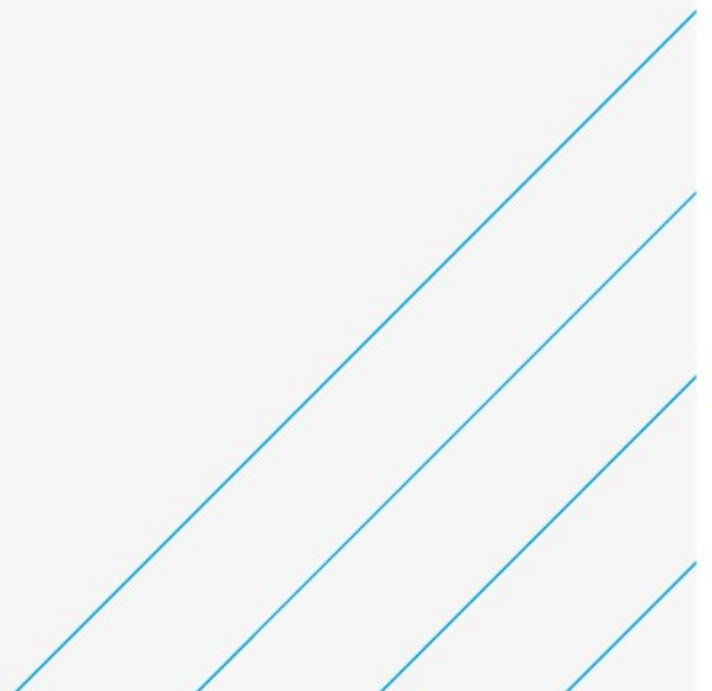


Spring Lane and Ellis Yard Redevelopment

Outline Construction Environmental Management
Plan

Cork City Council

March 2024



Notice

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Document history

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List of Acronyms

The following list of abbreviations have been used within this document;

BRE – Building Research Establishment

CEMP - Construction Environmental Management Plan

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CIEEM – Chartered Institute of Ecology and Environmental Management
ECP - Environmental Control Plans
EPA - Environmental Protection Agency
GSI - Geological Survey of Ireland
GWB – Groundwater Bodies
NHA – Natural Heritage Area
NIAH – National Inventory of Architectural Heritage
NPWS - National Parks and Wildlife Services
NRA - National Roads Authority
OPW – Office of Public Works
OTMP – Outline Traffic Management Plan
pNHA – proposed Natural Heritage Area
PSCS - Project Supervisor Construction Stage
PSDP - Project Supervisor for the Design Process
RWMP - Resource Waste Management Plan
SAC - Special Area of Conservation
SPA – Special Protection Area
TMP – Traffic Management Plan
Zol - Zone of Influence
ZoN – Zone of Notification

1. Introduction

1.1. Overview

This Outline Construction Environmental Management Plan (CEMP) has been prepared by AtkinsRéalis Ltd. on behalf of Cork City Council as part of the supporting documents for a planning application for the proposed Spring Lane and Ellis Yard Redevelopment (hereafter referred to as the proposed development) located within Cork City which is the subject matter of this planning application. Refer to Figures 1-1 and 1-2 for the red line boundary of the proposed development.

1.2. Purpose of CEMP

The purpose of this Outline CEMP is to set out measures to be implemented to avoid, minimise, and control potential adverse environmental impacts associated with the construction of the proposed development. The CEMP will document the commitment to safeguarding the environment through the identification, avoidance and mitigation of the potential negative environmental impacts which are associated with the proposed development.

The works Contractor will undertake the works in accordance with the provisions of the CEMP. This may be added to, to address other detailed construction matters. The CEMP will be added to and updated by the Contractor to address any subsequent planning conditions relevant to the proposed development.

The CEMP defines good practice as well as specific actions required to implement mitigation requirements as identified in the following environmental reports and documents reviewed by AtkinsRéalis:

- AtkinsRéalis, (2024), *Environmental Impact Assessment Screening, Spring Lane and Ellis Yard Redevelopment*.
- AtkinsRéalis, (2024), *Stage 2 – Natura Impact Statement' (NIS), Spring Lane and Ellis Yard Redevelopment*.

The CEMP will be provided to the Designer for the detailed design stage and to the Contractor prior to the commencement of works. The CEMP will form the basis of the Contractor's Detailed CEMP. In the absence of Irish guidelines, the UK guidelines LA 120 Environmental management, March 2020 for CEMP were followed.

1.3. Structure

This CEMP has been structured as follows:

- **Section 1** outlines the purpose of the CEMP and introduces the proposed development;
- **Section 2** describes in detail the proposed development;
- **Section 3** outlines the minimum standards, legislation and guidance required of the Contractor during the development of the CEMP;
- **Section 4** identifies the relevant roles and responsibilities for developing, implementing, maintaining and monitoring environmental management;
- **Section 5** sets out the mechanisms through which environmental requirements would be managed;
- **Section 6** sets out the general requirements of the CEMP.
- **Section 7** provides a summary of minimum requirements that will be implemented by the Contractor; and
- **Section 8** sets out the procedures for the Emergency Response Plan.

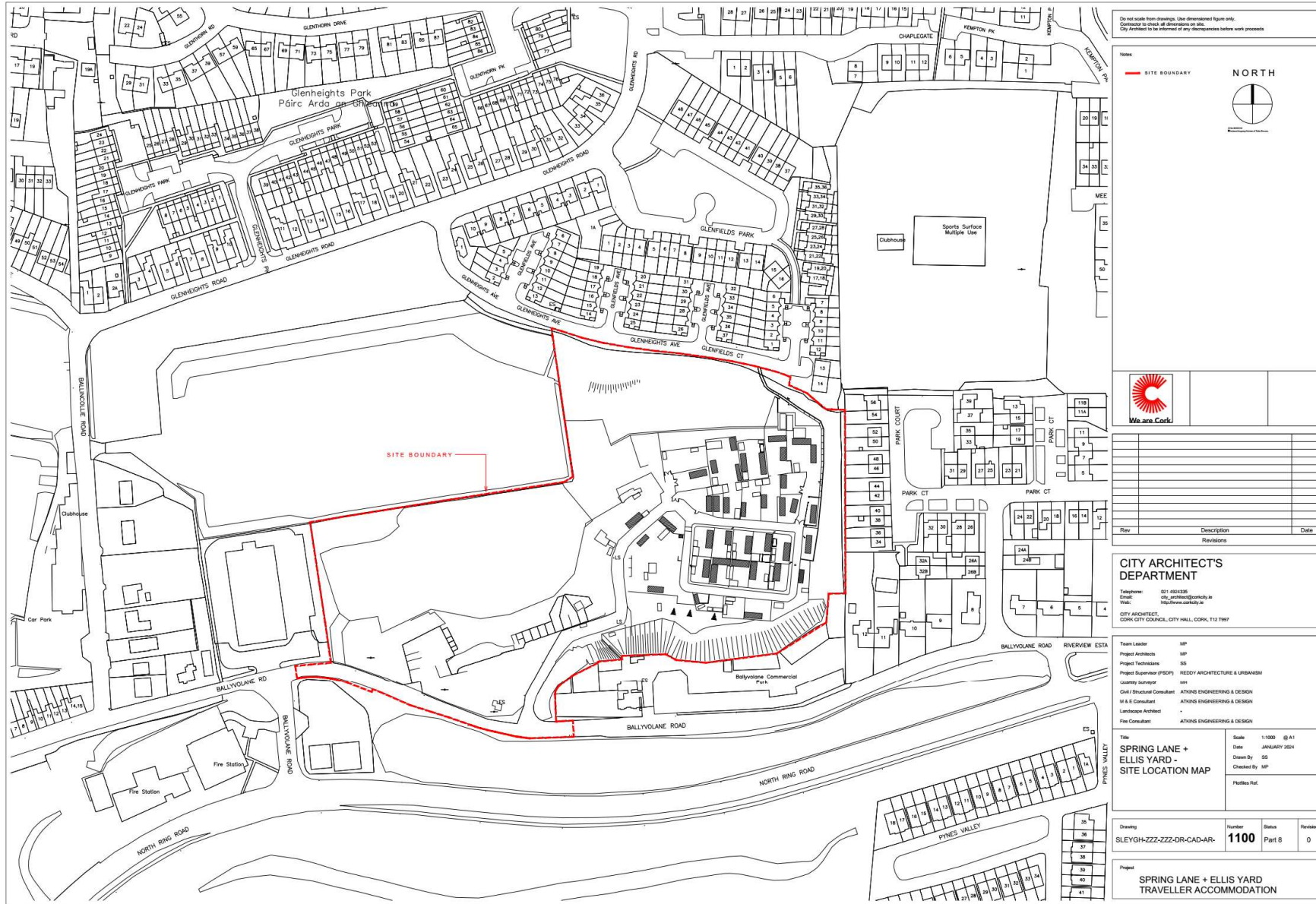


Figure 1-1 - Red Line Boundary of site location

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2. The Proposed Development

2.1. Proposed Development Description

Project Overview

Project Overview

The proposed development will comprise of the following:

- The demolition of existing structures including sheds, welfare units, mobile homes, caravans, walls, and fencing.
- The construction of 27no. residential units consisting of:
 - 1 no. 5-bedroom two-storey detached house
 - 2 no. 4-bedroom two-storey detached houses
 - 12 no. 3-bedroom two-storey detached houses
 - 12 no. 3-bedroom single-storey detached units
 - The provision of in-curtilage car parking spaces
 - Upgrade works to the existing entrances to Spring Lane and Ellis Yard from the Ballyvolane Road
 - Realignment and upgrade works to the existing access road into Spring Lane
 - Construction of a new road into Ellis Yard via the existing entrance from the Ballyvolane Road
 - Construction of a footpath, boundary wall, drainage and public lighting along the Ballyvolane Road
 - Resurfacing of the Ballyvolane Road from the existing entrance to Spring Lane to the existing entrance to Ellis Yard
 - Relocation of existing pedestrian footpath link from Spring Lane to Glenfields estate including construction of a section of new footpath to facilitate same
 - All ancillary site works and signage including new roads and footpaths, landscaping, retaining structures, boundary treatments, car parking, public lighting, underground services, drainage systems, watermains and connections, as outlined in the plans and particulars.
 - Temporary works, including the provision of temporary accommodation, will be required on site to facilitate the phased construction of the development including a temporary access road from the Glenfield estate for construction vehicles only.

Construction

Construction of the one and two storey housing units will comprise of masonry block walls with timber roofs and strip foundations to a maximum depth of 2 meters below ground level (mbgl). Two storey units will have timber web joists at first floor level. It is proposed that all retaining walls on the site will be reinforced concrete.

It is anticipated that attenuation tanks on site will be a maximum depth of 3.5mbgl. If de-watering is required on site, this will form part of the temporary works design to be undertaken by the Contractor during the construction phase. The contractor will provide a dewatering plan to Cork City Council for approval before commencement of any works.

It is anticipated that ca. 3000m³ of concrete yard will be removed and ca. 4,000m² of existing units comprising of masonry structures, prefabricated structures and mobile homes will be demolished and removed from site. It is anticipated that ca. 1500m³ of existing concrete plinths and utility services will be removed off site. All waste/material will be removed offsite by a hauler with a collection permit and the waste will be disposed / recycled in a licenced Environmental Protection Agency (EPA) facility.

Programme / Phasing

At this stage it is envisioned that the project will be carried out on a phased basis subject to the clients and contractors requirements.

2.2. Key Stages

The proposed development will involve the following key work phases:

- Detailed Design Stage;

- Appointment of the Contractor;
- Site preparatory works including the preparation of all required Detailed Safety and Health, and Environmental Management documents and the completion of any pre-commencement surveys;
- Site mobilisation;
- Demolition Stage;
- Construction Stage;
- Completion;
- Demobilisation; and
- Operational Stage.

Exact details of machinery have yet to be determined, but it is anticipated to be standard site equipment including tracked excavators, dumpers, bulldozers etc.

2.3. Environmental Constraints

This section summarises the main environmental constraints that relate to the construction phase.

2.3.1. Noise

A review of the Environmental Protection Agency (EPA) (2024) Noise Maps indicates that there is one area that has Transport Infrastructure Ireland (TII) reported noise levels - the North Ring Road located ca. 44m south of the proposed development has Lden noise levels of 70-75dB within the road corridor, with noise levels reducing to 55-59dB within ca. 35m of the road corridor; such noise levels are reported along the public road which bounds the site to the south. Lnight noise levels range from 50 to 59dB along the North Ring Road corridor, to 45-49dB within ca. 12m of the road corridor. The proposed development is located within urban residential lands with close proximity to commercial and industrial developments. Therefore, the main noise sensitive receptors are likely to be localised properties, local businesses, and any community amenities in the vicinity.

2.3.2. Air Quality

Dust arising from excavation and import of soil to the proposed site, along with vehicle movement as well as emissions from construction vehicles and plant will contribute to reduced air quality. Some activities including infilling of soil, excavations, stockpiling and movement of materials, and construction vehicle movements may all contribute to generating ambient dust.

2.3.3. Soils and Geology

The soil type beneath the development site is comprised of Made Ground. Additionally, the development is within the following Quaternary sediment types: Urban – the entire site is underlain by urban sediments, and Rck, Bedrock outcrop or subcrop – a small portion on the western end of the development.

The proposed project is underlain by Flaser-bedded sandstone & mudstone of the Cuskinny Member of the Kinsale Formation in the south and Flaser-bedded sandstone & minor mudstone of the Old Head Sandstone Formation in the north, with a strip of Grey-black slaty mudstone of the Kinsale Formation located in a south west – north east direction in the centre of the site (GSI, 2024).

