Railway Station and Tralee Bus Station a short distance to the northwest. There is a former petrol station opposite with the Horan Shopping Centre located to the northeast. Kerry University Hospital and the new Gaelcholáiste Chiarraí are located to the south. A row of terraced houses known as O'Connor Terrace fronts onto Boherbee Road west of the derelict single-storey buildings within the proposed works area.

The proposed development site is zoned as 'Existing residential' as per the Kerry County Development Plan 2022-2028. The site is located within the 'Mitchel's Urban Regeneration Area', part of an on-going urban renewal and regeneration scheme by Kerry County Council to facilitate the sustainable redevelopment of derelict sites and improve the condition of the town's public realm.

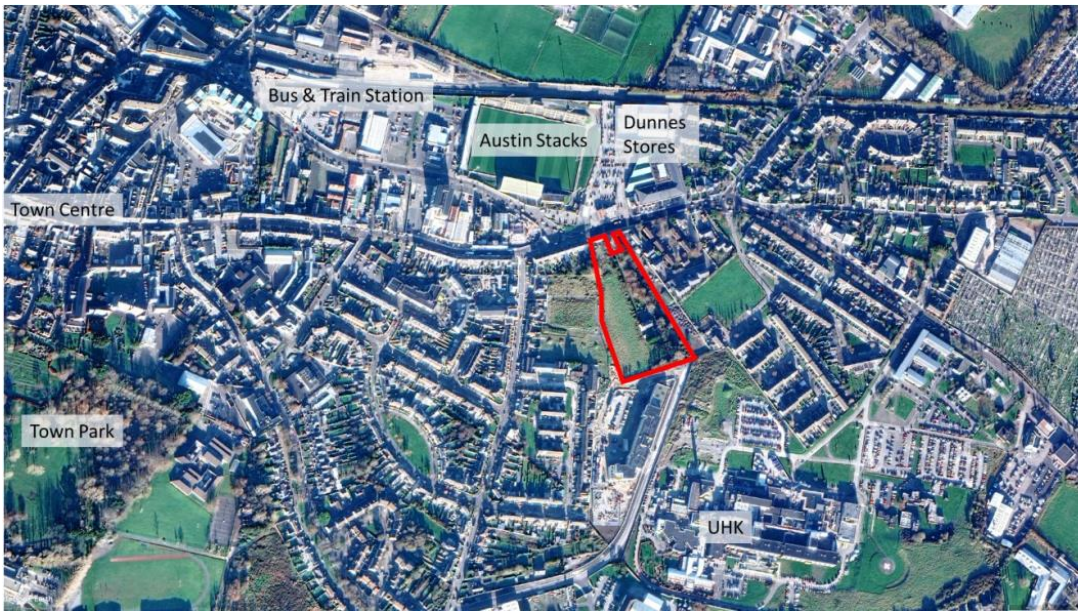

Figure 2-1 Site Location Map

3. Overview of the Project

The proposed development will consist of the following elements:

(a) the demolition of the existing buildings on site;

(b) the installation of new vehicular and pedestrian entrances; and

(c) Construction of 145 no. residential units, at a density of 93.7 dwellings per hectare and;

(d) all associated ancillary development including parking, footpaths, foul and storm water drainage, and landscaping at Cloon More, Tralee.

The scheme is comprised of 127 apartments and 18 townhouses in 2 no. blocks (Blocks A and B) ranging from 3 to 5 storeys in height.

- Block A (3 - 5 storeys) comprising 15 no. apartments (7 no. 1 bed and 8 no. 2 bed units) and 48 no. corner triplex apartments (24 no. 1 bed and 24 no. 2 bed units) and 18 no. townhouses (14 no. 2 bed and 4 no. 3 bed units)
- Block B (5 storeys) comprising 64 no. apartments (24 no. 1 bed and 40 no. 2 bed units).

Each residential unit will be afforded a private open space in the form of a balcony, garden or patio in addition to an 860 m^2 ground level residents' terrace and gardens with outdoor seating and planting along the southern border of the development. The total private open space amenity of the entire development is 2,790 m^2 (18% of total site area). Public open spaces with a combined area of 3,493 m^2 (25.4% of total site area) are also proposed in the form of parks, greens, rain gardens, sheltered gardens and terraces, outdoor seating and planting, and pedestrian and cyclist links.

The proposed development will also include a public open space (approximately 3,493 m^2), private open space (approximately 2,790 m^2), 102 no. car parking spaces, and 334 no. private and visitor cycle spaces. The development shall be served via two new vehicular access points from Cloon More Avenue to the new Ballymullen/Clash Link Road - Phase 1 of the Link Road has been completed and Phase 2 is due for completion within 18 months. The associated site/infrastructural works include provision for water services; foul and surface water drainage and connections; attenuation proposals; permeable paving; all landscaping works; boundary treatment; internal roads and footpaths; waste storage areas and electrical services and all associated site development works.

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4. Construction Works

4.1 Working Hours

Working hours will be limited to 8am-6pm Monday to Friday and 8am to 2pm on Saturdays. No work permitted on Sundays and Bank Holidays without the prior permission from the Local authority.

4.2 Construction Personnel

It is estimated that there will initially be 10 – 30 staff on site on a typical day, however during peak construction periods this is expected to fluctuate up to 30-50 staff and contractors on site per day.

4.3 Construction Schedule

The construction works associated with the development will be undertaken in 3 phases as per drawing 9. 2301 Phasing Diagram.

- Phase 1 demolition & construction work includes Apartment Block "B" and is expected to take approximately 18 - 24 months for the demolition, construction and commissioning phases prior to commencement of full operations and occupation.
- Phase 2 is expected to take approximately 12-18 months for the construction and commissioning phases prior to commencement of full operations and occupation.
- Phase 3 is expected to take approximately 12-18 months for the construction and commissioning phases prior to commencement of full operations and occupation.

There could be some overlapping construction timelines for some aspects of the project. The construction programme is intended to commence in the first quarter of 2024,subject to planning permission, with a total 54-72-month programme. Overall development timeline will vary depending on various elements of the project.

4.4 Construction Methodology

4.4.1 Site Preparation

As part of the site preparation and pre-construction activities the following key works will be undertaken:

- Any detailed ground investigations, environmental surveys etc required to support the construction process.
- The site boundary will be clearly marked with high visibility tape and the appointed contractor will not be permitted to use any areas outside the identified site boundary for any activity relating to construction. Hoarding/ Fencing will be erected to secure the site for safety reasons.
- Topsoil will be removed and will be used on site in landscaping/berms. Any excess soil will be removed offsite.

- A temporary site construction compound will be set up upon commencement of the construction phase of the buildings within the site boundary.

4.4.2 Construction Materials, Plant and Equipment

The materials and equipment required to complete the development are listed hereunder:

Materials:

Construction-related Materials (indicative)

- Hoarding, scaffolding
- Structural/Secondary support steelwork
- Flooring
- Non-structural metalwork
- External wall finishes
- Roof finishes
- Above ground drainage pipes, fitting and pipework ancillaries
- Foul and surface water drainage
- Watermain pipework
- Concrete (in-situ, reinforcement, sundries, formwork, precast/composite)
- Brickwork/blockwork
- Roofing, cladding and waterproofing
- Woodwork
- Road and pavements (sub-bases, bases and surfacing)
- Kerbs, channels and edgings
- Signage
- Manholes and gullies
- Attenuation tank
- Full retention and bypass interceptors, silt traps, grease trap
- Water storage units for fire fighting
- Electrical pipework
- Fill (crushed stone Clause 804, pea gravel)
- Plaster, render, cement mortar etc.
- Wall cladding
- Tiling

Construction plant and machinery required (indicative):

- Hydraulic excavators
- Mobile cranes
- Specialist hydraulic demolition/crushing machines
- 20t 360 Excavators
- 20t Dumper Truck
- 3t Mini Digger
- 5t Dumper truck
- 3t roller
- Ready-mix concrete trucks
- Pump unit for ready mix concrete

- Vibrating rollers
- HGV 20 foot trailers
- HGV 40 foot trailers
- Telescopic site handlers
- Road Sweeper
- Block Grab
- Teleporter
- 20m³ Skips
- Articulated Booms 65ft
- Scissor Lifts
- 30 kva Generator (until temporary Power is live)
- Kerbing Machine
- Asphalt paver finisher

4.4.2.1 Temporary Construction Compound

A temporary site construction compound will be set up upon commencement of the construction phase within the site boundary. 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.

The compound will be constructed early in the project in order to provide site offices and accommodation for staff and for the delivery of materials. Any surface water management, waste management measures etc will also be put in place at the outset. Site security if required, it will be put in place adjacent to the entrance and will be maintained throughout all phases of the work. The compound will be in place for the duration of the construction phase and will be removed once construction is complete.

Figure 4-1 Typical Temporary Site Construction Compound

4.4.2.2 Site Drainage System

The development will be designed in full accordance with Sustainable Urban Design Principles. Any surface water run-off generated from the proposed development will be routed through a series of onsite Sustainable Urban Drainage System (SuDS) elements which have been incorporated into the project at design stage, such as tree pits, bioretention rain gardens and soak-aways throughout the site to enhance storm water infiltration and to try and replicate greenfield run-off rates. SUDS elements are widely used to alleviate detrimental effects of urban stormwater drainage on receiving watercourses. The proposed storm water system is designed to collect the stormwater runoff generated on the site and store it in underground cellular attenuation tanks, these tanks allow runoff to infiltrate naturally through the soil beneath and into the ground water.

