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OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

GAS TO GREENER IDEAS LIMITED POWER, MONKSLAND, ATHLONE, CO. ROSCOMMON

Report Prepared For

Gas Networks Ireland

Report Prepared By

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1.0 INTRODUCTION

The outline Construction Environmental Management Plan (oCEMP) has been prepared by AWN Consulting Ltd. (AWN) on behalf of Gas Networks Ireland (GNI) in respect of the proposed Monksland Pipeline (Gas to Greener Ideas Athlone) project, located in County Roscommon. The Monksland Pipeline (GNI asset number 'GNI138') is designed to connect the existing BGE/77 750mm Ories to Perssepark 'Pipe to the West' Pipeline to the permitted Monksland Above Ground Installation (AGI).

The oCEMP provides a framework from which the construction stage CEMP will be developed by the appointed construction contractor(s) to avoid, minimise or mitigate any construction effects on the environment prior to commencement on site. This plan should be viewed as a live document that will be updated as and when required. The appointed construction contractor(s) will prepare specific method statements setting out site working requirements which manage perceived risks to the environment e.g., traffic management, work safety plans etc.

The oCEMP has been prepared to account for activities at the site during the demolition, excavation and construction phase of the project. The main issues that have been considered within this document are as follows;

- Description of the Project;
- Site Logistics;
- Environmental Consideration During Construction;
- Environmental Incidents Plan;
- Training Plan; and
- Review and finalisation of the CEMP

Additional mitigation measures may be added following consultation with relevant consultees in preparation of specific method statements prior to commencement of works.

2.0 DESCRIPTION OF THE PROJECT

The proposed Monksland Pipeline (herein after named the 'Proposed Development') consists of a 200mm (Nominal Bore) underground transmission pipeline c. 2.488 km in length, hot tap connection (named 'Monksland Hot Tap'), and underground pigging station (pipeline inspection, cleaning, maintenance) located at the Monksland Hot Tap.

The Proposed Development working area (Figure 2.1, 2.2), is located in County Roscommon, is approximately 12.3 hectares that traverses the townlands of Crannagh, Crannagh Beg, Crannagh Mor, Keeloges, Keelty and Monksland, County Roscommon (hereinafter referred to as "the site"). The area is predominantly characterised by agricultural lands. The largest urban centre in the vicinity is Athlone town c. 2.5 km east of the proposed pipeline.

Figure 2.1 *Pipeline Location Map 01 (site boundary indicated by redline) (Source: Fingleton White, Dwg Ref: 1379-01-DG-0001-Sht1)*

Figure 2.3 *Pipeline Location Map 02 (site boundary indicated by red line) (Source: Fingleton White, Dwg Ref: 1379-01-DG-0001)*

3.0 LEGISLATION AND GUIDANCE

All entities including parties, contractors, and consultants involved in this project must adhere to the legal regulations of Ireland as well as international and regional protocols and agreements Ireland is a part of. In cases of legislative updates, the most recent version will be followed, and all pertinent new legislation will be appropriately observed. This document presents the latest legislation as of its issuance date.

The appointed construction contractor(s) bears the responsibility of maintaining awareness of the most current iterations of legislation relevant to the project throughout the contract's duration. The Designer is expected to recognise key environmental risks and corresponding measures outlined in the oCEMP, with the final detailed design duly incorporating these considerations.

The appointed construction contractor(s) are obligated to understand and comply with the Environmental Considerations detailed in Section 5 of the oCEMP, any specific planning conditions linked to the Proposed Development, and additional pertinent documents as stipulated by the Employer and planning authority.

3.1 RELEVANT LEGISLATION

It is important to recognise that the appointed construction contractor(s) will need to have a clear understanding of their responsibilities according to legal requirements. These legal obligations encompass, but are not limited to:

- Planning and Development Act and subsequent amendments, 2000-2024
- Planning and Development Regulations 2001 to 2024.
- 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 European Communities (Birds and Natural Habitats) Regulations, 2011 (S.I. 477 of 2011), as amended, 2015 (S.I. No. 355 of 2015);
- 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;
- 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);

- 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); 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);
- 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;
- Waste Management (Landfill Levy) Regulations 2008, as amended;
- 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);
- European Communities (Waste Directive) Regulations 2011, S.I. No. 126 of 2011, as amended 2016 (S.I. No. 315 of 2016);
- European Waste Catalogue (EWC) and Hazardous Waste List 2002;
- Waste Management (Food Waste) Regulations 2009, S.I. No 508 of 2009, as amended, 2015 (S.I. No. 430 of 2015);
- 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, 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);
- 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 or 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, as amended;
- 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;
- 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);
- 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, 2019 (S.I No. 191 of 2020).