Geological heritage features are identified and classified by the GSI as geological features of county, national and/ or international importance. According to the GSI database (2024), there are no Geological Heritage Areas within the project site, with the Blackrock Diamond Quarry (Site Code: CC003) being the closest and located ca. 2.4km south of the site.

The Ellis Yard portion of the project site has been subject to illegal dumping over recent years with Cork City Council undertaking a large scale clean-up operation of the waste materials in 2022.

2.3.4. Ecology

The entire site historically was a gravel quarry. In addition, there are two green field areas within the project site; to the north of the halting site and to the south of Ellis Yard hardstanding area.

There are 2no. European sites within the potential zone of influence (ZoI) of the proposed project with the closest designated sites being Cork Harbour SPA located ca. 4.4km east of the site. The other designated site; Great Island Channel SAC which is located ca. 7.9km east of the site. There are no watercourses within the project site which could provide indirect connectivity to Cork Harbour SPA or Great Island Channel SAC. The watercourses located within 200m of the project site; Ballincolly Stream and Glen Stream combine to outfall to the River Lee in

Cork City which flows into Lough Mahon and Cork Harbour within which Cork Harbour SPA and Great Island Channel SAC are situated. In the wider environs, Blackwater River SAC is located c. 13.5km north of the project site. There is no potential indirect / hydrological connectivity to this SAC.

There is no direct or indirect connectivity to any areas of non-qualifying interest Annex I habitat.

Ecological features found within the Zol of the proposed development, which have the potential to be directly or indirectly impacted by the construction and operational phases of the proposed development, are detailed within this section of the report. These features are described as 'ecological receptors'.

Ecological receptors within the Zol are listed in Table 2-1 below. A general description of the receptor's features is given along with, where possible, the ecological value associated with each receptor. Assessment and selection of key ecological receptors is also detailed. The potential for a key ecological receptor to be either directly or indirectly impacted by the proposed development has also been considered.

Table 2-1 - Evaluation of Key Ecological Receptors

Ecological receptor potentially subject to impacts from the proposed development	Summary description of ecological receptor	Potential for impact	Value of ecological receptor	Selection as ecological receptor / key ecological receptor in context with the proposed development
Designated Sites				
Great Island Channel SAC Cork Harbour SPA	Natura 2000 sites, see Section 5.1 of the AA screening report for details.	There are no watercourses within the project site which could provide indirect connectivity to either Cork Harbour SPA or Great Island Channel SAC. The project site does not provide for suitable habitats for SPA birds that may forage or feed outside of the SPA site extents. As such there will be no disturbance or displacement impacts to ex-situ SPA birds.	Internationally important	Key ecological receptor. Assessed as a key receptor due to the designation status of the site.
Surface water features (rivers, streams and field drains)				
Ballincolly Stream and Glen Stream	There are 2no. watercourses within 200m of the project site; the Ballincolly Stream is located c. 160 east of the project site and is separated from the project site by Park Court residential estate. The Ballincolly Stream is a tributary of the Glen Stream which flows ca. 170m to the south of the project site. The Glen Stream is separated from the project site by Ballyvolane Road, the North Ring Road and the parklands of Glen Park. The Ballincolly and Glen streams combine with the Bride Stream to form Kiln River (located c. 1km southwest) which outfalls into the River Lee in the centre of Cork City	No in-stream works are necessitated for the proposed development, furthermore, there is not direct connectivity between the watercourses and any SAC or SPA. Therefore it is expected there would be no impact.	Local Importance	Key ecological receptor. Assessed as a key receptor due the likelihood of the watercourses accommodating species of high ecological importance and for the potential for the proposed development to result in adverse impacts on the water quality of surface water features.

2.3.5. Landscape and Visual Amenity

The entire site historically was a gravel quarry. In addition, there are two green field areas within the project site; to the north of the halting site and to the south of Ellis Yard hardstanding area. There are sensitive receptors adjacent to the proposed development, including residential developments adjacent to the north and east boundary of the proposed site and retail / commercial units adjacent to the southern boundary of the proposed site.

2.3.6. Water Resources

A review of EPA datasets identifies the project site is within the Kiln subcatchment (Kiln_SC_10, Id 19_1). There are no watercourses within or connecting to the project site. There are 2no. watercourses within 200m of the project site; the Ballincolly Stream is located ca. 160 east of the project site and is separated from the project site by Park Court residential estate. The Ballincolly Stream is a tributary of the Glen Stream which flows ca. 170m to the south of the project site. The Glen Stream is separated from the project site by Ballyvolane Road, the North Ring Road and the parklands of Glen Park. The Ballincolly and Glen streams combine with the Bride Stream to form Kiln River (located ca. 1km southwest) which outfalls into the River Lee in the centre of Cork City. The Ballincolly Stream and the Glen Stream are identified within EPA datasets as having 'Poor' Water Framework Directive (WFD) status for the 2016-2021 monitoring period and are noted to be 'At Risk' of failing to meet the objectives of the WFD.

The GSI has devised a system for classifying the bedrock aquifers and the gravel aquifers in Ireland based on the size and hydrogeological characteristics of these aquifers. The three main classifications for bedrock aquifers are Regionally Important Aquifers (R), Locally Important Aquifers (L) and Poor Aquifers (P), which are further subdivided based on the productivity of the aquifer. Gravel aquifers are classified as either Regionally Important (Rg) or Locally Important (Lg).

There are no gravel aquifers underlying the proposed development. The closest is located ca. 1.5km southwest of the site - this aquifer is associated with the River Lee (Lee Valley). Groundwater vulnerability beneath the northern portion of the site is classified by GSI (2024) as 'High', with the remainder of the site predominantly classified as 'Extreme'. A portion of 'Rock at or near surface or karst' is located in the western portion of the site. These later classifications indicate that groundwater is shallow and vulnerable to potential contamination.

Based on the GSI public data viewer, the proposed development is underlain by a locally important bedrock aquifer which is moderately productive only in local zones.

The proposed development is located within the Ballinhassig East (IE_SW_G_004) groundwater body (GWB), which is reported as having 'Good' Water Framework Status for the 2016-2021 monitoring period and is reported as 'Not at risk' of failing to achieve relevant WFD objectives by 2027 (EPA, 2024).

The proposed development is within the Lee, Cork Harbour and Youghal Bay Water Framework Directive (WFD) Catchment area.

2.3.7. Flood Risk

A Stage 1 Flood Risk Assessment prepared by AtkinsRéalis (2024) concluded that *'the CFRAMS Map indicate the development is located in Flood Zone C with the probability of flooding at less than 1 in 1000 or 0.1%, Flood Zone C covers all other areas that are not in Flood Zones A or B and is the lowest risk category..... A Stage 2 Flood Risk Assessment is not deemed necessary for the proposed site.'*

2.3.8. Archaeology and Heritage

There are no reported Sites and Monuments Records (SMR) features or National Inventory of Architectural Heritage (NIAH) features located within the project site or the vicinity.

2.3.9. Traffic and Transportation

Due to the scale and nature of the proposed project it is anticipated that there may be impacts on traffic volumes during the construction phase of the project. There will be an appropriate traffic management system put in place for the duration of the project, so it is expected that there will be no significant impact associated with traffic due to the proposed project.

The contractor will be required to design and implement traffic plans as required in accordance with the 'Guidance for the Control and Management of Traffic at Road Works' (TII, 2010).

2.3.10. Local Amenities and Other Sensitive Receptors

Local Services / Amenities (Social Infrastructure) includes a wide range of services and facilities including community, recreation and sports facilities that contribute to the quality of life. Such facilities in the area include Glen Rovers GAA Club and sports grounds, ROC Fitness, the Laundry Basket Ballyvolane, KMC Therapies and Ballyvolane Fire Station amongst others. Sensitive receptors would also include local residents currently living within the vicinity of the proposed development.

3. Legislation and Guidance

All parties, contractors and consultants working on the proposed development shall be subject to the laws of Ireland and the various international/regional protocols and agreements to which Ireland is a party. In the event that legislation is updated the latest version shall be followed. All relevant new legislation will be followed as appropriate. This document outlines most current legislation at the date of issue. It is the responsibility of the Contractor to ensure that they are up to date with the details of the latest iterations of legislation relevant to the proposed development throughout the duration of the contract.

The Designer will be aware of all key environmental risks and associated measures set out within this CEMP, and the final detailed design will take due cognisance of these.

This CEMP will be provided to the Contractor prior to the commencement of works and will form the basis of the Contractors CEMP. The Contractors CEMP will set out the approach and methodology which the Contractor will follow in scheduling and undertaking the work and will incorporate the control (mitigation) measures detailed in this CEMP in addition to specified conditions that may be prescribed in any grant of development consent for the Proposed Development and any commitments given by Cork City Council in relation to environmental protection associated with the activities described in this CEMP.

3.1. Legislation

The appointed Contractor will be aware of their obligations under legislation. Such legislation, includes, but is not restricted, to:

- Planning and Development Act and subsequent amendments, 2000-2023.
- Planning and Development Regulations 2001, as amended;
- The Birds Directive: Council Directive 2009/147/EC on the conservation of wild birds;
- The Habitats Directive: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora;
- The Environmental Impact Directive (85/337/EEC), as amended (97/11/EC, 2003/35/EC, 2009/31/EC, 2011/92/EU and 2014/52/EU);
- The European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011), as amended, 2015 (S.I. No. 355 of 2015) and 2021 (S.I. No. 388 of 2021) L;
- Water Framework Directive (WFD): Directive 2000/60/EC of the European Parliament and Council establishing a framework for Community Action in the field of water policy, as amended;
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009, S.I. No. 272 of 2009, as amended, 2012 (S.I. No. 327 of 2012), 2015 (S.I. No. 386 of 2015), 2019 (S.I. No. 77 of 2019);
- European Communities Environmental Objectives (Groundwater) Regulations 2010, S.I. No. 9 of 2010, as amended, 2016 (S.I. No. 366 of 2016);
- European Communities (Environmental Liability) Regulations, 2008, S.I. No. 547 of 2008, as amended, 2011 (S.I. No. 307 of 2011), 2015 (S.I. No. 293 of 2015);
- Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste, as amended 2018 (S.I. No. 851 of 2018);
- Waste Management Acts of 1996 to 2021;
- The Water Pollution Acts of 1977 & 1998;
- The Wildlife Acts 1976 to 2022;
- Water Policy Regulations 2003, S.I. No. 722 of 2003, as amended, 2005 (S.I. No. 413 of 2005), 2008 (S.I. No. 219 of 2008), 2010 (S.I. No. 93 of 2010) and Amendment (No. 2) Regulations, (S.I. 326 of 2010) & EU Water Policy Regulations 2014 (S.I. 350 of 2014), 2018 (S.I. No. 261 of 2018) and 2022 (S.I. N 166 of 2022);
- Water Conservation Regulations 2008, S.I. No. 527 of 2008;
- European Communities (Drinking Water) Regulations 2014, S.I. No. 122 of 2014, as amended 2017 (S.I. No. 464 of 2017), 2020 (S.I. No. 2184 of 2020) and 2022 (S.I. No. 286 of 2022);
- Guidelines on protection of fisheries during construction works in and adjacent to waters (IFI, 2016);
- Litter Pollution Act of 1997, as amended, 2017 (Bill 58 of 2017) and 2022 (Bill 64 of 2022);
- Litter Pollution Regulations 1999, S.I. No. 359 of 1999);