SUDS elements to be employed include use of sedum roofs, tree pits, bioretention rain gardens bypass petrol interceptor and silt trap sumps. These elements will utilise runoff interception, detention and infiltration at source before discharging to an on-site attenuation system. A proprietary petrol interceptor and silt trap will be provided on the inlet to the proposed attenuation to improve the quality of the discharge by capturing all possible debris and hydrocarbons pollution in the run-off. Each of these SUDS mechanisms provides various stormwater treatment, storage and/or attenuation functions by which surface run-off from the development will be managed prior to full attenuation and infiltration to ground water.

Site testing has confirmed the adequacy of stormwater discharge to the ground and the infiltration location has been carefully chosen to minimise any possible impacts to building structures. Engineering design input will be required post-planning to provide a robust foundation solution to the structures that are within 10 metres of the attenuation structures.

The proposed foul sewer, fully separated from the proposed storm water drainage, is designed for sewage and wastewater collection from the proposed buildings. It will discharge to the existing public foul sewer system. The development will connect to Tralee Urban Wastewater Treatment Plant (UWWTP)[1] via the public system. The proposed development will be served by a gravity system which drains into the existing foul sewer network inside the western boundary of the site. A 750mm diameter combined sewer is shown to pass through the site.

The foul water is proposed to discharge from the site to the existing 750mm diameter combined sewer inside the western boundary as shown on drawing 23824-MWP-00-00-DR-C-2100 which accompany the planning application for more information.

The Confirmation of Feasibility letter also specified that no stormwater will be accepted into the Uisce Éireann Wastewater Network, therefore stormwater drainage at the proposed development site will be managed onsite as outline above.

For further details, refer to the Drainage Design Report which accompanies the planning application for more information.

4.4.2.3 Water Supply

There is an existing 150mm diameter uPVC watermains to the North of the site on the R875 Boherbee Road. A Pre-connection enquiry was submitted to Uisce Éireann, who advised that connection is feasible subject to minor upgrades.

[1] UWWTP Active Licence Number: D0040-01

It is proposed to connect the proposed development to the existing watermains in the public road via a 150mm diameter connection. The spine within the estate has been designed as 150mm diameters in a route with branches of 110mm diameter will serve routes with less than 100 residential units.

4.4.2.4 Telecom and other Electrical Services

There are electrical overhead lines on the site and other utilities adjacent which may be affected by the proposed works. These services will be diverted, , the detail of which will be finalised through detailed design. There may also be a ground mounted substation required on site, final location to be agreed with ESBN once design has been confirmed.

4.4.3 Building Construction Methodology

The construction of building will be constructed by the following methodology:

I. The formation for the structure will be examined and signed off by a Chartered Engineer.

II. A layer of concrete blinding will be laid approximately on top of the newly exposed formation, tamped and finished with a screed board to leave a flat level surface. The concrete should be protected from rainfall during curing and all surface water runoff from the curing concrete should be prevented from entering surface water drainage directly;

III. Water-proofing of below ground elements will be achieved by means of the radon barrier under the floor slab.

IV. Steel reinforcement will be fixed in accordance with the designer's drawings and schedules. Formwork will be erected around the foundation as required.

V. Ready-mix concrete will be delivered by ready-mix concrete trucks via the site entrance. Concrete may be placed into the foundation by means of a concrete pump. Upon completion of the concreting works the foundation will be covered and allowed to cure.

VI. The blockwork walls and precast concrete elements will be built up from ground floor level. Structural steelwork may be required within the building subject to detailed design.

VII. The insulated steel roof cladding panels will then be lifted into position using a mobile crane and checked to ensure they are sealed against the weather.

VIII. Installation of internal fittings and fit outs (e.g. installation of fire doors, plastering, painting, WC facilities, etc.) will be carried out.

IX. Installation of utilities and connections to the respective supply points.

X. Installation of footpaths and ramps will be provided at external doorways for level access.

XI. Completion of external works elements.

4.4.3.1 Water Requirement

Potable water will be required for the construction employees. Potable water demand will differ between the construction phases. The maximum potable water requirement is estimated to be 1800 litres per day during peak construction. A water tanker will be used to provide water to the site if a temporary watermain construction cannot be facilitated to the site.

4.4.3.2 Wastewater

Assuming 15-30 staff on site and a per capita flow rate of 60l/h/day (Appendix C Irish Water's Code of Practice for Waste water design, Open industrial site, e.g. construction, quarry, without canteen), the daily wastewater generated is is estimated as being 1800l/day. The project will utilise portaloos which would be serviced regularly or the use of a temporary wastewater connection to the adjacent foul sewer.

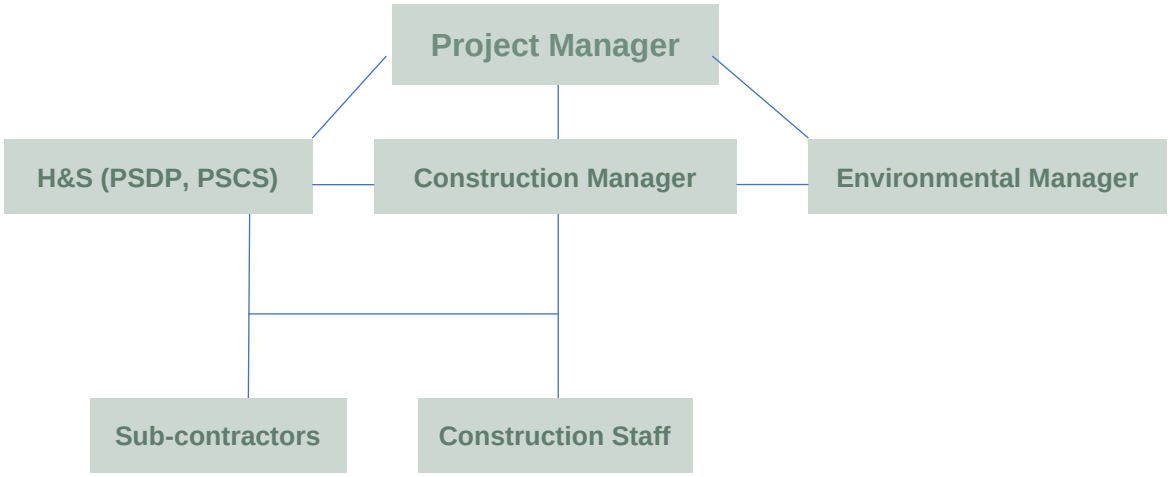
4.4.3.2.1 Construction

Contractors working on site during the works will be responsible for the collection, control and disposal of all waste generated by the works. Construction phase waste may consist of hardcore, stone, concrete, steel reinforcement, ducting, shuttering timber, food waste from the canteen and unused oil, diesel and building materials. This waste will be collected at the end of the construction phase and taken off site to be reused, recycled and disposed of in accordance with best practice procedures at an approved facility. Domestic waste from the on-site facilities will be collected on a regular basis by approved contractors and disposed of in an authorised facility in accordance with best practice. Plastic waste will be taken for recycling by an approved contractor(s) and disposed or recycled at an approved waste facility.

5. Construction & Environmental Management – Organisational Structure, Duties and Responsibilities

5.1 On Site Organisational Structure and Responsibility

The Organisational Structure for the Contractor's Project Team is included below. This structure is defined by the Contractor and includes the names of the assigned personnel with the appropriate responsibility and reporting structure reflected.



The Contractor will select the Project Team for the construction of the Project. The Contractor's Project Team will include an overall Project Manager, whose duties will stretch beyond the day-to-day works to budgetary, procurement and scheduling matters. The selected Construction Manager will have overall responsibility for the construction site personnel carrying out the works and the Construction Manager will report to the Project Manager.

A competent Environmental Manager will be appointed for the duration of the works and will report to the Project Manager. The Construction Manager will communicate regularly with the Environmental Manager to ensure mitigation measures are applied to specific works. The Environmental Manager will carry out tasks as required, including installation and maintenance of sediment control measures and implementing and maintaining approved waste management control measures. The use of dedicated staff, under the direction of the Environmental Manager, will ensure the environmental controls are in situ ahead of the works on site.

5.2 Duties and Responsibilities

The general role of key people on site implementing the CEMP will be:

- The Project Manager - liaises with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the main contractor(s)'s project team.
- The Construction Manager - liaises with the Environmental Manager when preparing site works where there is a risk of environmental damage and manages the construction personnel and general works.

- The Design Engineer - undertakes and certifies the Design and supervises the standard of works, including geotechnical aspects (Geotechnical engineer may need to be consulted).
- The Environmental Manager - ensures that the CEMP is developed, implemented and maintained. The Environmental Manager's tasks at the construction site are described below at Section 5.2.4. To ensure adequate cover of environmental tasks, waste management tasks and responsibilities, dedicated construction staff will be assigned to the Environmental Manager to implement and maintain the Sediment and Erosion Plan and any other measures required.

Other roles include:

- Health and Safety (PSDP and PSCS)
- Waste Management Coordinator (report to the Environmental Manager)
- Geotechnical Engineer (as required by Design Engineer)

5.2.1 Project Manager

Name: TBC

A Project Manager is to be appointed on behalf of the main Contractor(s) to manage and oversee the entire project. The Project Manager is responsible for:

- Implementing of the Construction and Environmental Management Plan (CEMP)
- Implementing the Health and Safety Plan
- Management of the construction project
- Liaison with the client/developer
- Liaison with the Project Team
- Assigning duties and responsibilities in relation to the CEMP
- Production of construction schedule
- Materials procurement
- Maintaining a site project diary

5.2.2 Construction Manager

Name: TBC

The Construction Manager manages all the works to construct the project, on behalf of the Contractor. The Construction Manager reports to the Project Manager. In relation to the CEMP, the Construction Manager is responsible for:

5.2.2.1 Site-Specific Method Statements

- Liaising with the Environmental Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage, by incorporating relevant Environmental Control Measures and referring to relevant Environmental Control Measure Sheets;

- Liaising with the Environmental Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental and Waste Management Control Measures and Environmental Control Sheets have been altered, and
- Liaising with the Environmental Manager where third party agreement is required in relation to site-specific Method Statements, Environmental & Waste Management Control Measures and/or Environmental Control Measure Sheets.