3.2 RELEVANT INDUSTRY GUIDELINES

- 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';

- Invasive Species Ireland (2016). Best Practice Management Guidelines. Japanese knotweed;
- NRA (2005a). Guidelines for the Crossing of Watercourses during the Construction of National Road Schemes;
- NRA (2005b). 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; and,
- NRA (2010). Guidelines on the Management of Noxious Weeds and Non-Native Invasive Plant
- Species on National Roads (Revision 1).
- Sustainability & Environmental Appraisal (March 2020) LA 120 Environmental management.

4.0 SITE OPERATION

The appointed contractor(s) are responsible for the correct set up and continued management of all site operations and environmental mitigations required under the S39A Consent for the construction phase of the project, including commissioning, demobilisation, and reinstatement.

4.1 SITE ESTABLISHMENT AND COMPOUND LOCATIONS

Initial establishment works involves setting up a protective barrier around the construction zones using fencing materials that are designed to restrict unauthorised access. Security fencing helps control who can enter the construction area and prevents theft, vandalism, and accidents. In areas adjacent to the public domain hoarding will typically be used in order to provide privacy by screening ongoing construction activities from public view.

The site construction compound located within the temporary working areas serves as the central hub for various activities and functions during the construction of a project. It is a temporary setup that provides essential welfare facilities and space for workers, equipment, materials, and administrative needs. The following elements will be required for the Proposed Development:

- **Security and Access Control:** The compound will have security measures in place to control access and ensure the safety of workers, equipment, and materials.
- **Offices and Meeting Rooms:** The compound will include office spaces for project managers, engineers, and administrative staff. Meeting rooms are providing for holding discussions, presentations, and planning sessions.
- **Welfare Facilities:** Welfare facilities are designed to provide comfort and basic amenities for workers. This will include restrooms, showers, drying rooms, changing rooms, and break areas.
- **Plant Storage and Machinery Storage:** Construction equipment and machinery are stored in designated areas within the compound.
- **Materials Storage:** Construction materials such as pipeline, sheetpiling, steel, cement, and other supplies are stored in organised areas within the compound.

Proper storage helps prevent damage to materials and ensures they are readily accessible when needed.

- **Parking:** Adequate parking spaces are provided for workers' vehicles, construction vehicles, and equipment that are not in use. The parking of construction vehicles on footpaths, grass verges and double-parking will be prohibited or limited to short durations outside of peak hours.
- **Designated Waste Storage Areas:** Segregated waste storage areas will be identified within the compound to properly store different types of construction waste, such as debris, packaging materials, and hazardous substances. If hazardous materials are present they will be contained to prevent leaks or spills.

All of the sub-contractors as well as the main contractor and project managers will occupy offices in the same area. Dedicated site parking for staff, contractors, and visitors will be located within the site compound. There will be no parking permitted on the surrounding road network or estate roads by the contractor or site operatives.

Temporary Works Area Location(s)

The Proposed Development will require the establishment of temporary works areas including three (3) construction compounds in order to facilitate the Proposed Development works. Locating the areas along the route ensures that construction activities can be efficiently managed and supervised, reducing the logistical challenges associated with a single centralised compound.

The proposed works areas are as follows:

- 1 no. temporary works area and compound at the proposed hot tap location,
- 1 no. temporary works area and compound located in the agricultural lands to the north of the Drum Community Centre, and
- 1 no. temporary works area and compound at the proposed tie-in with the Monksland AGI.

The Hot Tap works area and Pipeline works area have been identified and indicative space planning undertaken as illustrated below in Figure 4.1 (drawing ref: GNI-7710-005-01) and Figure 4.2 (drawing ref: GNI138-Misc-004-01).

There are 4 no. options for the AGI temporary works area locations identified for the. These potential locations are show in GNI-13803-008-01, GNI-13803-008-02, GNI-13803-008-03, or GNI-13803-008-04. The final AGI compound location will be established in collaboration with the appointed construction contractor(s) and the Greener Ideas Facility.