- European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014), as amended 2019 (S.I. No. 233 of 2019);
- Waste Management (Facility Permit and Registration) Regulations 2007, S.I. No. 821 of 2007, as amended, 2008 (S.I. No. 86 of 2008), 2015 (S.I. No. 198 of 2015), 2019 (S.I. No. 250 of 2019), 2023 (S.I. No. 471 of 2023);
- Waste Management (Collection Permit) Regulations 2007, S.I. No. 820 of 2007), as amended, 2015 (S.I. No. 197 of 2015), 2016 (S.I. No. 24 of 2016);
- Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010);
- Environment (Miscellaneous Provisions) Act 2011, as amended 2015 (S.I. No. 29 of 2015);
- Waste Management (Landfill Levy) Regulations 2008, S.I. No. 199 of 2008, as amended 2009, (S.I. No. 550 of 2009), 2010 (S.I. No. 31 of 2010), 2012 (S.I. No. 221 of 2012), 2013 (S.I. No. 194 of 2013), 2015 (S.I. No. 189 of 2015), 2019 (S.I. No.182 of 2019), 2023 (S.I. No. 398 of 2023);
- Waste Management (Hazardous Waste) Regulations, 1998, as amended, 2000 (S.I. No. 73 of 2000);
- Waste Management (Shipment of Waste) Regulations 2007, S.I. No. 419 of 2007;
- Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998);
- European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011, S.I. No. 324 of 2011;
- European Communities (Transfrontier Shipment of Waste) Regulations 1994 (S.I. No. 121 of 1994);
- Waste Management (Transfrontier Shipment of Waste) Regulations 1998, as amended, 2014 (S.I. No. 861 of 2014);
- Waste Management (Tyres and Waste Tyres) Regulations 2007 (S.I. No. 664 of 2007), 2017, as amended (S.I. No. 400 of 2017) and 2018 (S.I. No. 96/2018);
- European Union Batteries and Accumulators Regulations 2014, S.I. No. 283 of 2014, as amended, 2014 (S.I. No. 349 of 2014), 2015 (S.I. No. 347 of 2015);
- Waste Management (Registration of Brokers and Dealers) Regulations 2008, SI No. 113 of 2008;
- Waste Management (Prohibition of Material Disposal by burning) Regulations 2009, S.I. No. 286 of 2009, as amended 2013 (S.I. No. 504 of 2013), 2017 (S.I. No. 599 of 2017), 2019 (S.I. No. 684 of 2019) and (S.I. No. 51 of 2022);
- European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011, as amended 2016 (S.I. No. 315 of 2016) and (S.I. No. 323 of 2020);
- European Waste Catalogue (EWC) and Hazardous Waste List 2002, 2015 and 2018;
- Waste Management (Food Waste) Regulations 2009, S.I. No 508 of 2009, as amended, 2015 (S.I. No. 430 of 2015);
- European Union (Household Food Waste and Bio – Waste (Amendment) Regulations 2023;
- Protection of the Environment Act 2003;
- European Union (Properties of Waste Which Render It Hazardous) Regulations 2015, S.I. No. 233 of 2015, as amended, 2018 (S.I. No. 383 of 2018);
- Air Pollution Act, 1987 (Air Quality Standards) Regulations, 1987, as amended, 2002 (S.I. No. 271 of 2002), 2011 (S.I. No. 180 of 2011), 2016 (S.I. No. 659 of 2016);
- Climate Action and Low Carbon Development (Amendment) Act 2021 (S.I. No. 32 of 2021);
- Air Pollution Act, 1987 (Emission Limit Values for use of Asbestos) Regulations, 1990, S.I. No. 28 of 1990);
- EC (Control of Emissions of Gaseous & Particulate Pollutants from Non-Road Mobile Machinery) Regulations 2007, S.I. No.147 of 2007, as amended, 2011 (S.I. No. 263 of 2011), 2012 (S.I. No. 407 of 2012), 2013 (S.I. No. 417 of 2013), 2016 (S.I. No. 2016/1628);
- The EU Regulation 2037/2000 (CFC's, HCFC's, Halons) - Ozone Depleting Substances. Control of Substances that Deplete the Ozone Layer Regulations 2006, S.I. No 281 of 2006, as amended, 2011 (S.I. No. 465 of 2011);
- EU F Gas Regulations 2006, as amended, 2014, S.I. No. 517 of 2014, 2019 (S.I. No. 367 of 2019);
- Environmental Protection Agency Act 1992 (Noise) Regulations, 1994 S.I. 174 of 1994;
- Environmental Noise Regulations 2006, (S.I. No. 140 of 2006);

- European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018);
- European Communities (Noise Emission by Equipment for use Outdoors) Regulations, 2001, S.I. No. 632 of 2001, as amended, 2006 (S.I. No. 241 of 2006);
- European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Amendment Regulations 1996, S.I. No. 359 of 1996 and 2001, S.I. No. 632 of 2001);
- Local Government (Planning and Development) Act 1963 (S.I. No. 28 of 1963), as amended 1993 (S.I. No. 12 of 1993);
- Wildlife Act, 1976 (Protection of Wild Animals) Regulations, 1990, S.I. No. 112 of 1990 and Wildlife Amendment Act, 2000 (S.I. No. 38 of 2000);
- European Communities Conservation of Wild Bird Regulations 1985, S.I. No. 291 of 1985, as amended, 1986 (S.I. No. 48 of 1986), 1995 (S.I. No. 31 of 1995), 1997, (S.I. No. 210 of 1997), 1998 (S.I. No. 154 of 1998), (S.I. No. 131 of 1999), 2005 (S.I. No. 716 of 2005), 2010 (S.I. No. 65 of 2010), 2011 (S.I. No. 626 of 2011), 2012 (S.I. No. 84 of 2012), 2013 (S.I. No. 281 of 2013), 2019 (S.I. No. 178 of 2019); 2021 (S.I. No. 293 of 2021);
- Noxious Weed Act, 1936, S.I. No. 38 of 1936;
- Noxious Weed Order, 1937, S.I. No. 103 of 1937;
- Flora (Protection) Order, 2015, S.I. No 356 of 2015 and 2022 (S.I. No. 235 of 2022);
- The Forestry Act, 1946, S.I. No. 13 of 1946, as amended, 2009 (S.I. No. 40 of 2009) & Forestry Act, 2014, S.I. No. 31 of 2014;
- Forestry Regulations, S.I. No. 191 of 2017, as amended 2020 (S.I. No. 32 of 2020);
- The National Monuments Act 1930, S.I. No. 2 of 1930, as amended, 2004 (S.I. No. 22 of 2004);
- Historic and Archaeological Heritage Bill 2023 (Bill 2 of 2023);
- European Union (Environmental Impact Assessment and Habitats) (Section 181 of the Planning and Development Act 2000) Regulations, 2013 (S.I. No. 403 of 2013), 2015 (S.I. No. 301 of 2015), 2019 (S.I. No. 418 of 2019); and,
- European Union (Environmental Impact Assessment and Habitats) (Environmental Impact Assessment) Regulations, 2018, S.I. No. 296 of 2018, 2020 (S.I. No. 191 of 2020).

3.2. Industry Guidance

The Contractor will take due consideration of, and incorporate best practice guidance, including but not limited to the following:

- BS 5837/2012. Trees in relation to design, demolition and construction;
- BS 3998; 2010. Tree Work. Recommendations;
- CIRIA (2001). C532. Control of water pollution from construction sites. Guidance for consultants and contractors;
- CIRIA (2006). C648. Control of water pollution from linear construction projects. Technical Guidance;
- CIRIA (2008). C679. Invasive species management for infrastructure managers and the construction industry;
- CIRIA (2015). C741. Environmental Good Practice on Site;
- CIRIA (2015). C753. The SuDS Manual;
- Environmental Protection Agency (2021). *'Best Practice Guidelines for the preparation of resources & waste management plans for construction & demolition projects'*
- ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines;
- Invasive Species Ireland (2016). Best Practice Management Guidelines. Japanese knotweed;
- National Roads Authority (NRA) (2008). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;
- NRA (2005). Guidelines for the Treatment of Badger Prior to the Construction of National Road Schemes;
- NRA (2008). Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes;
- NRA (2006). Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes;

NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (Revision 1); and

- Sustainability & Environmental Appraisal (March 2020) LA 120 Environmental management.

4. Roles and Responsibilities

For the purposes of clarity, the roles and responsibilities of the project team for the proposed development will be determined at the very outset of the Construction Stage of this proposed development. Key roles are listed below. These are typically performed by the Client, Engineer, and Contractor as presented below. Specific details will be determined upon the Detailed Design and Contract Stage.

Table 4.1 - Roles and Responsibilities

Employer	Planning Agents
The Client: Cork City Council Tel: 021 4924000 Contact: buildingnewhomes@Corkcity.ie	The Planner: TBC Tel: TBC Contact: TBC
Employers Representative (Designer)	Civil, Structural and Environmental Team
The Engineer: City Architect Tel: 021 4924000 Contact: CityArchitect@Corkcity.ie	Consultant: AtkinsRéalis Tel: 01 8108000 Contact: TBC
Project Supervisor for the Design Process (PSDP)	Contractor
The Engineer: Reddy A+U Tel: (021)4362922 Contact: cork@reddyarchitecture.com	The Contractor: to be confirmed Tel: to be confirmed Contact: to be confirmed
Project Supervisor Construction Stage (PSCS)	
The Contractor: to be confirmed Tel: to be confirmed Contact: to be confirmed	

4.1. The Client/Employer

Cork City Council will be responsible for ensuring that competent parties are appointed to undertake the construction and that sufficient resources are made available to facilitate the appropriate management of risks to the environment.

4.2. Environmental Manager

An Environmental Manager will be appointed by the Contractor to ensure that the CEMP is effectively implemented. The Environmental Manager will be a suitably qualified, competent and experienced professional that would perform the necessary tasks, review environmental procedures and consult with the members of the construction team and stakeholders as required. The Environmental Manager will be responsible for:

- Ensuring that the CEMP and all relevant documents such as environmental control plans are developed, implemented and maintained on site;
- Updating the CEMP to address any subsequent planning conditions relevant to the proposed development.
- Ensuring compliance with the Conditions of the Planning Permission and any other relevant permits/consents required;
- Ensuring that construction occurs in accordance with the relevant environmental requirements and that such compliance is adequately recorded and documented;
- Conducting regular environmental inspections and compiling an environmental compliance report on a monthly basis;

- Attending site and stakeholder meetings as required;
- Keeping up to date with relevant environmental best practice and legislative changes;
- Ensuring all staff have undertaken adequate environmental inductions, awareness briefings and training;
- Dealing with environmental complaints; and
- Managing and responding to environmental incidents and ensuring that all incidents are recorded and reported in an appropriate manner.

4.3. Construction Director

The Construction Director will be responsible for the overall execution and organisation of all environmental related activities, as appropriate. Some responsibilities of the Construction Director will comprise the following:

- Overall responsibility for the implementation of the CEMP;
- Allocating the correct resources in order to ensure the successful implementation of the CEMP; and
- Assisting in the management review of the CEMP for suitability and effectiveness.

4.4. Construction Manager

The Construction Manager is directly responsible to the Construction Director in assisting with the successful execution of the proposed development. The responsibilities of the Construction Manager in respect of the CEMP comprise the following:

- To report to the Construction Director on the on-going performance and development of the CEMP;
- To discharge his/her responsibilities as per the CEMP; and
- To support and augment the Construction Management Team through the provision of adequate resources and facilities for the duration of the implementation of the CEMP.

5. Environmental Management Procedures

5.1. General

The Contractor will have a recognised environmental management system such as ISO 14001:2015 or be able to demonstrate that they are actively working towards implementing such a system.

The works Contractor will undertake the works in accordance with the provisions of the CEMP. The CEMP will be updated by the Contractor to address any subsequent planning conditions relevant to the proposed development and will be reviewed by the Employer and/or the Employer's Representative. The Contractor will review and update the CEMP as appropriate and shall issue an updated CEMP. A record of the review and any recommendations will also provide (for review and approval by the Employer and/or the Employer's Representative) Environmental Control Plans (ECPs), which will be maintained and updated in accordance with the CEMP. ECPs will include (if applicable), but will not be restricted to:

- Air Quality Control Plan;
- Construction Noise and Vibration Control Plan;
- Pollution Prevention Control Plan;
- Water Resources and Energy Use Control Plan;
- Ecological Control Plan;
- Light Pollution Control Plan;
- Archaeological and Cultural Control Plan;
- Traffic Management Control Plan;
- Contamination Land Control Plan; and
- Soil Erosion and Sedimentation Control Plan.

Guidance on the development of the Control Plans is located in Section 7 of this document.

5.2. Environmental Policy

The Contractor shall have an environmental policy dated and signed by the most senior person in the company. The policy shall:

- Be appropriate to the nature, scale and environmental impacts of the organisation's activities, products and services;
- Include a commitment to continual improvement in environmental performance;
- Include a commitment to comply with all applicable legislation and with other requirements to which the organisation subscribes which relate to its environmental aspects;
- Provide a framework for setting and reviewing objectives and targets;
- Be documented, implemented and maintained;
- Be communicated to all persons working for or on behalf of the organisation; and
- Be available to the public.

5.3. Environmental Aspects

The Contractor will use a qualitative approach to identify and evaluate potential environmental aspects along with any controls to prevent or mitigate environmental damage. A simple risk matrix (as follows) facilitates quick reference and assignment of risk levels for each environmental aspect:

- Extreme/serious risk;
- High risk;
- Moderate risk; and
- Low risk.

All environmental aspects rated as High or Extreme/Serious will be classified as significant and will require control or mitigation measures to manage the risk. All environmental aspects covered by a legal requirement, for example an Environmental Permit condition will also be classified as significant even if the risk is low or moderate.

Table 5.1 – Example of Qualitative Risk Matrix

					Probability				
Severity	People	Assets	Environment	Reputation	Impossible / Rare	Improbable / Possible	Probable / Likely	Very Likely / Often	Certainty/ Frequent
Catastrophic	Multiple fatalities or permanent total disabilities	Extensive damage	Massive effects	International impact				Extreme / Serious Risk	
Severe Major	Single fatality or permanent total disability	Major damage	Major effect	National impact		High Risk			
Critical Moderate	Major injury or health effects	Local damage	Localized effect	Considerable impact					
Marginal Minor	Minor injury or health effects	Minor damage	Minor effect	Minor impact		Moderate Risk			
Negligible / Insignificant	Slight injury or health effects	Slight damage	Slight effect	Slight impact	Low Risk				

The Contractor shall record the results of the qualitative risk analysis in an Aspects and Impacts Register (Table 5.2).

Table 5.2 – Example of Aspects and Impacts Register

Environmental Aspect	Environmental Impact	Risk Rating	Control Measures / Mitigation	Risk Rating After Control
Use of fuel storage tanks on site	Potential contamination of water and land	High Risk	Double skinned tank, bunding, location on hard standing, emergency spill procedure and equipment and training	Moderate Risk

5.4. Training, Awareness and Competence

The Contractor (and their sub-contractors) will be selected with due consideration of relevant qualifications and experience. The Contractor will be required to employ construction staff with appropriate skills, qualifications and experience appropriate to the needs of the works to be carried out during construction.

A site induction will be provided to all construction staff before they commence work on site. Where appropriate, the Contractor will identify specific training needs for the construction workforce and will ensure that appropriate training requirements are fulfilled. A baseline level of environmental awareness will be established through the site induction programme. Site inductions will cover the following as a minimum:

- Introduction to the Environmental Manager;
- The requirements of the CEMP and consequences of non-compliance;
- The requirements of due diligence and duty of care;

- Identification of environmental constraints and potential impacts of the work;
- Procedures associated with incident notification and reporting including procedures for dealing with damage to the environment; and
- The benefits of improved environmental and sustainability performance; and the potential consequences of departure from specified procedures, work instructions and method statements.