5.2.2.2 General

- Being aware of all project Environmental Commitments and Requirements.
- Ensuring that all relevant information on project programming, timing, construction methodology, etc., is communicated from the Project Manager, to the Environmental Manager in a timely and efficient manner in order to allow pre-emptive actions relating to the environment to be taken where required;
- Programming and planning of excavation works and communicating this schedule to the Environmental Manager;
- Ensuring that adequate resources are provided to design and install any environmental interventions;
- Liaising with the Design Engineer and providing information on environmental management to the Design Engineer during the course of the construction phase;
- Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the Contractor's project staff; and
- Ensuring that the Environmental Manager performs regular and frequent environmental site inspections; and
- Reviewing and approving all waste management control measures ensuring compliance with National and International waste legislation and best practice.

5.2.3 Design Engineer

Name: TBC

The Design Engineer is responsible for:

- Design of the Works;
- Review and approval of relevant elements of the method statements – assist the Construction Manager with the overall review;
- Participating in Third Party Consultations; and
- Liaising with Third Parties through the Environmental Manager.

5.2.4 Environmental Manager

Name: TBC

The Environmental Manager is responsible for:

- General
  - Being familiar with the project environmental commitments and requirements;
  - Being familiar with baseline data gathered for the various environmental assessments and during pre-construction surveys;
  - Assisting the Construction Manager in liaising with the Design Engineer and the provision of the information on environmental management to the Design Engineer during the course of the construction phase, and
  - Liaising with the Project Team in assigning duties and responsibilities in relation to the CEMP to individual members of the Contractor's project staff.
  - Implementing the environmental procedures of the CEMP;
  - Liaising with the Construction Manager to ensure that the control measures set out in the Schedule of Environmental Mitigation are implemented;
  - Liaising with the client/developer in relation to environmental issues.
  - Auditing the construction works from an environmental viewpoint.
- Site-Specific Method Statements
  - Liaising with the Construction Manager in preparing site-specific Method Statements for all Works activities where there is a risk of environmental damage. These site-specific Method statements should incorporate relevant Environmental Control Measures and take account of relevant Environmental Control Measure Sheets;
  - Liaising with the Construction Manager in reviewing and updating site-specific Method Statements for all Works activities where Environmental Control Measure and Environmental Control Sheets have been altered, and
  - Liaising with the Construction Manager where third party agreement is required in relation to site-specific Method Statements, Environmental Control Measures and/or Environmental Control Measure Sheets.
- Third Party Consultations
  - Overseeing, ensuring coordination and playing a lead role in third party consultations required statutorily, contractually and in order to fulfil best practice requirements;
  - Ensuring that the minutes of meetings, action lists, formal communications, etc., are well documented and that the consultation certificates are issued to the Design Engineer as required;
  - Liaising with all prescribed bodies during site visits, inspections and consultations;
  - Where new Environmental Control Measures are agreed as a result of third party consultation, ensuring that the CEMP is amended accordingly;
  - Where new Environmental Control Measures are agreed as a result of third party consultation, the Environmental Manager should liaise with the Construction Manager in updating relevant site-specific Method Statements, and
  - Where required, liaising with the Construction Manager in agreeing site-specific Method Statements with third parties.
- Licensing

- Ensuring that all relevant works have (and are being carried out in accordance with) the required permits, licences, certificates, planning permissions, etc,;
- Liaising with the designated licence holders with respect to licences granted pursuant to the Wildlife Act, 1976, as amended (if required);
- Bringing to the attention of the Project, Design and Construction Team any timing and legal constraints that may be imposed on the carrying out of certain tasks.

- Waste Management Documentation
  - Holding copies of all permits and licences provided by waste contractors;
  - Ensuring that any operations or activities that require certificates of registration, waste collection permits, waste permits, waste licences, etc., have appropriate authorisation, and
  - Gathering and holding documentation with the respect to waste disposal.
- Legislation
  - Keeping up to date with changes in environmental legislation that may affect environmental management during the construction phase;
  - Advising the Construction Manager of these changes, and
  - Reviewing and amending the CEMP in light of these changes and bringing the changes to the attention of the Contractor's senior management and subcontractors.
- Specialist Environmental Contractors
  - Identifying requirements for specialist environmental contractors (including ecologists, waste contractors and spill clean-up specialists) before commencement of the project;
  - Procuring the services of specialist environmental contractors and liaising with them with respect to site access and report production;
  - Ensuring that the specialist environmental contractors are competent and have sufficient expertise to co-ordinate and manage environmental issues, and
  - Co-ordinating the activities of all specialist environmental contractors on environmental matters arising out of the contract.
- Environmental Induction Training and Environmental Toolbox Talks
  - Ensuring that Environmental Induction Training is carried out for all the Contractor's site personnel. The induction training may be carried out in conjunction with Safety Induction Training,
  - Providing toolbox talks on Environmental Control Measures associated with Site-specific Method Statements to those who will undertake the work.
- Environmental Incidents/Spillages
  - Prepare and be in readiness to implement at all times an Emergency Response Plan.
  - Notifying the relevant statutory authority of environmental incidents, and
  - Carrying out an investigation and producing a report regarding environmental incidents. The report of the incident and details of remedial actions taken should be made available to the relevant authority, the Design Engineer and the Construction Manager.

- The Site Environmental Manager shall notify the Client of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Client shall be notified within 1 hour.

- Site Environmental Inspections and Auditing
  - Carrying out regular documented inspections of the site to ensure that work is being carried out in accordance with the Environmental Control Measures and relevant site-specific Method Statements, etc.,
  - Carrying out inspections of the site drainage system.
  - Appending copies of the inspection reports to the CEMP.
  - Liaising with the Construction Manager to organise any repairs or maintenance required following the daily inspection of the site.
  - Accommodate audits by the Employer and/or independent auditing consultants during the project.
  - Accommodate third party environmental auditing when required.
  - During audits, the Environmental Site Manager shall make the necessary staff available during each audit and provide access to all documentation and site areas (and provide necessary induction and training to allow access where required).
  - If there are any adverse findings arising from the environmental audits, the Environmental Site Manager shall be required to take prompt mitigation actions and provide written reports to the Employer detailing such mitigation.
  - The Environmental Site Manager shall notify the Employer of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Employer shall be notified within 1 hour.

Note: Communication in respect of the project to regulatory or statutory bodies shall be undertaken by the Employer, unless otherwise agreed, except in the case of incident notification.

- Environmental Records
  - The Construction Environmental Manager shall provide all CEMP documentation to the Client on completion of the site works. Reports arising during the site works, such as verification reports or waste disposal records shall be provided to the Client within one month of completion of the activity and may be subject to review.

5.2.5 Other Roles

5.2.5.1 Health and Safety Personnel

The Health and Safety personnel for the construction project is appointed by the Contractor in line with the Construction Regulations:

- Carrying out duty of Project Supervisor Construction Stage (PSCS)
- Responsible for safety induction of all staff and personnel on site
- Implementing the Health and Safety Plan

- Auditing and updating the Health & Safety Plan
- All other required legal duties

5.2.5.2 Geotechnical Engineer

The Geotechnical Engineer is responsible for:

- Assisting the Design Engineer as required
- Providing advice on geotechnical aspects of the works

5.2.5.3 Waste Management Coordinator

Name: TBC

The Waste Management Coordinator has been appointed by the Contractor and is responsible for:

- The management of waste that may be generated at the site.
- Educating site personnel, sub-contractors, and suppliers, about the best alternatives to conventional waste disposal/Waste Management Regime at the site.
- Keep records of all waste being removed from site, the effectiveness and accuracy of the documentation is to be monitored on a regular basis.
- Update the Waste Management Plan on a regular basis where required and make available as required (i.e. sub-contractors).
- Continually identifying waste minimisation actions on site and update the WMP plan accordingly.
- Distinguish reusable materials from materials suitable for recycling.
- Ensure maximum segregation at source.
- Cooperate with Site Management, on locations for stockpiling reusable materials.
- Separate materials for recovery.
- Identify and liaise with operators for recovery outlets.
- The Environmental Site Manager & Waste Management Coordinator will observe and advise upon all work carried out by sub-contractors where there are direct waste management issues of concern e.g. the excavation of non-hazardous and hazardous subsoils for off-site disposal. The sub-contractors will be instructed to comply with the CEMP.

5.2.5.4 All Site Personnel

The site personnel appointed by the Contractor are responsible for:

- Adhering to the relevant Environmental Control Measures and relevant site-specific Method Statements
- Adhering to the Health and Safety Plan
- Reporting immediately to the Environmental Manager and Construction Manager any incidents where there has been a breach of agreed procedures including:
    - a spillage of a potentially environmentally harmful substance;
    - an unauthorised discharge to ground, water or air, damage to a protected habitat, etc.

5.3 Contacts

5.3.1 Main Contractor Contacts

Position Title	Name	Phone	Email
Main Contractor	TBC		
Project Manager	TBC		
Construction Manager	TBC		
Design Engineer	TBC		
Environmental Manager*	TBC		
Safety (PSCS)*	TBC		
Safety Officer*	TBC		
Site Emergency Number*	TBC		
Waste Management Coordinator	TBC		
Overall Project PSDP	TBC		

**24 hour contact details required*

5.3.2 Employer Contacts

Position Title	Organisation	Name	Phone	Email
Employer				
Employer's Representative				

5.3.3 Third Party Contacts

Organisation:	Position:	Name/Address:	Phone:	Email Address:
Inland Fisheries Ireland				
National Parks and Wildlife Service				
Environmental Protection Agency (EPA)	EPA	EPA Headquarters		info@epa.ie
Local Authority	Kerry County Council	Kerry County Council		
Health and Safety Authority	Health and Safety Authority			
Emergency Services	An Garda Síochána	Tralee, Kerry		
Emergency Services	Ambulance and Fire Service	Ambulance and Fire Service		

6. Environmental Commitments

6.1 Auditing, and Monitoring

A Preliminary Monitoring Schedule is provided below (Table 7-1) and will be finalised pending appointment of the Contractor.