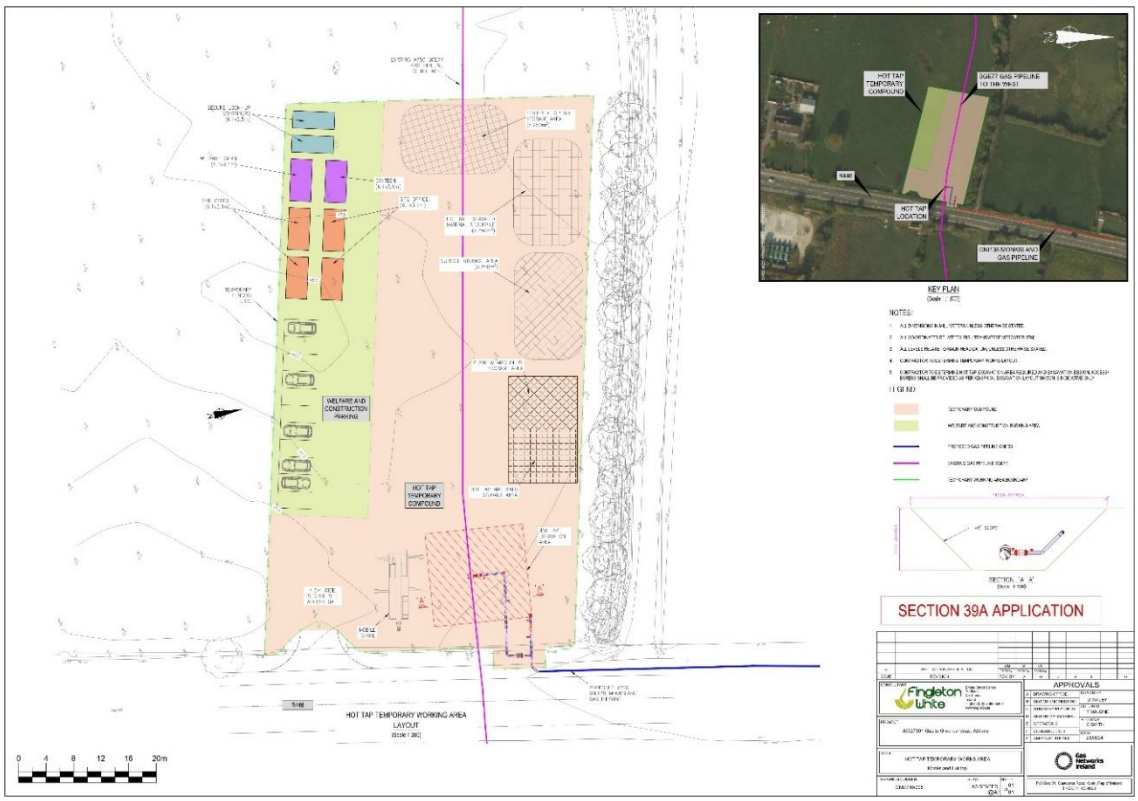

Figure 4.1 *Proposed Pipeline Temporary Works Area (Fingleton White Ref: GNI-7710-005-01)*