5.5. Meetings

The Environmental Manager will be responsible for arranging and holding monthly meetings with the Employer and/or the Employer's Representative. The Environmental Manager will develop and distribute minutes on monthly meetings accordingly.

5.6. Monitoring and Inspections

For the duration of the contract, the environmental performance of the Contractor will be monitored through site inspections and audits. The programme for monitoring, inspections and audits shall be specified in the contract. The Contractor shall develop, implement and maintain an Environmental Inspections and Monitoring Plan.

Record of all inspections carried out will be recorded and all actions will be closed out in a reasonable time. If additional monitoring and inspections are required due to any subsequent planning conditions, these will be added to the CEMP.

5.6.1. Monitoring

Mitigation and monitoring will be carried out so that construction and demolition activities are undertaken in a manner that does not give rise to significant negative effects.

The results of all environmental monitoring activities would be reviewed by the Environmental Manager on an ongoing basis to enable trends or exceedance of criteria to be identified and corrective actions to be implemented as necessary.

5.6.2. Inspections

Inspections of construction and demolition activities will be carried out by the Environmental Manager on a daily basis to ensure all necessary environmental measures relevant to the construction and demolition activities are being effectively implemented by construction staff, ensuring legal and contractual conformity.

5.6.2.1. Daily Inspections:

The daily inspections will include, but not be limited to, checking that:

- The site boundary is marked out and respected;
- All waste is appropriately stored and segregated;
- Waste skips are covered to prevent wind-blown litter;
- Drip trays are in place for all stored equipment and plant;
- All chemicals/fuels are stored with appropriate containment/bunds/cover;
- Construction and demolition noise is within permitted limits and does not create a nuisance;
- Dust does not create a nuisance; and
- Fencing/hoarding is secure.

5.6.2.2. Weekly Inspections

The inspections will include, but not be limited to confirming that:

- Daily checklists have been completed;
- Waste storage areas have been checked and there is no build-up of waste materials;
- Spill kits have been checked and contain all relevant materials;
- The performance of all pollution control equipment has been checked and the equipment is working effectively;
- Noise reduction/monitoring equipment has been checked and is operating effectively;
- Site welfare facilities are fit for purpose and suitably maintained; and

- Special control measures identified in Permit/Planning Conditions and CEMP are adhered to.

5.7. Nonconformity and Corrective and Preventative Action

The Contractor shall establish, implement and maintain procedures to deal with actual and potential non-conformities and for taking corrective and preventative action.

Non-conformities may be identified through:

- Internal contractor audits;
- Audits by the Employer and/or the Employer's Representative;
- Audits undertaken by external certification bodies;
- Audits undertaken by regulatory authorities; and
- General observations.

The Contractor procedures shall define the requirements for:

- Identifying and correcting non-conformities;
- Mitigating the environmental impacts of non-conformities;
- Investigating non-conformities including identify root causes and implementing appropriate actions to avoid their reoccurrence;
- Evaluating the need for actions to prevent non-conformities and implementing appropriate actions designed to avoid their reoccurrence;
- Setting realistic timeframes for undertaking effective corrective and preventative actions;
- Recording the results of corrective and preventative actions taken; and
- Reviewing the effectiveness of corrective and preventative actions.

All actions identified will be appropriate to the nature and magnitude of the issue and the environmental impacts encountered.

5.8. Reporting

The Contractor will be required to submit a report, the frequency to be agreed with the Contractor and Employer and/or the Employer's Representative to the Employer and/or the Employer's Representative for review and approval. The report shall address the following as minimum:

- Summary of compliance with the CEMP including identification of any non-conformances;
- Interpretation of the result of ongoing monitoring;
- Detailed description of any issues and/or non-conformances identified during inspections and/or audits;
- Record of incidents and corrective actions (including Corrective Actions Reports as appropriate);
- Synopsis of environmental complaints received/queries raised by stakeholders; and
- Records of environmental training undertaken (as appropriate).

5.9. Environmental Records

The Contractor shall maintain records of all environmental documentation including monitoring, test results, method statements and plans. All records will be kept up-to-date and be made available for audits, inspections and periodical reporting. The Contractor will maintain the following environmental records (as a minimum) that will be made available for inspection to the Employer and/or the Employer's Representative and the relevant authorities if required:

- Management plans;
- Records of environmental incidents;
- Environmental reports;
- Records of environmental training;
- Register of environmental complaints;
- Corrective Action Reports;
- Environmental inspection and audit reports;

- All monitoring data;
- Waste and chemical inventories; and
- Health and Safety records.

6. General Requirements

The Contractor will be legally required to ensure compliance and to avoid and/or reduce significant adverse effects that have been identified. Where the Contractor is required to vary the methodologies and working areas outlined herein and/or defined in the granted planning consent and associated conditions that may be granted, it will be the responsibility of the Contractor to obtain the relevant licenses, permits and consents prior to implementing any such changes.

6.1. Good Housekeeping

The Contractor will employ a 'good housekeeping' policy at all times. This will include, but not be restricted, to the following:

- General maintenance of working areas and cleanliness of welfare facilities and storage areas;
- Provision of site layout map showing key areas such as first aid posts, material storage, spill kits, material and waste storage, welfare facilities etc;
- Maintain all plant, material and equipment required to complete the construction work in good order, clean and tidy;
- Keep construction compounds, access routes and designated parking areas free and clear of excess dirt, rubbish piles, scrap wood, etc. at all times;
- Details of site managers, contact numbers (including out of hours) and public information signs (including warning signs) will be provided at the boundaries of the working areas;
- Provision of adequate welfare facilities for site personnel;
- Installation of appropriate security, lighting, fencing and hoarding;
- Effective prevention of oil, grease or other objectionable matter being discharged from the working area;
- Provision of appropriate waste management at each working area and regular collections to be arranged;
- Excavated material generated during construction will be reused on site as far as practicable and surplus materials/soils shall be recovered or disposed of to a suitably authorised waste facility site;
- Effective prevention of infestation from pests or vermin;
- No discharge of site run-off or water discharge without agreement of the relevant authorities; and
- Maintenance of public rights of way, diversions and entry/exit areas around working areas for pedestrians and cyclists where practicable and to achieve inclusive access;

6.2. Site Compound

It will be the responsibility of the Contractor to determine a suitable location for the site compound within the proposed development area. The site compound should be located away from any identified environmental sensitive receptors so as to avoid potential impacts to the environment and the general public. The final proposed site compound location will be subject to client approval.

Site access for all personnel and visitors will be strictly controlled and all visitors will report to the site compound prior to entering the construction area. The site compound will be fenced to keep public out of working area and will be secured. Regular inspections of the hoarding will be undertaken to ensure that the safety of any vehicles or personal are not compromised.

6.3. Hours of Working

6.3.1. Core Working Hours

The timing of construction and demolition activities, core working hours and the rate of progress of construction works are a balance between efficiency of construction and minimising nuisance and significant defects. The core construction working hours for the proposed development will be:

- Monday to Friday: 08:00 to 18:00.
- Saturdays: 08:00 to 14:00
- Sundays & Bank Holidays: No works activities shall take place on site.

6.3.2. Start-up and shutdown

The Contractor may require a period of up to one hour before and one hour after core working hours for start-up and shutdown activities in working areas. Activities permitted may include deliveries and unloading of materials,

movement of staff to their place of work, maintenance and general preparation works. The use of plant machinery likely to cause disturbance, will not be permitted outside of the core working hours.

6.3.3. Additional working hours

It may be necessary in exceptional circumstances to undertake certain activities outside of the construction core working hours. Any construction outside of the construction core working hours will be agreed by the Contractor in advance with Cork City Council and scheduling of such works will have regard to nearby sensitive receptors.

In the case of work required in an emergency or which if not completed would be unsafe or harmful to workers, the public or local environment, Cork City Council will be informed as soon as reasonably practicable of the reasons and likely duration and timing (outside of the core working hours).

6.4. Security

Security will be the responsibility of the Contractor who will provide adequate security to prevent unauthorised entry to or from the site. The following measures may be used to prevent unauthorised access:

- Install CCTV and security systems where required;
- Consult with neighbouring properties and local crime prevention officers including Cork City Council and An Garda Síochána on site security matters where required;
- Prevent access to restricted areas and neighbouring properties by securing equipment on site such as ladders and scaffolding; and
- When there is no site activity, close and lock site gates and set appropriate site security provisions as required.

6.5. Hoarding and Fencing

A site boundary in the form of hoarding or fencing will be established around the working area before any significant construction and demolition activities commences in that working area. The hoarding/fencing shall provide a secure boundary to what can be a dangerous environment for those that have not received the proper training and are unfamiliar with construction operations.

Site hoarding also performs an important function in relation to minimising nuisance and effects including:

- Noise emissions (by providing a buffer);
- Visual impact (by screening the working areas, plant and equipment); and
- Dust minimisation (by providing a buffer).

6.6. Services and Utility

Site services will be installed as part of the works. Working areas will be powered by mains supplies or diesel generators where an electrical supply is not available.

The Contractor will be responsible for undertaking their own surveys to establish the full extent of underground services prior to the commencement of construction and demolition to support any surveys already undertaken as part of early design work and statutory consent applications.

6.7. Welfare Facilities

Welfare facilities will be provided, as appropriate for construction staff and site personnel such as locker rooms, toilets, etc.

6.8. Reinstatement of Working Areas on Completion

The Contractor will reinstate all working areas as work proceeds during construction. All plant, equipment, materials, temporary infrastructure and vehicles will be removed at the earliest opportunity and the surface of the ground restored as near as practicable to its original condition.

On completion of construction and demolition works the Contractor will ensure that all waste and polluting material is removed from the site and is disposed of using appropriately authorised contractors as per a Resource Waste Management Plan (RWMP) which will be prepared by the Contractor. The Contractor will, as appropriate, undertake visual and ecological rehabilitation of site compound and other areas no longer to be used by the Contractor. Following site clearance and rehabilitation the Employer or Employer's Representative will undertake a final inspection of the site. Any environmental issues identified during the final inspection will be raised with the Contractor. Mitigation measures and timeframes for completion will be agreed between the Contractor and the Employer's Representative in line with agreed procedures prior to final sign off.

6.9. Health and safety

The Contractor will ensure all relevant health and safety, fire safety and security requirements are in place prior to the commencement of construction and demolition and in accordance with the relevant legislation requirements in addition to the specifications of Cork City Council.

Relevant Irish and EU health and safety legislation would be complied with at all times by all construction staff and personnel during construction. Further, the Contractors would also have to ensure that all aspects of their works comply with good industry practice and all necessary consents, licenses and authorisations have been put in place for the proposed development.

7. Environmental Management and Controls

It should be noted that this section provides a summary of minimum requirements that will be developed by the Contractor when preparing the CEMP.

7.1. Waste Management

Construction and demolition activities produce a broad range of wastes, which will be outlined in the RWMP.

This section identifies the potential types of waste which may arise from construction and provides guidance on the management, control and disposal of waste.

7.1.1. Risk Identification

Contractors shall undertake a qualitative waste management risk assessment or appraisal prior to the commencement of construction and demolition activities. An example assessment is shown in Table 7.1

Table 7.1 – Example of Waste Management Risk Assessment

Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.
	Mark up on a site plan with the location of all adjacent housing/commercial centers, schools and educational establishments, agricultural land and other potential receptors. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high-risk activities such as waste storage areas.
02	Identify the construction and demolition activities and sources of that may result waste production and waste storage, segregation and disposal requirements.
	These could include excavations, chemical and materials use etc, waste storage and bulking areas etc,
03	Implement mitigation to eliminate or reduce risks.
	Use the following hierarchy to manage waste: 1. Prevent - Do not generate the waste in the first place. 2. Re-use – Can you re-use without treatment? 3. Recycle – Make sure that wastes are properly segregated to aid recycling. 4. Disposal with energy recovery 5. Disposal without energy recovery

7.1.2. Waste Management

Contractors will develop, implement and maintain a Resource and Waste Management Plan that is in compliance with Cork City Council. This Plan will provide specific details in terms of proposed permitted haulage contractors, and permitted / licenced waste disposal / recovery facilities;

The plan will include but not be restricted to the mitigation measures below (Table 7.2).

Table 7.2 –Waste Management Mitigation Measures

Activity	Mitigation Measures
General	An approved person, such as a site/contract/resource manager, will be given responsibility for good site practices and control, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site. Contractors will apply the waste prevention principles of the waste management hierarchy: 1. Prevent – Do not generate the waste in the first place. 2. Re-use – Can you re-use without treatment? 3. Recycle – Make sure that wastes are properly segregated to aid recycling.