The Contractor will assign a full-time Environmental Manager who will visit the site regularly to monitor the construction activities on a day to day basis. The duties will include completing the required checklists (sample checklist included below) and coordinating with the relevant personnel (e.g. Design Engineer as required) ensuring all environmental monitoring is carried out.

Table 6-1: Environmental Monitoring Schedule

Aspect	Area of Inspection	Monitoring Required	Note/Checks	Frequency	Responsibility
Surface Water Run-off Controls	Site compound Wastewater facilities Site entrance	Visual inspection	• Leaks • Cracks/broken plastic piling • Build up of sediment	Regular/daily/weekly during the construction phase as well as during and after significant rainfall events	Environmental Manager
	Weather Forecast	Met Éireann download	• Pre-determined rainfall trigger levels (e.g. 1 in 5 year storm event or heavy rainfall at >25mm/hr)		Environmental Manager
	Discharges from on-site sediment and erosion controls	Visual inspection	• Colour, presence of silts • Silt build up • Damage • Blockages in the pipework conveying runoff		
Water quality monitoring	Discharges from on-site sediment and erosion controls Internal site road Site Entrance	Visual inspection	• Unacceptable level of sediment/silt on the road surface • Presence of waste	Weekly	Environmental Manager
		Visual inspection	• Unacceptable level of sediment/silt on the road surface • Presence of waste • Surface Condition	Daily	Project Manager
Roads	Fuel & Oil Storage areas	Visual inspection	• Damage to containers or ancillary equipment • Leakages • Unlocked storage container • Fuels stored within bunded area	Daily	Project Manager
	Construction Materials Storage Areas	Visual inspection	• Damage • Untidiness	Daily	Environmental Manager
Operation Control	Concrete pours	Visual inspection	• Run-off / spills	Weekly	Project Manager
	Dust generation	Visual Inspection	• Cleanliness of roads and compound area • Dust at stockpiles • Dust from delivery vehicles	To be scheduled with pours	Project Manager

6.2 Environmental Performance Indicators

The Contractor will outline the key performance indicators for the site in gauging successful site management in the prevention of pollution and the protection of the environment.

Environmental performance indicators will include:

- Number of environmental accidents/incidents logged;
- Breach of procedure and corrective actions;
- Number of environmental complaints received;
- Results of monthly water quality monitoring;
- Results of noise and vibration monitoring, and
- Results of site audits.

The performance indicators will be communicated to all relevant personnel and sub-contractors. The review periods for analysing site performance indicators must also be specified.

6.3 Response Procedure/ Corrective Action

In the event of an environmental incident, or breach of procedure, or where a complaint is received, or in the event of encountering buried waste or contaminated soils/groundwater, the contributing factors are to be investigated and remedial action taken as necessary. The Contractor will ensure that the following respond actions will take place:

1) The Project Manager must be informed of any incident, breach of procedure and/or complaint received and details must be recorded in the incident/complaint register
2) The Project Manager is to conduct/co-ordinate an investigation to determine the potential influence that could have led to the non-compliance.
3) The Project Manager is to notify and liaise with the appropriate site personnel where required, e.g. Site Environmental Manager, Project Ecologist, Project Archaeologist
4) The Project Manager shall notify the Client of any complaints or environmental incidents within 24 hours of occurrence. Where significant incidents occur requiring the involvement of statutory authorities or emergency services or where any pollution events occur, the Client shall be notified within 1 hour.
5) If necessary, the Project Manager will inform the appropriate regulatory authority. The appropriate regulatory authority will depend on the nature of the incident.
6) The details of the incident will be recorded on an Incident / Complaints Form which is to record information such as the cause, extent, actions and remedial measures used following the incident/complaint. The form will also include any recommendations made to avoid reoccurrence of the incident.
7) The Project Manager will be responsible for any corrective actions required as a result of the incident e.g. an investigative report, formulation of alternative construction methods or environmental sampling, and will advise the Designer and Client as appropriate.

8) The Site Project Manager is to ensure that the relevant environmental management plans/procedures are revised and updated as necessary.

7. Environmental Management Plans

A number of environmental management plans (EMP) have been prepared for managing the impacts of Construction Activities associated with the Project. Refer to Sections below. These plans are to be implemented by the Appointed Project Manager and/or Project Contractor(s) as relevant.

The Contractor will ensure that plans/procedures are communicated to all site staff, including sub-contractors, through induction, training and at relevant meetings.

EMP-1 Management of Excavations

EMP-2 Fuels and Oils Management

EMP-3 SUDs Management and Maintenance Plan

EMP-4 Ecological Management Plan

EMP-5 Invasive Species Management Plan

EMP-6 Management of Concrete

EMP-7 Construction Waste Management Plan

EMP-8 Construction Traffic Management

EMP-9 Construction Noise Management

EMP-10 Construction Dust Management

EMP-11 Emergency Response Plan

EMP-12 Site Environmental Training Awareness

EMP-13 Monitoring and Auditing

EMP-14 Environmental Accidents, Incidents and Corrective Actions

EMP-15 Environmental Complaints

EMP 1: Management of Excavations

Purpose

To describe measures for the management of all excavations on the site.

Procedure

General

Bulk excavations will be done during dry weather periods so as to avoid run-off from exposed excavation areas. Weather will be monitored during the project and no excavation works will be allowed during severe or heavy rainfall.

All temporary cuts/excavations will be carried out such that they are stable or adequately supported. Where appropriate and necessary, cuts and excavations will be protected against ingress of water or erosion by the use of cut off drains around the excavation works. Temporary works will be such that they do not adversely interfere with existing drainage channels/regimes.

Vehicular movements will be restricted to the footprint of the permitted development, particularly with respect to the newly constructed access roads. This implies that machinery must be kept on existing roads/hardstands/yard areas and aside from advancing excavations do not move onto areas that are not permitted for the development.

Management and Storage of Excavated Materials and Soil Management

- Storage of excessive material will be avoided. Site management should include the checking of equipment, materials storage and transfer areas, drainage structures and their attenuation ability on a regular basis during the construction phase of the project. The purpose of this management control is to ensure that the measures in place are operating effectively, prevent accidental leakages, and identify potential breaches in the protective retention and attenuation network during earthworks operations.
- Materials required for construction should be handled and stored in a manner which reduces unnecessary wasting. Stone and any other quarry materials should be imported from local quarries where possible and stored neatly in segregated areas.
- No permanent waste or stockpiles will be left on site, other than those materials required for designed landscaping and construction generally. The topsoil removal and excavations for the proposed development will be slight and all excavated materials will be re-used on site as fill or for landscaping. Excavated material that is not reused on site for landscaping will be removed from site by the appropriate permitted contractors and taken to an authorised facility.

Responsibility

- The Environmental Manager will monitor the excavation areas and associated drainage.
- The Construction Manager will monitor vehicle movements throughout the construction phase
- The Project Manager will oversee the phasing of the excavation and machinery movement across the site.
- The Design Engineer, Geotechnical Engineer and Sub-contractors will have responsibilities as appropriate.

Details of Excavating Soil and Rock be finalised by Appointed Contractor

EMP 2: Fuel and Oil Management

Purpose

To describe measures for the management of all fuel and oils on site for the protection of watercourses from any spills.

Procedure

- The potential for hydrocarbons getting into the existing drains and local watercourses will be mitigated by only refuelling construction machinery and vehicles in designated refuelling areas using a prescribed re-fuelling procedure.
- Refuelling will be carried out using 110% capacity double bunded mobile bowsers. The refuelling bowser will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using.
- No servicing or repair of plant, machinery or vehicles should be undertaken on-site and the mechanical soundness of construction machinery will be checked prior to the commencement of construction works.
- To reduce the potential for oil leaks, only vehicles and machinery will be allowed onto the site that are mechanically sound. An up-to-date service record will be required from the main contractor.
- Contractors supplying concrete and crushed stone to the site will be contractually required to supply their products using roadworthy vehicles.
- Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby dirty water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility.
- The Environmental Manager will be immediately informed of the oil leak/spill and will assess the cause and the management of the clean-up of the leak or spill. They will inspect nearby drains for the presence of oil and initiate the clean-up if necessary.
- Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and also in site vehicles and machinery.
- Correct action in the event of a leak or spill will be facilitated by training all vehicle/machinery operators in the use of the spill kits and the correct containment and cleaning up of oil spills or leaks. This training will be provided by the Environmental Manager at site induction.
- In the event of a major oil spill, a company who provide a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill, kits kept in site vehicles and machinery.
- Good site practice [CIRIA 32 (2001)] is applied to ensure no fuels, oils, other substances or contaminated runoff are stored in a manner on site in which they may spill and enter the ground, particularly when the initial top layer is excavated. Dedicated, bunded storage areas will be used for all fuels or hazardous substances. Spill kits will be maintained on site.

Responsibilities

The Construction Manager and Environmental Manager are responsible for ensuring Fuel and Oils are managed in line with this procedure. The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations.

The Construction Manager is responsible for ensuring the spill kits are adequately stocked and should inform the Environmental Manager when items have been used. The Appointed Contractor, in updating the CEMP, must designate personnel to the tasks relating to Fuels and Oil, as outlined.

Reference

Best Practice Guidelines BPGCS005 – Oil Storage Guidelines (Enterprise Ireland).