Activity	Mitigation Measures
	<p>4. Disposal with energy recovery</p> <p>5. Disposal without energy recovery</p> <p>The Contractor will ensure that all construction staff are trained in good waste management practice and chemical handling procedures.</p>
Collection and Storage of Waste	<p>Contractors will provide designated waste storage areas for the bulk storage of waste prior to removal off-site. A site plan showing the designated site will be provided and approved by the Construction Manager.</p> <p>Only appropriately authorised contractors and sites will be used for the transport and disposal of waste.</p> <p>The Contractor will provide adequate facilities for the collection and storage of waste material including litterbins and waste skips.</p> <p>Waste containers/skips/bins will be provided with nets or lids to prevent waste being carried around by scavengers or by the wind.</p> <p>Waste containers will not be overfilled.</p> <p>Appropriate measures will be employed to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers.</p> <p>Industrial and construction and demolition waste including redundant hazardous equipment, tyres, used oil cans/drums etc will be separated and put into segregated bins for removal and disposal by an appropriately authorised contractor.</p> <p>All loaded trucks entering and exiting the work areas will be appropriately secured and covered.</p>
Waste Reduction and Sustainability	<p>Good management and control can prevent the generation of significant amounts of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices.</p> <p>Purchase materials in the quantity required for the works to minimise unused leftovers.</p> <p>Scheduling and planning the delivery of materials will be carried out on an 'as needed' basis to limit any surplus materials.</p> <p>Where feasible, sub-contractors will be responsible for the provision of any materials they require onsite in order to help reduce any surplus waste.</p> <p>Purchase materials that do not use excessive amounts of packaging to minimise the quantity of used packaging for subsequent disposal/processing.</p> <p>Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal.</p> <p>Collect and segregate waste metals including redundant plant and equipment, metal construction materials and cans.</p> <p>Recycle unused chemicals or those with remaining functional capacity.</p>
Disposal of Wastes	<p>All waste will be disposed of at approved sites using appropriately approved contractors - The Contractor must provide copies of valid EPA Waste licenses and Local Authority Waste Permits (including those relating to their subcontractors or brokers, where applicable) for collection and waste treatment/disposal/export facilities.</p> <p>Records of waste disposal, recycling and recovery will be maintained.</p> <p>The contractor will provide sufficient secure waste disposal points and regular collection for disposal.</p> <p>No waste will be disposed of or buried on site.</p> <p>Dumping of waste, including roadside dumping and filling on land not within a registered landfill area is prohibited.</p> <p>Works that involve onsite filling with material other than virgin excavated natural material is encouraged where material is potentially suitable.</p> <p>Burning any waste on site is prohibited.</p> <p>Divert construction, demolition and land clearing debris from landfill disposal. Redirect recyclable recovered resources back to manufacturing process.</p> <p>Waste will be segregated in an onsite recycling center and those components that are recyclable sent to appropriate facilities.</p> <p>Consider recycling cardboard, metal, brick, acoustic tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation.</p> <p>Identify approved haulers and recyclers to handle the designated materials.</p> <p>All non-recyclable waste will be disposed of by an appropriately authorised waste contractor.</p>

Activity	Mitigation Measures
	<p>The contractor will follow approved procedures for the classification, sampling, transport and disposal of hazardous waste.</p>
<p>Storage and Stocking of Material</p>	<p>Temporary stockpiling of native soils and imported materials onsite will require careful management in order to prevent the release of sediment into drainage ditches (and receiving water courses, and any temporarily exposed groundwater (in the event that groundwater is encountered).</p> <p>Stockpiled materials will not be located immediately adjacent to or onsite drainage ditches, or any temporarily exposed groundwater (in the event that groundwater is encountered).</p> <p>Stockpiled materials will be covered as required to prevent it spilling over/blowing onto areas of environmental interest or semi-natural vegetation outside the agreed lands.</p> <p>Stockpile of materials will be kept to an absolute minimum, and where possible, stockpiled for as short a time as possible prior to use.</p> <p>Any stockpiled materials will be stored in low mounds where possible.</p> <p>Slopes of material will be stable, and the side slopes compacted down and stabilised, with regular checks by the Contractor.</p> <p>The Contractor will examine the risk arising from storage areas and identify as appropriate the need for mitigation measures at the toe of slopes to reduce silt transport from areas of stockpiled material.</p> <p>Stockpiles of materials not suitable for onsite re-use will be removed as soon as is practicable in accordance with applicable waste management legislation.</p> <p>The Contractor will comply with best practice when sourcing imported materials for site works, including NRA (2006) A Guide to Landscape Treatments.</p> <p>Imported material will be from a reputable source who can confirm that it has been screened for potential presence of invasive species.</p>
<p>Pre-demolition Asbestos survey / removal</p>	<p>An asbestos survey will be carried out prior to any demolition works taking place by a specialist asbestos consultant and the contractor shall review the survey report and allow for the specialist removal of asbestos should this be required. Any asbestos material should be removed by a suitably experienced specialist asbestos removal contractor prior to commencement of any demolition or construction works commencing. Asbestos waste will be securely double bagged and removed from site immediately. Asbestos waste will be hazardous and should be transported and disposed of by a specialist waste disposal contractor. Written confirmation must be obtained to ensure that all structures scheduled for demolition have been certified to be clear of asbestos material before demolition works occur.</p> <p>Any asbestos arising from the demolition section of this development shall be disposed of in accordance with the procedures of Health and Safety Authority 'Guidelines on Working with Material Containing Asbestos Cement'. Asbestos will be removed in accordance with the requirements of the Safety Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 - 2010 in advance of the demolition works. No demolition works will be permitted to commence until written confirmation has been obtained that all structures scheduled for demolition have been certified to be clear of asbestos material.</p>

7.2. Air Quality

Construction and demolition activities have the potential to impact on air quality through the creation of dust and emissions to air from vehicles and plant, along with activities including infilling of soil, excavation of trenches, stockpiling and movement of materials may all contribute to generating ambient dust. This section identifies the potential causes of air pollution which may arise from construction and provides guidance on the management and control of emissions from site.

7.2.1. Risk Identification

Contractors shall undertake a qualitative risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.3.

Table 7.3 – Example of Air Quality Risk Assessment

Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within or adjacent to the construction site.
	<p>Mark a site plan with the location of all adjacent housing/commercial centers, schools and educational establishments, agricultural land and other potential receptors.</p> <p>This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as material storage areas, refueling points and haul routes.</p>
02	Identify the construction and demolition activities and sources of pollution that may result in emissions to air.
	These could include excavations, concrete use, transport, materials storage, traffic management etc.
03	Evaluate the risk of the construction and demolition activities resulting in emissions to air.
	<p>Assess the likelihood of an activity causing pollution.</p> <p>Assess the significance of the harm pollution would cause to a particular receptor. For example, the impact of dust in a populated urban area would be significantly greater than dust in an unpopulated rural area.</p>
04	Implement mitigation to eliminate or reduce risks.
	<p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods, covers for storage areas). 3. Protect the receptor (provide hard standing and covering for compounds/storage areas, filter, control, contain emissions, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.2.2. Air Quality Management Plan

Contractors will develop, implement and maintain an Air Quality Management Plan. The plan will include but not be restricted to the mitigation measures below (Table 7.4).

Table 7.4 –Air Quality Mitigation Measures

Activity	Mitigation Measures
General	<p>The Contractor is required to implement the ‘standard mitigation’, as stated in the Transport Infrastructure Ireland (TII), (formerly the NRA)) (2011). Guidelines for the Treatment of Air Quality during the Planning and Construction of National Roads Schemes.</p> <p>Standard measures should be taken which will minimise dust from demolition and construction and demolition activities, at a minimum adhering to standard good practice which includes the Building Research Establishment (BRE) document entitled ‘Control of Dust from Construction and Demolition Activities’ and Institute of Air Quality Management document ‘<i>Guidance on the Assessment of Dust from Demolition and Construction</i>’ (IAQM, 2014)</p>
Dust Suppression and Odour Management	<p>Minimise use of internal site roads to limit the ground area that is disturbed.</p> <p>Avoid excessive vehicular traffic and movement.</p> <p>Locate haul routes away from sensitive receptors.</p> <p>Pave heavily used areas.</p> <p>Plan vehicle movements to minimise duration of dust generation.</p> <p>Ensure that hard surface roads are swept to remove mud and aggregate materials from their surface and ensuring any un-surfaced roads will be restricted to essential site traffic.</p> <p>Any road that has the potential to give rise to fugitive dust will be regularly watered, as appropriate, during dry and / or windy conditions.</p> <p>Stockpiles of fine material such as sand, topsoil material, cement, excavated material etc. will be covered / protected from wind.</p>

Activity	Mitigation Measures
	<p>During movement of materials both on and off-site, trucks will be stringently covered with tarpaulin at all times. Before entrance onto public roads and private landholdings, trucks will be adequately inspected by the contractor to ensure no potential for dust emissions.</p> <p>Use dust suppression systems such as a rotary water atomizer (or equivalent) to damp down stock piles and construction roads etc. during dusty conditions and to control dust from site-based activities. Due consideration should be given to use of appropriate water resources for use in dust suppression.</p> <p>Site stockpiling of materials will be designed and laid out to minimise exposure to wind, no material will be left within the work area. Water misting or sprays will be used as required if particularly dusty activities are necessary during dry or windy periods.</p> <p>Construction materials will be ordered on an as needed basis, to minimise the number of materials being stored within the site compounds.</p> <p>Dust generating activities will cease during excessively windy periods.</p> <p>Construct dust screens/wind breaks as necessary.</p> <p>Fence off work areas with geotextile type liners.</p> <p>Excavated soils will be reused where suitable'</p> <p>Encourage progressive rehabilitation of disturbed land or stockpiles by establishing temporary or permanent vegetation.</p> <p>Contractors will regularly inspect stockpiles, exposed work areas and construction and demolition works practices to ensure compliance.</p> <p>Vehicle speeds will be restricted on un-surfaced roads and access tracks to less than 30km/hr to minimise dust.</p> <p>Cover and/or maintain appropriate freeboard (+ 0.3m) on trucks hauling any loose material that could produce dust when travelling.</p> <p>Vehicles exiting the site shall make use of a wheel wash facility prior to entering onto public roads where required.</p>
<p>Traffic, Vehicle, Plant and Equipment Emissions</p>	<p>Produce, implement and maintain a comprehensive Traffic Management Plan (TMP).</p> <p>Undertake regular construction vehicle, plant and equipment maintenance.</p> <p>Undertake regular maintenance on particulate traps/filters on trucks.</p> <p>Implement minimum exhaust requirements in line with national standards on equipment (including temporary power generators) and vehicles.</p> <p>Switch plant and vehicles off when not in use.</p> <p>Use public/shared transportation for workers.</p>
<p>Other emissions</p>	<p>No fires will be allowed on the construction site.</p> <p>Burning of waste materials on site will be prohibited.</p> <p>Limit volatile substance emissions/fine particle releases.</p> <p>Local sourcing of construction materials such as the recycling of material won on excavations for reuse on site.</p> <p>Implementation of a traffic management plan, as required by the Contractor</p> <p>Reducing the idle times by providing an efficient material handling plan that minimises the waiting time for loads and unloads. Reducing idle times could save up to 10% of total emissions during construction and demolition phase.</p> <p>The use of diesel or petrol powered generators will be avoided, and electricity or battery powered equipment shall be used when practical.</p> <p>Turning off engines when not in use for more than five minutes. This restriction will be enforced strictly unless the idle function is necessary for security or functionality reasons; and,</p> <p>Regular maintenance of plant and equipment, and technical inspection of vehicles to ensure they will perform the most efficiently.</p> <p>Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the proposed development</p> <p>In addition, relevant measures will be implemented to ensure that any emissions of engine generated pollutants will be kept to a minimum. These measures are detailed in '<i>Measures Against the Emission of Gaseous and Particulate Pollutants from Internal Combustion Engines to be Installed in Non-Road Mobile Machinery</i>' (2002/88/EC) and '<i>Emissions of Pollutants from Diesel Engines</i>' (2005/21/EC).</p>

7.3. Construction Noise and Vibration

Construction and demolition activities can produce a significant amount of noise and vibration with the potential to impact adversely on a range of receptors. This section identifies the potential causes of noise and vibration which may arise from construction and provides guidance on management and control.

7.3.1. Risk Identification

An example risk assessment is shown in Table 7.5.

Table 7.5 – Example of Noise and Vibration Risk Assessment

Risk Assessment	Example Procedure
01	<p>Identify the location of all sensitive receptors within or adjacent to the construction site.</p>
	<p>Mark up on a site plan the location of all nursing homes, housing/commercial centers, schools and educational establishments, agricultural land and other potential receptors.</p> <p>This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for noisy activities or activities likely to cause vibration such as generators, compressors, haul routes and drilling.</p>
03	<p>Identify the construction and demolition activities that may affect the receptors identified.</p>
	<p>These could include excavations, dewatering, traffic movements, warning sirens, use of machinery and plant etc.</p>
04	<p>Evaluate the risk of the construction and demolition activities impact on receptors.</p>
	<p>Assess the likelihood of an activity causing noise pollution.</p> <p>Assess the significance of the noise impact on particular receptors. For example, the impact of noise from construction and demolition activities adjacent to housing would be significantly greater than the impact of noise in an uninhabited rural area.</p>
05	<p>Implement mitigation to eliminate or reduce risks.</p>
	<p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods, substitution of materials for less noisy options). 2. Control the source (modify construction methods, provide adequate baffling). 3. Protect the receptor using noise barriers, screening etc 4. Put emergency procedures in place.

7.3.2. Noise and Vibration Management Plan

Contractors will develop, implement and maintain a Noise and Vibration Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7.6).