EMP 3: Suds Management and Maintenance Plan

Purpose

To describe measures for the management of integrating SuD's into the natural environment of the site. A level of maintenance is required to prevent these natural elements from developing into woodland or natural wasteland.

Procedure

- The maintenance of SuD's elements requires monthly maintenance, reviewed on a monthly basis. Remedial maintenance cannot be predicted as they result in failure or outside interference such as vehicles coming into contact with implemented SuD's measures (Council, 2022). A site maintenance plan has been outlined in Table 1 (SUDS Maintenance)

Table 7-1 SUDS Maintenance

Type	Activity	Suggested Frequency
Litter Picking	Picking of litter from SUDS landscape areas such as Raingardens and Swale's.	Monthly visit required
Grass Cutting	All grass and plant-based SUDS measures will require mowing. Furthermore, first and last mow cuts are to be collected.	It is recommended that four to eight visits are given a year, dependent on the growth rate of the site.
Wildflower Areas	Wildflowers areas are to be trimmed to a height of 100mm every three years and cuttings are to be collected.	Every three years.
Inlets and outlets	Inspections are required to remove slit or any Debre.	One yearly visit.

EMP 4: Ecological Management Plan (Protection of Habitats and Fauna)

Purpose

The proposed development is located within 15km of the following designated sites:

- Ballyseedy Wood SAC
- Tralee Bay Complex SPA
- Tralee Bay and Magharees Peninsula, West to Cloghane SAC
- Slieve Mish Mountains SAC
- Stack's to Mullaghareirk Mountains, West Limerick Hills and Mount Eagle SPA
- Akeragh, Banna and Barrow Harbour SAC
- Lower River Shannon SAC
- Castlemaine Harbour SAC
- Castlemaine Harbour SPA

These sites are designated for the protection of Qualifying Interest (QI) aquatic habitats/species and Special Conservation Interest (SCI) bird species which are sensitive to water pollution and disturbance.

The purpose of this plan is to describe measures for the management and protection of habitats and fauna on the Site.

Procedure

Ensuring implementation of ecological protection measures outlined below:

All construction works will be monitored by a suitably qualified and experienced Ecological Clerk of Works (ECoW)/Ecologist with responsibility for the oversight and auditing of the Contractor's implementation of all environmental measures in this document. Prior to commencement of construction works, the ECoW will brief the construction team on their environmental responsibilities for the site and inform them of the required environmental mitigation measures to be put in place.

The ECoW will be awarded a level of authority to enable them to halt construction works if there is potential for adverse environmental effects other than those predicted and mitigated for. Regular inspections of construction activity and the overall development site will also be carried out by the ECoW to ensure all controls to prevent environmental impacts, relevant to the construction activities taking place at the time, are in place.

Ecological Protection Measures

General Habitats

- Immediately prior to construction, the site should be inspected for the presence of breeding/resting sites of protected fauna species to confirm the findings of the baseline surveys and confirm that site circumstances have not changed in relation to breeding/resting sites of protected species.
- Construction materials and wastes are to be kept in designated areas to reduce risk of accidental injury/entrapment of any wildlife on-site and construction vehicles and personnel will not encroach onto habitats beyond the proposed development footprint.
- All temporary construction lighting is to be turned off after daylight hours.
- To reduce the level of disturbance to nocturnal fauna, construction activities will be restricted to between 08.00 and 18.00, Monday to Friday, and between 08.00 and 14.00 on Saturdays. Construction work will not take place outside of these hours unless in exceptional circumstances.

- In the unlikely event that protected species are found actively using the site for breeding/resting during the construction phase, works will cease immediately, the area cordoned off until advice is sought from a suitably qualified expert, and the NPWS is informed.

During felling of trees, the following points will be followed:

- All tree-felling is to be conducted in a manner sensitive to bats, and in accordance with NRA (2005). Where mature trees require felling, they will ideally be felled between September and early November to avoid the disturbance of any roosting bats. Tree felling will be completed by mid-November at the latest because bats roosting in trees are very vulnerable to disturbance during their hibernation period (November to April). Once felled, trees will be left intact on-site for a minimum 24 hours prior to disposal to allow any bats which may be present to leave.
- Any accumulations of ivy growing on structures should be removed in the autumn months and left on the ground for 24 hours to allow any residing bats to exit safely.

The following measures will be applied in relation to site lighting:

- Appropriate lighting will be employed during the construction phase to minimise impacts on local bat populations. Construction lighting will be targeted to minimise/avoid light spill to enable the retention of dark-corridor connectivity within the landscape for commuting bats.
- Any external lighting for the proposed development should conform to the following guidelines and be strictly implemented during the construction phase of the proposed development:
  - Bat Conservation Trust (2018). Guidance Note 08/18. Bats and Artificial Lighting in the UK - Bats and the Built Environment Series.
  - Bats & Lighting. Guidance Notes for: Planners, engineers, architects and developers (BCI, 2010).

Following BCT Lighting Guidelines (BCT, 2018) should be considered when choosing luminaires:

- Lighting that meets the lowest light levels permitted under health and safety will be installed.
- LED luminaires will be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability.
- All lighting used will lack UV/IR elements to reduce impact.
- Column heights should be carefully considered to minimise light spill. The shortest column height allowed should be used where possible.
- A warm white spectrum (2200 Kelvins will be used to reduce the blue light component of the LED spectrum).
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats.
- Only luminaires with an upward light ratio of 0% and with good optical control will be used.
- Luminaires will be mounted on the horizontal, i.e., no upward tilt.
- As a last resort, accessories such as baffles, hoods or louvres will be used to reduce light spill and direct it only to where it is needed i.e., avoid overspill on to retained linear habitat features, or other habitat features for bats.
- All temporary lighting used throughout the site will be switched off after daylight hours as a means of reducing light pollution and ensuring that there is no residual lighting during hours of darkness.
- Any external security lighting will be set on motion-sensors and short (1 minute) timers.

Responsibility

Periodic routine inspections of construction activity will be carried out by an Environmental Manager to be employed by the main contractor to ensure all controls to prevent environmental impact are in place. Only suitably trained staff will undertake environmental inspection at the site.

References

- *Best Practice Guidelines for the Conservation of Bats in the Planning of National Road Schemes* (NRA, 2005a);
- *Guidelines for the treatment of bats during the construction of National Road Schemes* (NRA, 2005b); and

Details of Ecological Protection to be finalised by Appointed Contractor

EMP 5: Invasive Species Management Plan

Purpose
To describe measures for the management of invasive species on site.

Procedure
An invasive species survey shall be undertaken prior to commencement of construction.
Areas where invasive species are present will be identified and demarcated prior to commencement of construction:

Invasive species

The following measures address potential effects associated with the construction phase of the proposed development.

- A pre-construction survey for IAPS is to take place in advance of the commencement of site works to inspect existing stands of IAPS for new growth and identify any new stands which may have emerged in the intervening period.
- Where any IAPS is identified within/adjacent to the works footprint, fencing and/or advisory signage is to be erected around stands. Where stands are small, comprising individual plants, the use of signage may suffice.
- No non-essential ground maintenance, opening up or any other ground disturbance should take place within IAPS identified areas. Where works are required within/adjacent to infested areas, the appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site and ensuring bio-security compliance. This should be done in consultation with a suitably qualified specialist.
- Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice of a suitably qualified specialist.
- Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil and deter subsequent reinvasion. Planting should be carried out with regard to '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species*' in accordance with Kelly, 2012.
- Where application of herbicides is required to treat IAPS on-site, the proximity of IEFs are to be considered.
- Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual and aquatic approved herbicides are to be used.
- Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake.
- Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as Professional Pesticides User, and fully in compliance with the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. 155 of 2012) and Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003).

- All management and control measures implemented on-site during the construction phase are to be carried out in accordance with best practice guidance as set out in '*The Management of Invasive Alien Plant Species on National Roads (GE-ENV-01104)*' TII (2020), '*The Management of Noxious Weeds and Non-native Invasive Species on National Roads*' NRA (2010), '*Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species* (Kelly, 2012) and '*Best Practice Management Guidelines Rhododendron Rhododendron ponticum and Cherry Laurel Prunus laurocerasus'* Maguire, et al., (2008).

Biosecurity

- To reduce the likelihood of invasive species being introduced to the site from other areas, prior to first accessing site, validation is to be provided by all suppliers that construction machinery and vehicles are free from any invasive species.
- All vehicles, machinery and equipment/tools are to arrive to site clean. Visual inspections are to take place.
- All PPE brought to site is to be clean and dry. All PPE will be visually inspected, and any attached vegetation or debris removed. Work boots will be dipped in or scrubbed with a disinfectant solution and thoroughly dried afterwards before being used on the site for the first time. PPE and tools will remain on site for the duration of construction.
- Prior to being brought to site, certification is to be obtained from suppliers that all raw materials including soil, fill, sand, gravel and landscaping materials, where required to be imported, are free from invasive species.
- The use of tracked machinery within IAPS infested areas is to be prohibited. The use of tracked machinery within close proximity of IAPS infested areas is to be strictly controlled.
- In the event of IAPS or other invasive species being introduced to site within raw building materials or on plant/machinery etc., the area/equipment is to be isolated, and the advice and direction of an invasive specialist is to be sought as soon as possible in relation to the management/treatment/disposal approach to be adopted.

Methodologies

Invasive species management methodologies and plans outlining Best Available Techniques (BAT) will be sourced from the National Invasive Species Database, from previously published documents and from the Invasive Species Ireland and Inland Fisheries Ireland websites.

Responsibility

Project Manager

Environmental Manager

Construction Manager

Project Ecologist

Should newly established invasive species be identified within the development site, a Site-Specific Invasive Species Management Plan will be developed and will be incorporated into the finalised Contractors CEMP

EMP 6: Management of Concrete

Purpose

To describe measures for the management of concrete on site for the protection of watercourses from any spillages.