Table 7.6 –Noise and Vibration Mitigation Measures

Activity	Mitigation Measures
General	<p>The contractor shall also comply with the contents and recommendations of BS 5228 – 1:2009 + A1:2014: Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise & Part 2: Vibration.</p> <p>The contractor shall also comply with the contents and recommendations of BS 6471:2008: Guide to Evaluation of Human Exposure to Vibration in Building, Part 1: Vibration Sources other than Blasting.</p> <p>The contractor shall comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 as amended in 1990 and 1996 (S.I. No. 320 of 1988, S.I. No. 297 of 1990 and S.I. No. 359 of 1996), and the Safety, Health and Welfare at Work (Control of Noise at Work) Regulations, 2006 (S.I. No. 371 of 2006).</p> <p>The contractor shall ensure that each item of equipment complies with the noise limits quoted in the European Commission Directive 2000/14/EC.</p> <p>As far as practical construction methods that are likely to cause high levels of noise and vibration e.g. concrete and excavation work, will be restricted to day time hours only.</p> <p>Approval from the local authority should be obtained prior to undertaking work at night.</p>

Activity	Mitigation Measures
	<p>No plant used on site will be permitted to cause an ongoing public nuisance due to noise.</p> <p>The best means practicable, including proper maintenance of plant, will be employed to minimise the noise produced by on site operations</p> <p>Local residents and people likely to be affected by noise and vibration should be informed prior to the commencement of work.</p> <p>Access roads to the site will be positioned such that vehicular movements cause minimum disturbances to residential buildings (if possible).</p> <p>Replace noisy plant with less noisy alternatives, shield/screen noise making plant especially during the evening and night periods or provide plant which is specifically designed with noise inhibitors such as generators and compressors with silencers and muffled jack-hammers.</p> <p>Construct a solid barrier around the generators.</p> <p>Use plant in accordance with manufacturer's specifications.</p> <p>Orientate machinery away from noise sensitive residential areas.</p> <p>Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers;</p> <p>Ensure all stationary and mobile equipment, construction plant, machinery and vehicles are well maintained on a regular basis, and in good working order.</p> <p>Delivery routes used by trucks and lorries should avoid residential areas to prevent likely vibration impacts from construction traffic to and from the site.</p> <p>Vibrations must be minimised at any neighboring premises. Residents of neighboring premises must be warned of possible vibrations prior to the commencing the activity.</p> <p>Complaints will be responded to within 24 hours and mitigation measures checked and improved within 48 hours.</p> <p>Should a substantiated noise complaint be received by the Contractor, an appropriate noise monitoring campaign shall be instigated by the Contractor to determine the noise source. If necessary, appropriate noise mitigation measures, such as noise barriers, will be implemented.</p> <p>All vehicles and mechanical plant will be fitted with effective exhaust silencers and maintained in good working order.</p> <p>Compressors will be attenuated models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic tools shall be fitted with suitable silencers;</p> <p>Machinery that is used intermittently will be shut down or throttled back to a minimum during periods when not in use.</p> <p>During construction, the contractor will manage the works to comply with the BS 5228 (2009 +A1 2014) code of Practice for Noise and Vibration Control on Construction and Open Sites Parts 1 and 2;</p> <p>Contractors will be required to comply with the requirements of the European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations, 1988 as amended in 1990 and 1996 (S.I. No. 320 of 1988, S.I. No. 297 of 1990 and S.I. No. 359 of 1996) and the Safety, Health and Welfare at Work (Control of Noise at Work) Regulations, 2006 (S.I. No. 3712 of 2006); and,</p> <p>All items of plant will be subject to regular maintenance. Such maintenance can prevent unnecessary increases in plant noise and can serve to prolong the effectiveness of noise control measures;</p> <p>The contractor will place noise barriers as required, to minimise / eliminate noise disturbances to residential units located in certain areas of the site while construction is taking place in separate areas of the site.</p> <p>Furthermore, a variety of practicable noise and vibration control measure will be employed. These will include:</p> <ul style="list-style-type: none"> • Selection of plant with low inherent potential for generation of noise and/ or vibration; • Erection of good quality site hoarding to the site perimeters (if required) adjacent to sensitive receptors which will act as a noise barrier to general construction and demolition activity at ground level; • Erection of barriers as necessary around items such as generators or high duty compressors, and; • Situate any noise plant as far away from sensitive properties as permitted by site constraints.

7.4. Prevention of Soil and Water Pollution

Construction and demolition activities have the potential to cause pollution to groundwater and/or soils and surface water. This section identifies the potential causes of pollution which may arise from construction and provides guidance on the management and control.

7.4.1. Risk Identification

Contractors shall undertake a qualitative pollution risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is presented in Table 7.7.

Table 7.7 – Example of Soil and Water Pollution Risk Assessment

Risk Assessment	Example Procedure
01	Identify the location of all sensitive receptors within, adjacent to, or downstream of the construction site.
	<p>Mark up on a site plan with the location of all water courses, surface water features, boreholes, field drains, ecologically sensitive areas, surface and foul drainage systems and other potential receptors.</p> <p>This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high-risk activities such as chemical/fuel storage areas, refueling points, haul routes and wash out areas.</p>
02	Identify the construction and demolition activities and sources of pollution that may affect the water receptors identified.
	These could include excavations, dewatering, water course crossings, as well as general sources of pollution such as surface water runoff, chemical/fuel storage, wash down areas, fueling areas and concrete use.
03	Evaluate the risk of the construction and demolition activities polluting the identified water receptors.
	<p>Assess the likelihood of an activity causing pollution.</p> <p>Assess the significance of the harm pollution would cause to a particular water receptor. For example the impact of polluting a water receptor used for potable water would be significantly greater than the pollution of a foul water system.</p>
04	Implement mitigation to eliminate or reduce risks.
	<p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (change location, modify construction methods, provide adequate bunding for fuel and other storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.4.2. Pollution Prevention Management Plan

Contractors will develop, implement and maintain a Pollution Prevention Management Plan.

7.5. Water Resources and Energy Use

Construction and demolition activities have the potential to use significant volumes of water and energy. This section identifies the potential impacts associated with water and energy use which may arise from construction and provides guidance on the management and control of water and energy on site.

7.5.1. Risk Identification

Contractors shall undertake a qualitative water resources and energy use assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.8.

Table 7.8– Example of Water Resources and Energy Use Risk Assessment

Risk Assessment	Example Procedure
01	Identify all items and activities on the construction site with high water and/or energy demands.
	Mark up on a site plan with the location of all items and activities with high water and/or energy demands. This will help the planning of the overall layout of the construction site and enable the identification of efficiency opportunities.
02	Implement mitigation to eliminate or reduce water and/or energy demand.
	Use the following hierarchy promote water and energy efficiency: 1. Remove the requirement (different construction methods, substitution of materials for that require less water and/or energy). 2. Control the use (modify construction methods, monitoring, target setting, procedures, switch off, training).

7.5.2. Water Resources and Energy Use Management Plan

Contractors will develop, implement and maintain a Water Resources and Energy Use Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7.9).

Table 7.9–Water Resources and Energy Use Mitigation Measures

Activity	Mitigation Measures
General	<p>Reduce water consumption through recovery strategies.</p> <p>Conserve water by maximising opportunities for infiltration runoff.</p> <p>Conserve water by matching water quality with its intended use and using water saving devices.</p> <p>Contractors will carry out regular inspections/audits of water resource and energy use.</p> <p>In the event of excessive water use/leaking pipes etc, immediate action will be taken to repair equipment or reassess water needs.</p> <p>Turn out the lights at night and only light areas as required for safety and comfort (employment of lighting sensors).</p> <p>Ensure that the light source is the minimum intensity for the required purpose.</p> <p>Ensure that fittings are chosen that direct light accurately to where it is needed.</p> <p>Vehicles will not be allowed to idle for long periods.</p> <p>Machinery and generators shall be regularly maintained and operated in an efficient manner.</p> <p>The use of solar powered instruments/machines should be considered.</p> <p>Temporary site offices should be well insulated to retain heat or cool, utilise energy efficient bulbs and energy efficient cooling systems.</p> <p>Choose locally sourced building materials and products thereby reducing the environmental impacts from transportation.</p> <p>Choose rapidly renewable materials over finite raw and long cycle renewable materials.</p> <p>Use timber and wood, including that used in construction, from a certified sustainable source, or be postconsumer re-used timber, or similar.</p>

7.6. Ecology – Natural Habitats, Flora and Fauna

Construction and demolition activities can have adverse impacts on natural habitats, flora and fauna. This section identifies potential adverse impacts which may arise from construction and provides guidance on management and control.

7.6.1. Risk Identification

Contractors shall undertake a qualitative ecology risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.10.

Table 7.10 – Example of Ecology Risk Assessment

Risk Assessment	Example Procedure
01	Identify the location of all sensitive ecological receptors within, adjacent to or downstream of the construction site.
	<p>Mark on the site plan the location of all watercourses, surface water features, ecologically sensitive areas and habitats and other potential receptors including protected species. Particular attention should be paid to existing ecological features within the proposed development area.</p> <p>This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as chemical/fuel storage areas, refuelling points, haul routes and wash out areas.</p>
02	Identify the construction and demolition activities and sources of pollution that may affect the water/ecological receptors identified.
	These could include excavations, dewatering, watercourse crossings, as well as general sources of pollution such as surface water runoff, fuel storage and concrete use.
03	Evaluate the risk of the construction and demolition activities polluting the identified receptors.
	Assess the likelihood of an activity causing pollution, damage or harm.
04	Implement mitigation to eliminate or reduce risks.
	<p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods, provide adequate bunding for fuel and other storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.6.2. Ecology Management Plan

Contractors will develop, implement and maintain an Ecology Management Plan, if deemed required. The Plan will include but not be restricted to the mitigation measures below (Table 7.11).

Table 7.11 – Ecology Mitigation Measures

Activity	Mitigation Measures
General	<p>Where practicable maintain areas of natural vegetation.</p> <p>Maintain good water quality.</p> <p>No disposal of waste on site.</p> <p>Minimise the impact of erosion and sedimentation by the management strategies described in the Erosion and Sedimentation Management Plan.</p> <p>Wildlife awareness talk to staff if in /near to sensitive areas.</p> <p>Do not harm any animal on the site.</p> <p>The following activities shall be prohibited:</p> <ul style="list-style-type: none"> • Disposal or burial of waste on site. • Illegal dumping, including roadside dumping and illegal land filling. • Burning of waste on site.

7.7. Light Pollution

Obtrusive light from a construction site is a form of pollution. Construction lights can cause glare and light trespass. These are forms of obtrusive light which may cause nuisance to others.

7.7.1. Risk Identification

Contractors shall undertake a qualitative light pollution risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.12.

Table 7.10 – Example of Light Pollution Risk Assessment

Risk Assessment	Example procedure
01 Identify the location of all sensitive receptors within or adjacent to the construction site.	Mark a site plan with the location of all potential receptors including housing, schools, hospitals, roads and key wildlife populations. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for lighting.
02 Identify the construction and demolition activities and sources of light pollution that may affect the receptors identified.	These could include depots, storage areas, night working activities etc.
03 Evaluate the risk of the construction and demolition activities creating light pollution for the identified receptors.	Assess the likelihood of an activity causing pollution, damage or harm.
04 Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods; provide adequate screening, directional light). 3. Protect the receptor (screens). 4. Put emergency procedures in place.

7.7.2. Light Pollution Control Plan

Contractors will develop, implement and maintain a Light Pollution Control Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7.13).

Table 7.11 – Light Pollution Mitigation Measures

Activity	Mitigation Measures
General	Maintain levels of lighting acceptable for health and safety and avoid over lighting areas. Dim or switch off lights when task is finished. Minimise the spread/glare of light by assessing/managing direction. Lower the height of lights to minimise glare. Use screens, shields, baffles and louvers to help reduce light spill. Use specifically designed lighting equipment to minimise the upward spread of light near to and above the horizontal.

7.8. Archaeology and Cultural Heritage

Heritage is an irreplaceable resource, so it is recognised that cultural resources must be safeguarded for future generations. Construction and demolition activities have the potential to impact on archaeology and heritage through the destruction or disturbance of sites or artefacts.

7.8.1. Risk Identification

Contractors shall undertake a qualitative archaeological and heritage risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.14.

Table 7.12 – Example of Archaeology and Cultural Heritage Risk Assessment

Risk Assessment	Example Procedure
01	<p>Identify the location of all sensitive receptors within or adjacent to the construction site.</p> <p>Mark a site plan with the location of all potential receptors including villages, forts, palaces, houses, and towers. This will help the planning of the overall layout of the construction site.</p>
02	<p>Identify the construction and demolition activities that may affect the receptors identified.</p> <p>These could include depots, storage areas, excavation, waste storage, haul roads etc.</p>
03	<p>Evaluate the risk of the construction and demolition activities damaging the identified receptors.</p> <p>Assess the likelihood of an activity causing pollution, damage or harm.</p>
04	<p>Implement mitigation to eliminate or reduce risks.</p> <p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods or operations - alternative haul roads). 3. Protect the receptor (screens). 4. Put emergency procedures in place.

7.9. Traffic Management

Accidents involving construction vehicles and/or mobile equipment have the potential to cause serious injury or death and damage to the environment. Work zones on construction sites are used to move traffic in an approved direction and are typically identified by signs, cones, barrels, and barriers.

7.9.1. Risk identification

Contractors shall undertake a traffic management risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.15.

Table 7.13 – Example of Traffic Management Risk Assessment

Risk Assessment	Example Procedure
01	<p>Identify the location of all traffic sensitive areas within or adjacent to the construction site.</p> <p>Mark a site plan with the location of all potential traffic sensitive areas including villages, forts, palaces, houses, schools, shopping districts, commercial/leisure areas roads and other rights of way. This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for vehicle/pedestrian entrances, storage areas etc.</p>
02	<p>Identify the construction and demolition activities may affect the traffic sensitive areas identified.</p> <p>These could include depots, storage areas, excavation, waste storage, haul roads etc.</p>
03	<p>Evaluate the risk of the construction and demolition activities impacting on traffic sensitive areas.</p> <p>Assess the likelihood of an activity causing harm or obstruction.</p>
04	<p>Implement mitigation to eliminate or reduce risks.</p> <p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods or operations - alternative haul roads). 3. Protect the receptor (screens, signs, barriers). 4. Put emergency procedures in place.

7.9.2. Traffic Management Control Plan

The Contractor will develop, implement and maintain a construction stage Traffic Management Control Plan. The Plan forms an important management tool that acts as the catalyst for reducing the negative transport effects of construction work (e.g. congestion, air pollution and noise) on local communities, residents, businesses and the environment. By promoting efficient working practices, shorter haulage routes and reducing deliveries, the implementation of the Plan not only gives rise to the above benefits, but also helps save costs.

The Plan will include but not be restricted to the mitigation measures below (Table 7.16).

Table 7.14 –Traffic Management Mitigation Measures

Activity	Mitigation Measures
The Contractor will prepare a Traffic Management Plan for the construction stage.	<p>Contractors will ensure that all operators are fit and competent to operate vehicles, machines and attachments by:</p> <ul style="list-style-type: none"> • Undertaking checks when recruiting drivers/operators or hiring contractors. • Providing appropriate training for drivers and operators. • Managing the activities of visiting drivers. • Ensuring that signallers, flag men and bank men are appropriately trained and authorised. <p>Access to vehicles will be restricted to prevent unauthorised access.</p> <p>Routes will be clearly marked and where practicable turning circles will be provided to prevent reversing.</p> <p>Contractors will ensure that all roads and footpaths are maintained free of mud and debris.</p> <p>All visitors to the site will be required to undertake a site induction and wear high visibility clothing/PPE.</p> <p>All roads and footpaths affected by construction and demolition activity will be appropriately reinstated/repaired.</p>

7.10. Contaminated Land

The term ‘land contamination’ covers a wide range of situations where land is contaminated in some way by previous use. This is often associated with industrial processes or activities that have now ceased, but where waste products or remaining residues present a hazard to the general environment.

7.10.1. Risk Identification

Contractors shall undertake a contaminated land risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.17.

Table 7.15 – Example of Contaminated Land Risk Assessment

Risk Assessment	Example Procedure
01 Identify the location of contamination risks by undertaking site visits and desk based studies of relevant documents	Mark a site plan with the location of all potential contamination risks including waste deposits, petrol stations, oil stores etc.
02 Identify the construction and demolition activities may create ground contamination.	These could include depots, storage areas, waste storage, etc.
03 Evaluate the risk of the construction and demolition activities leading to ground contamination.	Assess the likelihood of an activity causing pollution, damage or harm.
04 Implement mitigation to eliminate or reduce risks.	Use the following hierarchy to manage the risk: <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods or operations) 3. Protect the ground (screens). 4. Put emergency procedures in place.

7.10.2. Contaminated Land Control Plan

Contractors will develop, implement and maintain a Contaminated Land Control Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7.18).

Table 7.16 – Example of Contaminated Land Mitigation Measures

Activity	Mitigation Measures
General	<p>The contractor will manage and control the potential contamination of land from construction and demolition activities through the implementation of the CEMP and method statements as appropriate.</p> <p>The contractor will notify employers representative immediately if contaminated land is discovered or suspected.</p> <p>Any contaminated material will be fully characterised by an appropriately qualified and experienced environmental consultant in terms of lateral and vertical extent, and a detailed assessment of the potential environmental and human health impacts will be undertaken in accordance with industry standard best practice.</p> <p>All soil requiring disposal offsite will require waste classification in accordance with Environmental Protection Agency (EPA) requirements as set out in the documents 'Waste Classification List of Waste & Determining if Waste is Hazardous or Non-hazardous' (EPA, 2015), and 'Determining if waste is hazardous or non-hazardous' (EPA, 2018), and all relevant waste management legislation. In addition to screening against relevant Waste Acceptance Criteria (WAC), the preparation of a waste classification tool (hazwaste online / EPA paper tool or similar etc.) will be required to be carried out in order to determine the relevant LoW / EWC code for the transport of any waste soils which require offsite removal and disposal.</p> <p>If any ground contamination is encountered during the construction phase of the development the Site Manager / Environmental Manager should be immediately notified and consulted with. Any soil/subsoil that is deemed to be contaminated will be stored separately to the clean and inert soil/subsoil. The material will be appropriately tested and classified as either non-hazardous or hazardous in accordance with the EPA publication 'Waste Classification: List of Waste & Determining if Waste is Hazardous or Non-Hazardous' using the HazWasteOnline application (or similar approved classification method). The material will then need to be classified as clean, inert, non-hazardous or hazardous in accordance with the EC Council Decision 2003/33/EC. Appropriate transport and disposal of such waste materials to a suitably licenced facility is required in accordance with all relevant waste legislation.</p> <p>The contractor will work with employers representative to:</p> <ul style="list-style-type: none"> • Undertake a risk assessment of the potential contamination. • Evaluate options for remediation including: <ul style="list-style-type: none"> ○ Containment ○ Monitoring ○ Treatment ○ Removal/Disposal <p>The contractor will implement remediation strategy and monitor as appropriate.</p>

7.11. Soil Erosion and Sedimentation

Soil eroded during land disturbance can wash away and contaminate storm water drains and nearby water bodies. The plan establishes a series of mitigation and management measures to control and minimise these issues if required. Water erosion potential depends on the intensity of the rainfall and/or construction discharges, the soil type and topography. This section identifies the potential causes of erosion and sedimentation which may arise from construction and provides guidance on the management, control, and disposal of waste.

7.11.1. Risk Identification

Contractors shall undertake a qualitative soil erosion and sedimentation risk assessment or appraisal prior to the commencement of construction and demolition activities. An example risk assessment is shown in Table 7.19.

Table 7.17 – Example of Soil Erosion and Sedimentation Risk Assessment

Risk Assessment	Example Procedure	
01	<p>Identify the location of all activities that could result in erosion and sedimentation, for example dewatering, and sensitive receptors within or adjacent to the construction site.</p>	<p>Mark a site plan with the location of all water courses, surface water features, boreholes, field drains, ecologically sensitive areas including surface and foul drainage systems and other potential receptors.</p> <p>This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as dewatering, haul routes and wash out areas.</p>
02	<p>Identify sensitive receptors off site or downstream of the construction works that could potentially be affected by the works. For example water courses and ecologically sensitive areas/nature reserves.</p>	<p>Mark a site plan with sensitive receptors outside the site boundary.</p> <p>This will help the planning of the overall layout of the construction site and enable the identification of suitable sites for high risk activities such as dewatering, haul routes and wash out areas.</p>
03	<p>Identify the construction and demolition activities and sources of sedimentation/erosion that may affect the water receptors identified.</p>	<p>These could include excavations, dewatering, water course crossings, as well as general sources of pollution such as surface water runoff and concrete use.</p>
04	<p>Evaluate the risk of the construction and demolition activities polluting the identified water receptors.</p>	<p>Assess the likelihood of an activity causing pollution.</p> <p>Assess the significance of the harm sedimentation/erosion would cause to a particular water receptor.</p>
05	<p>Evaluate the risk of the construction and demolition activities contributing to and/or being affected by the groundwater table.</p>	<p>Assess the likelihood of an activity contributing to raised groundwater levels or being affected by these.</p> <p>Assess the significance of the harm additional water would cause to groundwater or other projects/receptors and the significance of the high water table on construction.</p>
06	<p>Implement mitigation to eliminate or reduce risks.</p>	<p>Use the following hierarchy to manage the risk:</p> <ol style="list-style-type: none"> 1. Remove the risk (different construction methods/activities). 2. Control the source (modify construction methods, provide adequate bunding for storage areas, install measures such as silt fences or ditches to control runoff). 3. Protect the receptor (provide hard standing for compounds/storage areas, filter, control, contain discharges, ensure appropriate environmental permits are in place). 4. Put emergency procedures in place.

7.11.2. Soil Erosion and Sedimentation Management Plan

Contractors will develop, implement and maintain an Erosion and Sedimentation Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 7.20)

Table 7.18 –Soil Erosion and Sedimentation Mitigation Measures

Activity	Mitigation Measures
Soil Erosion	<p>Methods to control erosion need to take into account the factors causing erosion – rainfall discharge intensity, soil type and topography. Erosion control measures may include, but are not limited to the following:</p> <ul style="list-style-type: none"> • Avoid the creation of steep slopes. Consider implementing terraces instead of long steep slopes to avoid runoff from precipitation. • Do not release heavy discharges of water onto the soil. • Prevent over-watering of loose areas for dust suppression. • Keep site traffic to designated routes. • All excavated materials will be stored away from excavations on the temporary works area, to protect the grounds condition in an appropriate manner at a safe and stable location. The maximum height of temporary stockpiles will be 3m.

	<ul style="list-style-type: none"> • Consider covering temporary roads and routes within site with either asphalt or stone. Appropriate rehabilitation will need to be applied. • Undertake regular leak monitoring and maintenance of dewatering pipes. • Maintain recommended maximum vehicle weightings to avoid destabilization and subsequent erosion of soil surface. • Progressive rehabilitation of disturbed land or stockpiles by establishing temporary or permanent vegetation supported by irrigation. • Cover excess work areas with geotextile type liners. • Provide collection systems under machinery or equipment during wash down to prevent erosion from runoff. • A monitoring and supervisory regime including, where required, monitoring of excavations and stability assessments will be put in place to ensure that the proposed construction works do not constitute a ground stability risk;
Sediment Control	<p>Possible sedimentation control measures may include but are not limited to the following:</p> <ul style="list-style-type: none"> • Place sediment traps on all drainage lines such as geotextile lining. • Construct collection channels capable of collecting all runoff water during storms if it contains fine clay particles. • Use contained concrete washout control facility. • Treat and discharge runoff water from retention basin at controlled flow rate through storm water discharge network. • Inspect and clean the collection channels and retention basin on regular basis to prevent sediment build up. • Stabilise the site as soon as possible after construction
Monitoring	<p>A monitoring and supervisory regime including, where required, monitoring of excavations and stability assessments will be put in place to ensure that the proposed construction works do not constitute a ground stability risk.</p>

8. Emergency Response Plan

The contractor shall establish, implement and maintain procedures to identify and manage potential environmental emergency situations and potential accidents. The contractor shall respond to actual emergency situations and prevent and mitigate adverse environmental impacts.

The contractor will periodically test, review and update emergency preparedness and response procedures.

8.1. Key Requirements

During construction accidents, incidents and emergencies that have an environmental impact may occur. In the event of an emergency, the first response is to locate the source of that which is giving rise to the environmental impact where appropriate and stop continuation of the situation, followed by the containment, control and mitigation of the situation.

For the construction site The Emergency Response Procedure will be displayed within the Site Office / compound.

A copy of the Material Safety Data Sheets for all the chemicals used on the proposed development site will also be kept at the site office.

The main objectives of the Emergency Response Plan are to:

- Ensure that all means are available to contain the consequences of an accidental spill, fire or release of oil/fuel;
- Ensure that employees are suitably trained to respond to fire and spill;
- Ensure that proper reporting takes place; and
- Ensure that proper investigation is undertaken.

All contractor personnel and sub-contractors will be instructed and rehearsed, as appropriate, in the requirements of the emergency response procedure. Following control of an incident or emergency, an investigation will be conducted, and corrective actions identified and addressed. The Contractor's Environmental Manager will verify the close out of environmental related actions and notify the Employer and/or the Employer's Representative of any emergency.

8.2. Emergency Incidents

Emergency incidents are those occurring that rise to significant negative environmental effects including but not limited to the following:

- Any malfunction of any mitigation measure and/or environmental protection system;
- Any emission that does not comply with requirements of the contract and relevant licenses/permits;
- Any circumstance with potential environmental pollution; or
- Any emergency that may give rise to environmental effects (e.g. significant spillages or fire outbreak).

8.3. Spill Contingency Plan

The main causes of contamination can occur through:

- Spillage of hazardous material including fuel oils, waste materials or chemicals;
- Spillage of wastewater sewage and other liquid effluents; and
- Spillage of contaminated wash down water with oils, chemicals etc from vehicles, equipment and machinery.

Prior to commencing activities on site, Contractors will develop, implement and maintain a Spill Contingency Management Plan. The Plan will include but not be restricted to the mitigation measures below (Table 8.1).

Table 8.1 –Spill Mitigation Measures

Activity	Mitigation Measures
Mitigation Actions /Emergency Response	Contractors will carry out regular inspections/ audits of hazardous materials usage, handling and storage areas and regular/thorough maintenance of vehicles and hydraulic systems and inspections of sanitary facilities and disposal. All contractors handling hazardous materials will keep appropriate spill cleanup material adjacent to storage and maintenance areas.

Minimise the amount of diesel, oil, paint, thinners and other chemicals stored on site that pose potential spillage environmental hazards and use materials that minimize environmental impact such as lead free paints, asbestos free materials etc.

Storage areas will be located away from drains/trenches/wastewater collection devices in an impervious bund area (volume of the storage bund >110% of the largest storage tank contained within the bund).

Collection systems will be provided/bunded if necessary under machinery or equipment that may leak hydrocarbons/hazardous substances.

The contractor shall be responsible for training all staff in the procedures for handling spills and shall provide all staff with appropriate personal protective equipment.

The contractor shall provide all staff with appropriate personal protective equipment.

Avoid impacting adjacent sites by ensuring all contractors activities, equipment and waste storage is confined to the allocated site boundary.