Procedure

- To reduce the potential for cementitious material entering watercourses, concrete pours will be supervised by the Construction Manager/a suitably qualified Engineer/the Environmental Manager.
- The Construction Manager will ensure that the area of the pour is completely drained of water before a pour commences.
- Incidental rainfall from light showers during the period of a pour is typically absorbed into the concrete matrix but heavier showers can result in some run off from the top surface of the concrete pour. If run-off is encountered the Environmental Manager will block the outflow from the drains to retain or treat the run-off until the pH is neutral before discharge to the drainage network.
- Pours will not take place during heavy rainfall.
- To reduce the volume of cementitious water, washout of concrete trucks will not take place on site.
- Any requirement for temporary storage of cement bound granular mixtures will be on hardcore areas within an impermeable bunded area and covered to prevent contact with rainwater.

Responsibilities

- All concrete pours will be supervised by suitable personnel.
- The Environmental Manager is responsible for ensuring that appropriate water pollution prevention measures are put in place and that water sampling is carried out. Where standards are breached he/she should carry out an investigation and in conjunction with the Construction Manager, he/she should ensure remedial action is taken and further samples taken to verify that the situation has returned to normal.
- The Environmental Manager is responsible for ensuring spill kits are readily available in vulnerable locations and that booms for watercourses are long enough and have adequate anchorage.

EMP 7: Construction Waste Management Plan

Purpose

To describe measures for the management of all wastes associated with the construction of the development.

Procedure

Site Preparation & Environmental Protection

- In advance of any Construction works on site, it is proposed to close off the site access from new Ballymullen / Clash Relief Road with a secure site enclosure.

Site Enclosure

- A 2.4m high secure wire fence construction phase enclosure lined with protective netting shall be erected to further prevent material being blown onto adjoining properties or Public Roads. The fencing shall be secured to prevent access by unauthorized public and carry the required signage to meet all Health and Safety Requirements.

Construction Waste

The Construction Phase Waste Management Plan will address the following aspects of the Project:

- Analysis of the waste arising/material surpluses;
- Specific waste management objectives for the project;
- Methods proposed for prevention, reuse and recycling of wastes, and
- Material handling procedures.

General Waste Management on Site

Wastes will only be treated or disposed of at waste facilities to carry out a specific activity (i.e. chemical treatment, landfill, incineration etc.) for the specific waste types. Records of all waste movements and associated documentation will be held on site. It is planned that all waste activities at the site will comprise of:

- source,
- segregation,
- storage, and
- collection

Minimisation, Reuse, Recycling, and Management of Construction Waste

- Wastes generated during the construction phase will be identified and segregated according to their category as described by the European Waste Catalogue (EWC). In order to affect this designated waste storage areas will be created at the site construction compound, other suitable locations, for storage and segregation of wastes prior to transport for recovery/disposal at suitably licensed/permitted facilities. Suitably sized containers for each waste stream will be provided and will be supervised by the Waste Management Coordinator (WMC).
- The contractor will ensure the movement of all wastes are carried out in compliance with relevant waste regulations.

- The Contractor will continuously seek to improve the waste management process on the site during all stages of the construction phase and maximise opportunities for reuse/recycling where ever they exist.
- The Construction Waste Management Plan will be included in the team weekly meetings. In addition the plan will be communicated to the whole construction team regularly on site, including any updates form earlier revisions of the plan.

To manage waste effectively, focus on the following:

- Ordering the correct amount of materials to be delivered when needed.
- Ensuring materials are not delivered to site damaged and unusable.
- Reducing the amount of packaging used by suppliers.
- Where possible, establish a 'take back' system with suppliers.
- Ensuring wastes are handled and stored correctly.
- Limiting the amount waste going to landfill by reusing and recycling where possible.

Demolition Waste

Demolition is limited to removal of:

a) Two Houses and associated structures.

b) An existing Guest Houses and associated structures.

c) Miscellaneous demolitions of existing boundary walls to provide for a new and enhanced entrance.

All Demolitions shall be undertaken by machine and by hand. Initial gross sorting of materials will be carried out on site, into metal, timber, masonry and miscellaneous waste piles for transport to Higgens Waste Facility. Higgens Waste Facility will be engaged to remove and sort all demolition materials at their waste facility in the Kerries, only 2km away. All waste will be final sorted into the requisite waste categories at the Higgins Waste Facility for proper waste separation and control.

Demolition shall be carried out in a phased manner to facilitate recycling, with major groups of materials removed in a phased and targeted manner. Roofing materials shall be removed first, followed by roof and internal timbers, followed by masonry and concrete slab & foundation demolitions and removal. Investigation of Invasive Plant Species: An initial investigation for invasive plant species shall be carried out and any such materials disposed of in an approved manner to avoid spread of invasive species. Vegetative Overgrowth Removal: Removal of excess vegetive material matter including shrubs, trees, plants, vegetive overgrowth etc scheduled or identified for removal, shall be undertaken in a controlled manner on site. Small material shall be mulched and large material cut to size for sorting prior to removal to the Higgins Waste Facility for composting and recycling. Bulk Excavations Arising from Development Works: Topsoil shall be stripped and stockpiled on site for reuse in landscape areas, gardens and parkland.

Higgen's Waste Facility will be engaged to separately remove and sort all surplus topsoil & subsoil followed by inert subsoil and miscellaneous material.

Construction Compound

Construction compound / waste storage area will be created for storage of waste materials, plant, and equipment and for site offices, and welfare facilities.

Wastes Streams

Waste streams will include wastes generated by plant, machinery and construction workers over the period of the works, for example waste oils, sewage, refuse (paper, carton, plastic etc), wooden pallets, waste batteries, fluorescent tubes etc.

An overview of the methods to manage the primary waste streams is presented in the following sections:

Soils and Spoil

Any materials excavated on site in the course of the construction works will be stored on site and re-used on site where applicable. Any excess spoil material will be transported off site to a suitable licensed waste facility for disposal.

Should contaminated soil be encountered during excavations works the Contractor shall cease excavation works in the area where contaminated soil has been uncovered. The Contractor shall engage the services of a Consultant who specialises in Contaminated Land and arrange a site visit for the inspection of the contaminated soil. The Contaminated Land Consultant shall provide guidance on appropriate soil sampling and chemical testing and classification of the waste. Once the test results are available the Contaminated Land Consultant will issue a report.

Concrete

Concrete waste may potentially occur. There shall be no washout of trucks at site. Excess concrete will be returned to the supplier for reuse.

Waste-Water Treatment / Effluent disposal

During the construction time period, the maximum wastewater production is estimated to be the same as the maximum water consumption (1800 litres per day).

During the construction phase, staff facilities will be provided at the site compound/other suitable location.

Hazardous and Other Waste

The following Table lists some of the waste types that may be generated during the construction works. Although some waste types may be generated in locations other than the construction compounds (for example if absorbent filters are required at construction locations etc., such waste materials will be stored within the construction compounds only. Waste materials generated out with the construction compounds will be taken to the compounds on a daily basis.

Common Construction Wastes					
Concrete	Wood	Cables	Ducting	Metallic packaging/tins	Cardboard Packaging
Paper packaging	Plastic packaging	Wooden packaging	Office paper	Non-hazardous detergent	Plastic containers
Plastic bottles	Mixed waste	Ferrous metal	Non-hazardous waste electrical(s)		
Hazardous Waste, as categorised by the European Waste Catalogue					
13 01 10: Used mineral hydraulic oil (non-chlorinated)			13 02 08: Other waste engine, gear or lube oil		
13 02 05: Waste engine, gear or lube oil (non-chlorinated)			20 01 23: Discarded equipment containing CFCs		
16 01 07: Oil filters			16 07 08: Oily waste from transport and storage tanks		
16 06 01: Lead batteries			20 01 21: Fluorescent tubes and other mercury-containing waste		

Common Construction Wastes	
16 10 01: Hazardous liquid wastes to be treated off-site	15 02 02: Absorbents, filter materials, wiping cloths, clothing contaminated by dangerous substances
20 01 33: Hazardous batteries and accumulators that are collected separately.	17 09 04: mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
17 01 07: mixture of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06	17 02 02: Glass
17 02 01: Wood	17 01 01: Concrete waste
17 02 03: Plastic	17 08 02: gypsum-based construction materials other than those mentioned in 17 08 01
17 04 05 Iron and steel	

If hazardous waste / contaminated ground is encountered, then appropriate handling, storage, transportation, and disposal will be carried out. Works to the area where the hazardous waste/contaminated ground is encountered will stop. The ground will be assessed an Environmental Engineer. If non-hazardous waste becomes contaminated with hazardous waste, the entire load will be considered hazardous. At the site every effort will be made to segregate waste, and properly segregate hazardous waste from non-hazardous and inert waste arising.

Oils, paints, adhesives and chemicals will be kept in a separate contained secured storage area. Lids will be kept on containers to avoid spillage/evaporation. Waste oils, adhesives etc will be handled, and disposed of appropriately. Every effort will be made at the site for no long term storage of hazardous materials / fuels / oils / chemicals, etc. There shall be no long term storage of waste oils etc. at the site

Gravel/Stone/Asphalt/ Bituminous Materials

There will be no requirement for the storage of Asphalt/bitumen materials on site. Road surface materials will be delivered to site as required, with excess returned to supplier.

Metals

It is now common practice to segregate metals for reuse and recycling, however there are still sites where waste metal is thrown away in the general rubbish. One of primary sources of metal on sites is rebar. Waste of rebar will be reduced by ordering 'made to measure' from the source and detailed scheduling of all reinforced concrete structural elements.

Timber

Timber waste will be stored separately. Off-cuts/trimmings will be used in formwork where at all possible. A container for waste wood, covered where possible will be located at compound/other storage areas. This waste will be collected by the waste contractor and will forward it for wood recycling.

- An open skip will be put in place to collect at the temporary site construction compound.
- Special care will be taken to segregate the timber into treated and untreated fractions.
- The following timber materials are considered as waste by timber recyclers - plywood, painted timber and pressure treated timber. This waste timber fraction will be disposed off to mixed waste skip.
- This material will be collected by the contracted and licensed non-hazardous waste collectors and brought to a licensed waste recycling facility.

Blocks, Bricks, and Tiles

The careful storage of these materials will significantly reduce the volumes of wastes occurring at the site. Every effort will be made to use broken blocks/off-cuts. Final quantities of these wastes generated will be stockpiled (possibly crushed/screened), and reused at the site as sub base materials for road/other suitable hardstanding locations.

Packaging/Plastic

Double handling will be avoided by segregating packaging wastes immediately after un-wrapping. Waste packaging will be segregated and in separate containers, at storage area for collection by the waste contractor for disposal to licensed facility.

Mixed Waste

- This waste stream will arise from waste packaging of electrical and engineering components.
- An open skip will be put in place to collect mixed waste within a designated waste area at the temporary site construction compound.
- This skip will accept plastic packaging, plastic piping, cardboard and timber waste.
- Special care will be taken to ensure that no green waste or food waste will be disposed of in this skip. The purpose of this arrangement is to stop birds scattering food items across the site and therefore prevent vermin infestation.
- This material will be collected by contracted and licensed non-hazardous waste collectors.

Mixed Waste/Canteen Waste

Staff canteens have the potential to generate food waste and packaging waste. Designated receptacles will be provided at the canteen(s) to allow for segregation, and storage of individual waste streams. These will include receptacles for food waste, dry recyclables, and residual bin. All offices and canteens will be equipped with black plastic refuse bags and wheelie bins for the purpose of collecting and delivering this waste stream to the compactor. This material will be collected by the contracted waste management company/transported to licensed facility.

Dry recyclable collection from welfare facilities

- Office and canteen will be equipped with clear plastic bags and wheelie bins for the purpose of collecting dry recyclables. This will be strictly managed to prevent any food waste entering the dry recyclable stream.
- Recycling wheelie bins will be located at all welfare facilities and office associated with the project.

Other waste

Other wastes which may be generated may include residual non-recyclable waste such as paper, cloth, some cardboards, or plastics. Others may include fibreglass and geotextiles. These types of materials will be stored in a dedicated container at the site compound. All residual wastes will be dispatched to suitably licensed facility for disposal. Other construction and demolition waste will be collected and disposed of appropriately.

Management of General Waste

- Access to materials will be controlled. A dedicated storage area will be provided in the site construction compound for building materials such as cables, , geotexile matting, blocks, tools and equipment, fence posts and wire, booms, pipes etc.

- At the end of each phase, the completed works areas will be tidied of any unused material or waste; this material will be brought to the site compound for storage and reuse or placed in the appropriate skip for disposal.
- Waste fuels; oil / diesel. Refuelling will be limited to the compound areas and will be in accordance with water quality plan document. Waste oil stored on site will be stored in labelled containers and will be collected by PACS licensed oil-recycling contractor as necessary. Records will be maintained on the volumes of waste oil generated.
- Paper / cardboard material will be recycled Higgins waste.
- Wastewater from office and welfare facilities shall discharge into existing sewer on site.

Responsibility

The Environmental Manager will be responsible for adherence to correct waste management procedures. They will also identify a waste contractor to remove waste that can be recycled or re-used.

The Environmental Manager will keep records provided by waste contractors of all waste being removed from site. The Environmental Manager will record waste removed from site regularly. This information will be recorded in a standard format. It will be the construction manager's responsibility to organise the removal of skips from their area when they are full.

The Environmental Engineer will inspect waste segregation and temporary soil/rock storage stockpiles during his regular site visits.

Waste Records

All details of wastes (arising/generated/movement, etc) will be recorded during the project. Each consignment of waste removed from the site will be documented in the form of a waste management movement record form which will ensure full traceability of the material to its final destination. All records will be retained at a designated location at the site office/construction compound and made available for auditing of the waste management plan.

References

Best Practice Guidelines on the Preparation of Waste Management Plans for Construction and Demolition Projects (DoEHLG, July 2006).

Details of Site Waste Management to be finalised by Appointed Contractors.

EMP 8: Construction Traffic Management

Purpose:

To describe Measures for the management of all traffic, including construction traffic and oversized loads, for the minimization of disturbance and nuisance to the local community.

Scope:

All Site Construction Areas, approach roads to the site and internal road traffic.

Procedure:

General

Access is proposed via Cloon More Avenue, at the south west of the site. A pedestrian and cycle access are proposed at Boherbee at the north of the site. It is proposed to close the existing site vehicle accesses at Boherbee.

Construction traffic will include:

- Heavy Goods Vehicles (HGVs) importing construction materials, including concrete, road build-up materials, building materials, drainage/ducting materials, structural steel, cabling, site boundary fencing, etc.
- HGVs exporting waste/spoil/demolition materials.
- HGVs delivering plant/cranes and fuel.
- Traffic associated with on-site construction personnel.

The construction phase will require the delivery of concrete, steel, stone aggregate and ancillary materials to the site via the public road network. It is proposed to allow routine deliveries such as aggregate into the site outside of these peak traffic hours as far as practicable.

Appropriate signage will be maintained for the duration of the project with clear warning signage installed along the local road on approach to the site entrance.

A road safety and courtesy protocol will be implemented for the duration of the construction works. All companies delivering to site will have to sign up to this protocol as part of their supply contract. The protocol will consist of restricted delivery hours and speed limits along public roads and within the site. Fundamental to the protocol is courtesy for other road users. In this, construction vehicles will always give way to oncoming residential traffic and will always slow down or stop as appropriate for pedestrians and cyclists.

Public Roads

- In order to mitigate from a significant impact during peak traffic hours, the majority of staff will either arrive on-site before or after the peak morning traffic and finish work before or after the evening peak traffic hours.
- The condition of the public roads will be monitored on an on-going basis and a road sweeper provided to clean the public roads if required.

Site Entrance

- There will be no parking of any vehicles on the public road near the site entrance.
- Adequate parking will be provided on site for both employees and visitors.

- The condition of the site entrance will be monitored on an on-going basis and a road sweeper provided to clean the public road if required.

This Plan will be finalised in agreement with Kerry County Council.

Responsibility

Project Manager

Construction Manager

Construction personnel

Sub-contractors as appropriate

Delivery personnel

EMP 9: Construction Noise Management

Purpose

The construction phase of the Project has the potential to increase noise levels surrounding the proposed site. Potential noise impacts from the construction phase will depend on the number and type of equipment employed during the works. The purpose of this plan is to describe measures for the management of impacts from construction noise.

Procedure

Control of Noise at Source

- Best practice in the form of BS5228 –1&2:2009 + A1 2014, Code of Practice for the Control of Noise and Vibration on Construction and Open Sites will be adopted during the construction phase in order to minimise the noise generated by construction activities and nuisance to neighbours.
- All plant and equipment for use will comply with the Construction Plant and Equipment Permissible Noise Levels Regulations 1996 (SI 359/1996) and other relevant legislation.
- If construction limits are found to be exceeded, noise screens will be utilised around proposed site and machinery such as generators etc.
- All compressors and generators will be "sound reduced" or "super silent" models fitted with properly lined and sealed acoustic covers, which will be kept closed whenever the machines are in use, and all ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers.
- Site activities shall be staggered when working in proximity to any receptor. This proposed method of working will provide effective noise management of site activities to ensure that any receptor is not exposed to unacceptably high levels of noise over extended periods.

Responsibility

- A nominated person from the appointed contractor will be appointed to liaise with local residents and businesses regarding noise nuisance events.
- The Construction Manager will be familiar with the noise sensitive receptors and alert the Environmental Manager in good time prior to work commencing in the areas closest to any noise sensitive receptors.
- The Environmental Manager will review any relevant planning conditions in updating this plan.

References

- BS5228 –1&2:2009, Code of Practice for the Control of Noise and Vibration on Construction and Open Sites
- IOA GPG Supplementary Guidance Note 5: Post Completion Measurements (July 2014).

Details of management of noise on the site to be finalised by Appointed Contractor

EMP 10: Construction Dust Management

Purpose

To describe the measures for the management of nuisance impacts on air quality from construction generated dust.

Procedure

In order to ensure that no dust nuisance occurs, a series of measures will be implemented:

- Dust-screening will be erected along the Northern and SE boundaries during the demolition works to control fugitive dust emissions.
- Protective hoarding screens shall be erected around construction activities to reduce dust-blow from the site.
- Prior to the demolition of the building structures a survey will be undertaken to identify potential locations where asbestos may occur. If asbestos materials are identified, then no removal of this material shall be carried out until a programme to minimise environmental risk has been approved with the Health and Safety Authority.
- Regular maintenance of the public road surface near the entrance will be undertaken. This will include the prompt removal of any spillage so as to prevent the dispersion of dust along the road, which is likely to be re-suspended by passing vehicles. A mechanical vacuum road sweeper shall be used if necessary.
- Exposed surfaces, Unpaved internal haul roads, and entrances to the site should be dampened during dry windy conditions in the interest of controlling fugitive dust.
- Any spillage of material from vehicles departing from the site should be promptly removed to prevent re-suspension of silt from the road surface by passing vehicles.
- Speeds will be restricted on hard surfaced roads as site management dictates.
- Loads of materials leaving each site will be evaluated and covered if necessary
- Dust control measures will be active on equipment used for drilling or pavement cutting, grinding of block surfaces and similar types of stone finishing is taking place as significant fine particulate emissions can be generated which may cause a local nuisance.
- Loose, fine aggregates and other similar sized building materials that can be easily resuspended by the wind will be stored in designated areas of the site away from sensitive receptors. Stockpiles will be covered if necessary.
- Vehicles and plant machinery operating on-site will be properly maintained to prevent excessive emissions of particulates and other pollutants from the exhaust pipes
- Ongoing visual monitoring of dust by Site Management.