In the event of a spill:

- Identify and stop the source of the spill and alert people working in the vicinity;
- Notify the Environmental Manager immediately giving information on the location, type and extent of the spill so that they can take appropriate action;
- If applicable, eliminate any sources of ignition in the immediate vicinity of the incident;
- Contain the spill using spill control materials, track mats or other materials as required. Do not spread or flush away the spill;
- If possible, cover or bund off any vulnerable areas where appropriate such as drains, watercourses and/or sensitive habitats;
- If possible, clean up as much as possible using the spill control materials;
- Contain any used spill control material and dispose of used materials appropriately using a fully licensed waste contractor with appropriate permits so that further contamination is limited;
- The Environmental Manager shall inspect the site as soon as practicable and ensure the necessary measures are in place to contain and clean up the spill and prevent further spillage from occurring; and
- The Environmental Manager will notify the appropriate stakeholders such as Cork City Council, National Parks and Wildlife Service and/or the EPA.

8.4. Emergency Incident Response Plan

The Contractor will be required to detail emergency incident procedures in the detailed CEMP and develop an Emergency Incident Response Plan. The Plan will contain emergency phone numbers and method of notifying local authorities, statutory authorities and stakeholder. The Plan will include contact numbers for key personnel. The Contractor will ensure that all staff and personnel on site are familiar with the emergency requirements.

In the case of work required in an emergency, or which if not completed would be harmful or unsafe to workers, the public to local environment, Cork City Council will be informed as soon as reasonably practicable of the reasons and likely duration. Examples may include: where the ground needs stabilising if unexpected ground conditions are encountered or equipment failure.

In the event of an emergency incident occurring, the Contractor will be required to investigate and provide a report to include the following, as a minimum:

- A description of the incident, including location, type of incident and the likely receptor;
- Contributory causes;
- Negative effects;
- Measures implemented to mitigate adverse effects; and
- Any recommendations to reduce the risk of similar incidents occurring.

Further, if any sensitive receptor is impacted, the appropriate environmental specialists will be informed and consulted with accordingly.

Any response measures will be incorporated into an updated Emergency Incident Response Plan.

8.5. Emergency Access

The Contractor will be required to maintain emergency access routes throughout construction and identify site access points for the working area.

8.6. Extreme Weather Events

The Contractor will consider the impacts of extreme weather events and related conditions during construction. The detailed CEMP will include all measures deemed necessary and appropriate to manage extreme weather events and will specifically cover training of personnel and prevention and monitoring arrangements for staff. As appropriate, method statements will also consider extreme weather events where risks have been identified.

9. References

- Air Pollution Act, 1987 (Air Quality Standards) Regulations, 1987, as amended, 2002 (S.I. No. 271 of 2002), 2011 (S.I. No. 180 of 2011), 2016 (S.I. No. 659 of 2016);
- Air Pollution Act, 1987 (Emission Limit Values for use of Asbestos) Regulations, 1990, S.I. No. 28 of 1990);
- AtkinsRéalis (2023) Outdoor Lighting Report
- AtkinsRéalis (2024) EIA Screening Report
- AtkinsRéalis (2024) Natura Impact Statement Report
- BS 3998; 2010. Tree Work. Recommendations;
- BS 5837/2012. Trees in relation to design, demolition and construction;
- CIRIA (2001). C532. Control of water pollution from construction sites. Guidance for consultants and contractors;
- CIRIA (2006). C648. Control of water pollution from linear construction projects. Technical Guidance;
- CIRIA (2008). C679. Invasive species management for infrastructure managers and the construction industry;
- CIRIA (2015). C741. Environmental Good Practice on Site;
- CIRIA (2015). C753. The SuDS Manual;
- Climate Action and Low Carbon Development (Amendment) Act 2021 (S.I. No. 32 of 2021);
- EC (Control of Emissions of Gaseous & Particulate Pollutants from Non-Road Mobile Machinery) Regulations 2007, S.I. No.147 of 2007, as amended, 2011 (S.I. No. 263 of 2011), 2012 (S.I. No. 407 of 2012), 2013 (S.I. No. 417 of 2013), 2016 (S.I. No. 2016/1628);
- Environment (Miscellaneous Provisions) Act 2011, as amended 2015 (S.I. No. 29 of 2015);
- Environmental Noise Regulations 2006, (S.I. No. 140 of 2006);
- Environmental Protection Agency (2021). *'Best Practice Guidelines for the preparation of resources & waste management plans for construction & demolition projects'*
- Environmental Protection Agency Act 1992 (Noise) Regulations, 1994 S.I. 174 of 1994
- ESB Networks (2019) Code of Practice for Avoiding Danger from Overhead Electricity Lines;
- EU F Gas Regulations 2006, as amended, 2014, S.I. No. 517 of 2014, 2019 (S.I. No. 367 of 2019);
- European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Amendment Regulations 1996, S.I. No. 359 of 1996 and 2001, S.I. No. 632 of 2001);
- European Communities (Drinking Water) Regulations 2014, S.I. No. 122 of 2014, as amended 2017 (S.I. No. 464 of 2017), 2020 (S.I. No. 2184 of 2020) and 2022 (S.I. No. 286 of 2022);
- European Communities (Environmental Liability) Regulations, 2008, S.I. No. 547 of 2008, as amended, 2011 (S.I. No. 307 of 2011), 2015 (S.I. No. 293 of 2015);
- European Communities (Environmental Noise) Regulations 2018 (S.I. No. 549 of 2018);
- European Communities (Noise Emission by Equipment for use Outdoors) Regulations, 2001, S.I. No. 632 of 2001, as amended, 2006 (S.I. No. 241 of 2006);
- European Communities (Shipments of Hazardous Waste Exclusively within Ireland) Regulations 2011, S.I. No. 324 of 2011;
- European Communities (Transfrontier Shipment of Waste) Regulations 1994 (S.I. No. 121 of 1994);
- European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011, as amended 2016 (S.I. No. 315 of 2016) and (S.I. No. 323 of 2020);
- European Communities Conservation of Wild Bird Regulations 1985, S.I. No. 291 of 1985, as amended, 1986 (S.I. No. 48 of 1986), 1995 (S.I. No. 31 of 1995), 1997, (S.I. No. 210 of 1997), 1998 (S.I. No. 154 of 1998), (S.I. No. 131 of 1999), 2005 (S.I. No. 716 of 2005), 2010 (S.I. No. 65 of 2010), 2011 (S.I. No. 626 of 2011), 2012 (S.I. No. 84 of 2012), 2013 (S.I. No. 281 of 2013), 2019 (S.I. No. 178 of 2019); 2021 (S.I. No. 293 of 2021);
- European Communities Environmental Objectives (Groundwater) Regulations 2010, S.I. No. 9 of 2010, as amended, 2016 (S.I. No. 366 of 2016);
- European Communities Environmental Objectives (Surface Waters) Regulations, 2009, S.I. No. 272 of 2009, as amended, 2012 (S.I. No. 327 of 2012), 2015 (S.I. No. 386 of 2015), 2019 (S.I. No. 77 of 2019);
- European Union (Environmental Impact Assessment and Habitats) (Environmental Impact Assessment) Regulations, 2018, S.I. No. 296 of 2018, 2020 (S.I. No. 191 of 2020).

European Union (Environmental Impact Assessment and Habitats) (Section 181 of the Planning and Development Act 2000) Regulations, 2013 (S.I. No. 403 of 2013), 2015 (S.I. No. 301 of 2015), 2019 (S.I. No. 418 of 2019); and,

European Union (Household Food Waste and Bio – Waste (Amendment) Regulations 2023;

European Union (Properties of Waste Which Render It Hazardous) Regulations 2015, S.I. No. 233 of 2015, as amended, 2018 (S.I. No. 383 of 2018);

European Union (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014), as amended 2019 (S.I. No. 233 of 2019);

European Union Batteries and Accumulators Regulations 2014, S.I. No. 283 of 2014, as amended, 2014 (S.I. No. 349 of 2014), 2015 (S.I. No. 347 of 2015);

European Waste Catalogue (EWC) and Hazardous Waste List 2002, 2015 and 2018;

Flora (Protection) Order, 2015, S.I. No 356 of 2015 and 2022 (S.I. No. 235 of 2022);

Forestry Regulations, S.I. No. 191 of 2017, as amended 2020 (S.I. No. 32 of 2020);

Guidelines on protection of fisheries during construction works in and adjacent to waters (IFI, 2016);

Historic and Archaeological Heritage Bill 2023 (Bill 2 of 2023);

Invasive Species Ireland (2016). Best Practice Management Guidelines. Japanese knotweed;

Litter Pollution Act of 1997, as amended, 2017 (Bill 58 of 2017) and 2022 (Bill 64 of 2022);

Litter Pollution Regulations 1999, S.I. No. 359 of 1999);

Local Government (Planning and Development) Act 1963 (S.I. No. 28 of 1963), as amended 1993 (S.I. No. 12 of 1993);

National Roads Authority (NRA) (2008). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;

Noxious Weed Act, 1936, S.I. No. 38 of 1936;

Noxious Weed Order, 1937, S.I. No. 103 of 1937;

NRA (2005). Guidelines for the Treatment of Badger Prior to the Construction of National Road Schemes;

NRA (2006). Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub Prior to, During and Post Construction of National Road Schemes;

NRA (2008). Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes;

NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant Species on National Roads (Revision 1); and

Planning and Development Act and subsequent amendments, 2000-2023.

Planning and Development Regulations 2001, as amended;

Protection of the Environment Act 2003;

Sustainability & Environmental Appraisal (March 2020) LA 120 Environmental management.

The Birds Directive: Council Directive 2009/147/EC on the conservation of wild birds;

The Environmental Impact Directive (85/337/EEC), as amended (97/11/EC, 2003/35/EC, 2009/31/EC, 2011/92/EU and 2014/52/EU);

The EU Regulation 2037/2000 (CFC's, HCFC's, Halons) - Ozone Depleting Substances. Control of Substances that Deplete the Ozone Layer Regulations 2006, S.I. No 281 of 2006, as amended, 2011 (S.I. No. 465 of 2011);

The European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011), as amended, 2015 (S.I. No. 355 of 2015) and 2021 (S.I. No. 388 of 2021) L;

The Forestry Act, 1946, S.I. No. 13 of 1946, as amended, 2009 (S.I. No. 40 of 2009) & Forestry Act, 2014, S.I. No. 31 of 2014;

The Habitats Directive: Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora;

The National Monuments Act 1930, S.I. No. 2 of 1930, as amended, 2004 (S.I. No. 22 of 2004);

The Water Pollution Acts of 1977 & 1998;

The Wildlife Acts 1976 to 2022;

Waste Framework Directive 2008/98/EC of the European Parliament and Council on waste, as amended 2018 (S.I. No. 851 of 2018);

Waste Management (Collection Permit) Regulations 2007, S.I. No. 820 of 2007), as amended, 2015 (S.I. No. 197 of 2015), 2016 (S.I. No. 24 of 2016);

Waste Management (Facility Permit and Registration) Regulations 2007, S.I. No. 821 of 2007, as amended, 2008 (S.I. No. 86 of 2008), 2015 (S.I. No. 198 of 2015), 2019 (S.I. No. 250 of 2019), 2023 (S.I. No. 471 of 2023);

Waste Management (Food Waste) Regulations 2009, S.I. No 508 of 2009, as amended, 2015 (S.I. No. 430 of 2015);

Waste Management (Hazardous Waste) Regulations, 1998, as amended, 2000 (S.I. No. 73 of 2000);

Waste Management (Landfill Levy) Regulations 2008, S.I. No. 199 of 2008, as amended 2009, (S.I. No. 550 of 2009), 2010 (S.I. No. 31 of 2010), 2012 (S.I. No. 221 of 2012), 2013 (S.I. No. 194 of 2013), 2015 (S.I. No. 189 of 2015), 2019 (S.I. No.182 of 2019), 2023 (S.I. No. 398 of 2023);

Waste Management (Licensing) Regulations 2004 (S.I. No. 395 of 2004) as amended 2010 (S.I. No. 350 of 2010);

Waste Management (Movement of Hazardous Waste) Regulations, 1998 (S.I. No. 147 of 1998);

Waste Management (Prohibition of Material Disposal by burning) Regulations 2009, S.I. No. 286 of 2009, as amended 2013 (S.I. No. 504 of 2013), 2017 (S.I. No. 599 of 2017), 2019 (S.I. No. 684 of 2019) and (S.I. No. 51 of 2022);

Waste Management (Registration of Brokers and Dealers) Regulations 2008, SI No. 113 of 2008;

Waste Management (Shipment of Waste) Regulations 2007, S.I. No. 419 of 2007;

Waste Management (Transfrontier Shipment of Waste) Regulations 1998, as amended, 2014 (S.I. No. 861 of 2014);

Waste Management (Tyres and Waste Tyres) Regulations 2007 (S.I. No. 664 of 2007), 2017, as amended (S.I. No. 400 of 2017) and 2018 (S.I. No. 96/2018);

Waste Management Acts of 1996 to 2021;

Water Conservation Regulations 2008, S.I. No. 527 of 2008;

Water Framework Directive (WFD): Directive 2000/60/EC of the European Parliament and Council establishing a framework for Community Action in the field of water policy, as amended;

Water Policy Regulations 2003, S.I. No. 722 of 2003, as amended, 2005 (S.I. No. 413 of 2005), 2008 (S.I. No. 219 of 2008), 2010 (S.I. No. 93 of 2010) and Amendment (No. 2) Regulations, (S.I. 326 of 2010) & EU Water Policy Regulations 2014 (S.I. 350 of 2014), 2018 (S.I. No. 261 of 2018) and 2022 (S.I. N 166 of 2022);

Wildlife Act, 1976 (Protection of Wild Animals) Regulations, 1990, S.I. No. 112 of 1990 and Wildlife Amendment Act, 2000 (S.I. No. 38 of 2000);

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