The transportation contractor shall take all reasonable measures while transporting waste or any other materials likely to cause fugitive loses from a vehicle during transportation to and from site, including but not limited to: covering of all waste or material with suitably secured tarpaulin / covers to prevent loss and utilisation of enclosed units to prevent loss.

Responsibility

The Environmental Manager is responsible for reviewing the site Dust Minimisation Plan.

The Construction Manager is responsible for organising dust suppression through use of bowsers and cleaners

EMP 11: Emergency Response Plan

Purpose

To describe measures for the prevention of an environmental accident or incident and the response required to minimise the impact of such an event.

Procedure

In the event of an environmental emergency, all personnel will react quickly and adhere to this procedure.

All site personnel will be inducted in the provisions of the Emergency Response Plan.

The following outlines some of the information, on the types of emergency, which must be communicated to site staff;

- Release of hazardous substance - Fuel or oil spill
- Concrete spill or release of concrete
- Flood event – extreme rainfall event
- Environmental buffers and exclusion zones breach
- Housekeeping of materials and waste storage areas breach
- Stop works order due to environmental issue or concern
- Fire on site

If any of the above situations occur; the Emergency Response Plan is activated. The Environmental Manager will most likely be responsible for overseeing the Emergency Response Plan (to be confirmed upon appointment of Contractor) and will be prepared and ready to implement the plan at all times. The Environmental Manager will be immediately informed and report to the scene. He/she must be aware of the;

- Nature of the situation – brief description of what has happened.
- Location of the incident.
- Whether any spill has been released.
- Whether the situation is under control.

The Emergency Response Plan must be completed by the appointed Contractor.

Oil Spillages

The following list outlines issues likely to be appropriate for inclusion in such a plan:

- Site staff will report the spillage immediately to the Environmental Manager or Construction Manager.
- Where relevant, the Environmental Manager will report the spillage to Inland Fisheries Ireland and Kerry County Council.
- Where possible, the source of pollution will be identified.
- Switch off all sources of ignition.

- Stop the spillage spreading.
- Use absorbent materials from the spill kit to mop up the spill (sand or absorbent materials should be used rather than detergents).
- Shovel contaminated sand/earth/absorbent granules into sacks or skips.
- A specialist oil removal company should remove pooled oil.

Concrete Spillages

The following list outlines issues likely to be appropriate for inclusion in such a plan:

- Site staff will report the concrete spillage immediately to the Environmental Manager or Construction Manager.
- Where relevant, the Environmental Manager will report the spillage to Inland Fisheries Ireland and Kerry County Council.
- If there is a risk of concrete spreading into the drainage system, the inlet of the dirty water cross pipes in the nearby drainage outflow points on the roadside drains will be blocked using the absorbent booms, which will prevent concrete flowing into the existing drains.
- Do not wash spillage into drainage system. Washing will only make the situation worse and extend the pollution to other water bodies/drainage systems.
- Shovel contaminated concrete granules into sacks or skips for treatment in the Roadside Concrete Wash unit.

Contacts

As an Environmental Control Measure, the Environmental Manager will append the relevant contact details to the Emergency Response Plan document. Examples of such contact details include:

- Environmental Manager.
- Specialist oil removal Company.
- Kerry County Council.
- Inland Fisheries Ireland.
- National Parks and Wildlife Service.

Location of Emergency Spill Kits

- A map indicating the location of all emergency spill kits will be attached to the Emergency Response Plan document.
- Emergency oil spill kits will also be carried in all site vehicles and machinery and in the site office.

Responsibility

- The appointed Contractor/Environmental Manager will prepare and finalise an Emergency Response Plan to be ready to respond to any incident.
- All site personnel will report any spillages of oil or chemicals to the Environmental Manager and Construction Manager immediately.

- As appropriate, the Environmental Manager will report the spillage to the Regional Fisheries Board, local authority and any other relevant authority.

Details of Emergency Response Plans to be finalised by Appointed Contractor

EMP 12: Site Environmental Training Awareness

Purpose

To describe measures for the training of all site personnel in the protection of the environment and the relevant controls.

Procedure

An initial site environmental induction and ongoing training will be provided to communicate the main provisions of the CEMP to all site personnel. Two-way communication will be encouraged to promote a culture of environmental protection.

The following outlines some of the information which will be communicated to site staff;

- Environmental procedures of the CEMP.
- Environmental buffers and exclusion zones.
- Housekeeping of materials and waste storage areas.
- Environmental Emergency Response Plan.

Housekeeping and Storage of hazardous materials

- Hazardous materials marked with the following symbols will only be stored in the secure storage container in the site compound.

- Subcontractors will provide a copy of the Material Safety Data Sheets for all hazardous substances brought on site.

All finalised CEMP policies will be adhered to, in the management of fuels and oils, concrete, and installation of sediment and erosion controls. All finalised details will be communicated with site personnel. Environmental Training including spill kit training, installation of silt fence training is to be provided by the Appointed Contractor. Environmental training records will be retained in the site office.

Responsibility

Environmental Manager
Construction Manager
All site personnel

Details of Induction and Training to be finalised by Appointed Contractor.

EMP 13: Monitoring and Auditing

Purpose

To describe measures for environmental monitoring during the construction works and audit of control measures to ensure environmental protection.

Procedure

All mitigation measures, any planning conditions, and relevant construction methods will be monitored on site. The Contractor will nominate an Environmental Manager for the works. The Environmental Manager will provide Audit Checklists to ensure regular checks of the site's control measures for the ongoing protection of the environment.

Monitoring will be carried to ensure adherence with the following;

EMP-1 Management of Excavations

EMP-2 Fuels and Oils Management

EMP-3 SuDs Management and Maintenance

EMP-4 Ecological Management Plan

EMP-5 Invasive Species Management Plan

EMP-6 Management of Concrete

EMP-7 Construction Waste Management Plan

EMP-8 Construction Traffic Management

EMP-9 Construction Noise Management

EMP-10 Construction Dust Management

EMP-11 Emergency Response Plan

EMP-12 Site Environmental Training Awareness

Checklists for daily, weekly or monthly site audits will be finalised by the Environmental Manager and the relevant personnel informed of their duties. Checklists will include (but are not limited to) confirmation that fuel is stored appropriately, waste management rules are adhered to, all environmental buffers are maintained, Surface water and run-off control measures of the are in place and functioning procedure is being followed. Checklists will be finalised with the Contractor's Environmental Operating Plan (EOP).

All environmental records, including completed checklists, will be retained at the site office.

Responsibility

Project Manager

Environmental Manager

Construction Manager

Project Ecologist

Project Archaeologist

EMP 14: Environmental Accidents, Incidents and Corrective Actions

Purpose

To describe measures for the recording, investigating and close-out of any environmental accidents or incidents on the site

Procedure

- The Environmental Manager or Construction Manager will be contacted as soon as possible where there is any incident that carries the possibility of negative environmental consequences (e.g. minor oil leakage).
- The Emergency Response Plan and standard emergency procedures will be applied to get the incident under control and prevent injury or loss of life in the first instance.
- Work in the area will be halted and the Environmental Manager will be called to the scene to assess the situation and to decide on initial responses and remedial measures.
- Once the situation is under control, the environmental accident or incident will be recorded, and the cause investigated.
- Any remedial action required will be taken to mitigate any damage and prevent a reoccurrence.
- Corrective actions will be communicated to personnel and sub-contractors where relevant – particularly where it results to a change in procedure.

Example list of environmental accidents & incidents

- Accidents involving large spill of fuel or concrete from delivery truck (emergency response required).
- Spills of fuel and oil (minor).
- Waste or rubbish left around the site (not in dedicated waste areas).
- Breach of any buffers (ecological).
- Unplanned vehicle movement off the access road.
- Unplanned vehicle movement within a buffer zone.

Responsibility

- Site staff will contact the Environmental Manager or Construction Manager as soon as possible where there is any incident that carries the possibility of negative environmental consequences.
- The Environmental Manager is responsible for alerting the relevant authorities.

Details of Environmental Accidents, Incidents and Corrective Actions Procedure, including a chain of responsibility, to be finalised by Appointed Contractor and communicated to all personnel and sub-contractors.

EMP 15: Environmental Complaints

Purpose

To describe measures for the recording and resolving complaints by third parties, including local residents or members of the public.

Procedure

A complaints procedure will be established for the duration of the construction phase. Any complaints received regarding alleged noise or any other complaint will be investigated immediately. Details of the complainant, the complaint (time of occurrence and nature of noise/vibration/other) and follow up action will be logged in the complaints record. The project manager will develop and implement an appropriate queries/complaints procedure. Records will include full details of the concerns expressed and ensure that a formal assessment is commenced of the reported concern.

The project manager will also discuss complaints with and oversee an initial response to the person who has submitted the complaint/concern confirming its receipt. The project manager will liaise with the environmental manager and an investigation to assess the issue of concern will be carried out and decisions made to see what corrective and/or preventive action, or further investigation is necessary. With overall responsibility for complaints, the project manager will respond within a reasonable timescale and maintain records of all correspondence. If significant corrective action and external stakeholder involvement is required the site manager/project manager will oversee all elements of the process.

Complaints that may be received will be logged, assessed and appropriate action taken as soon as practical. It will be critical to the success of the project that key issues are properly addressed from the outset to create a good working relationship and an integrated team approach to resolving potential issues before they arise.

Responsibility

Project Manager

Environmental Manager

Construction Manager

Details of Environmental Complaints Procedure to be finalised by Appointed Contractor.