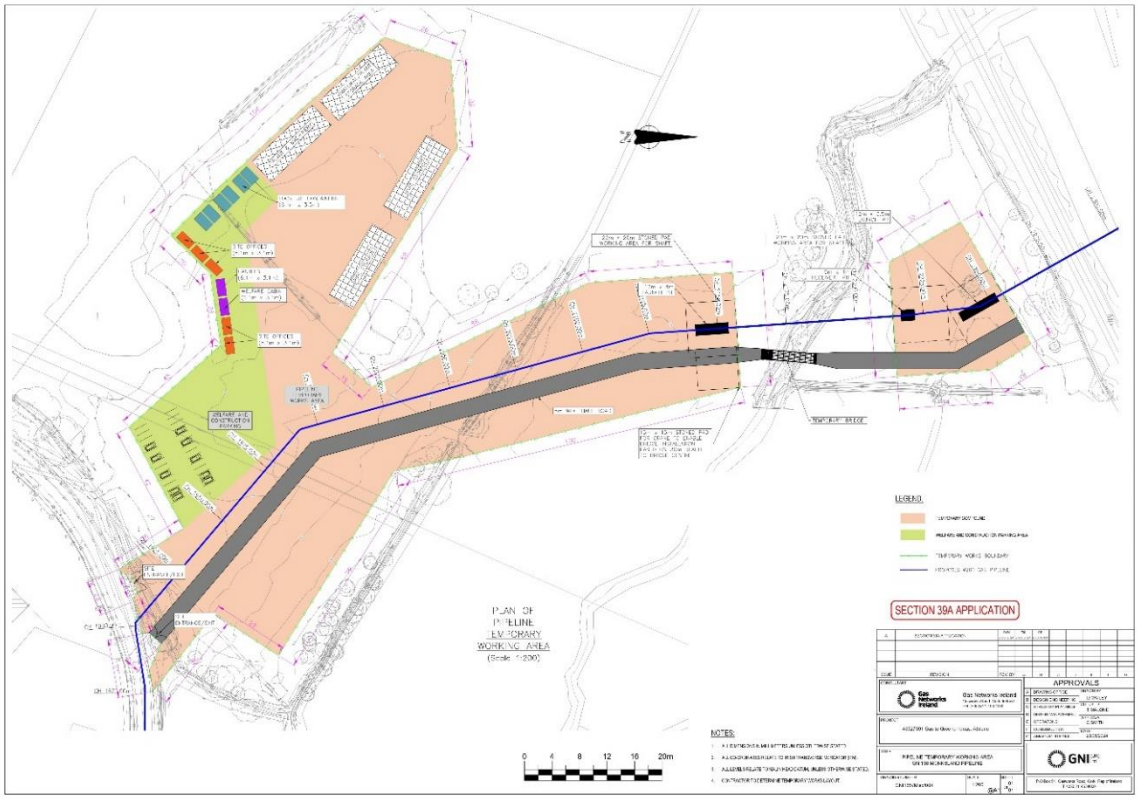

Figure 4.2 *Proposed Hot Tap Temporary Works Area (Fingleton White Ref: GNI-7710-005-01)*

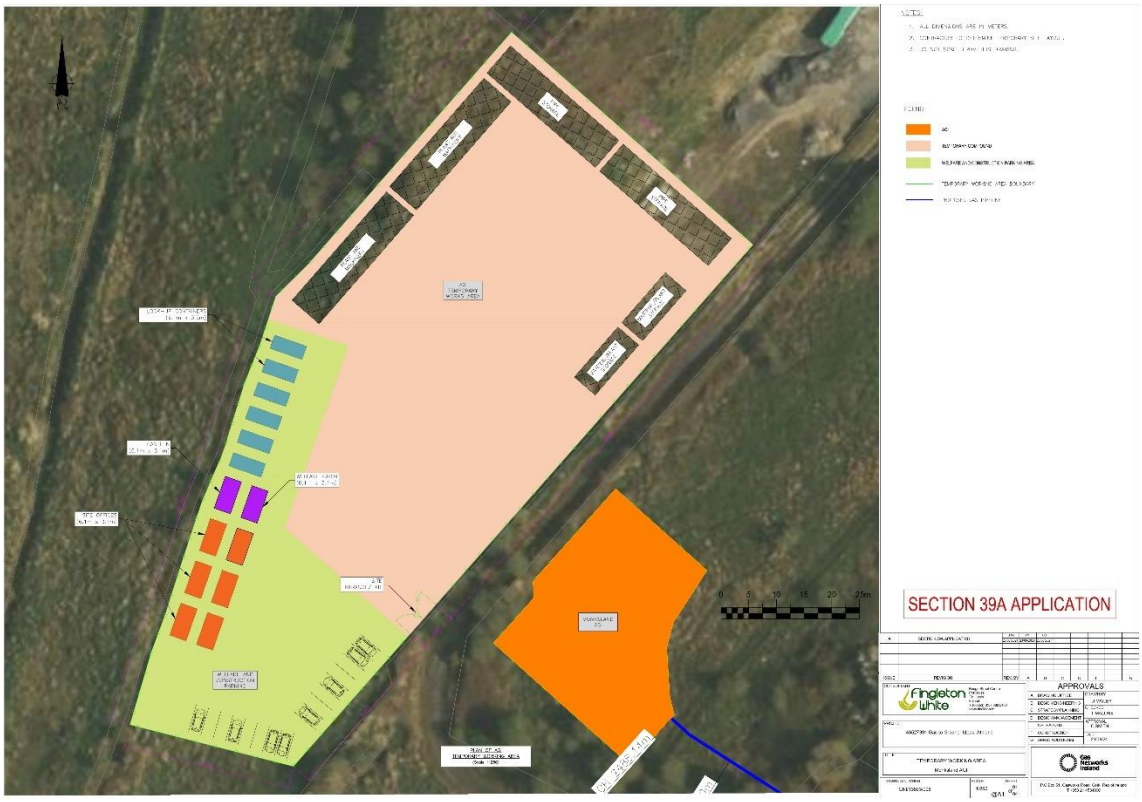

Figure 4.3 *Proposed AGI Temporary Works Area Layout (Fingleton White Ref: GNI-13803-008-01)*

Figure 4.4 *Proposed AGI Temporary Works Area Layout (Fingleton White Ref: GNI-13803-008-02)*

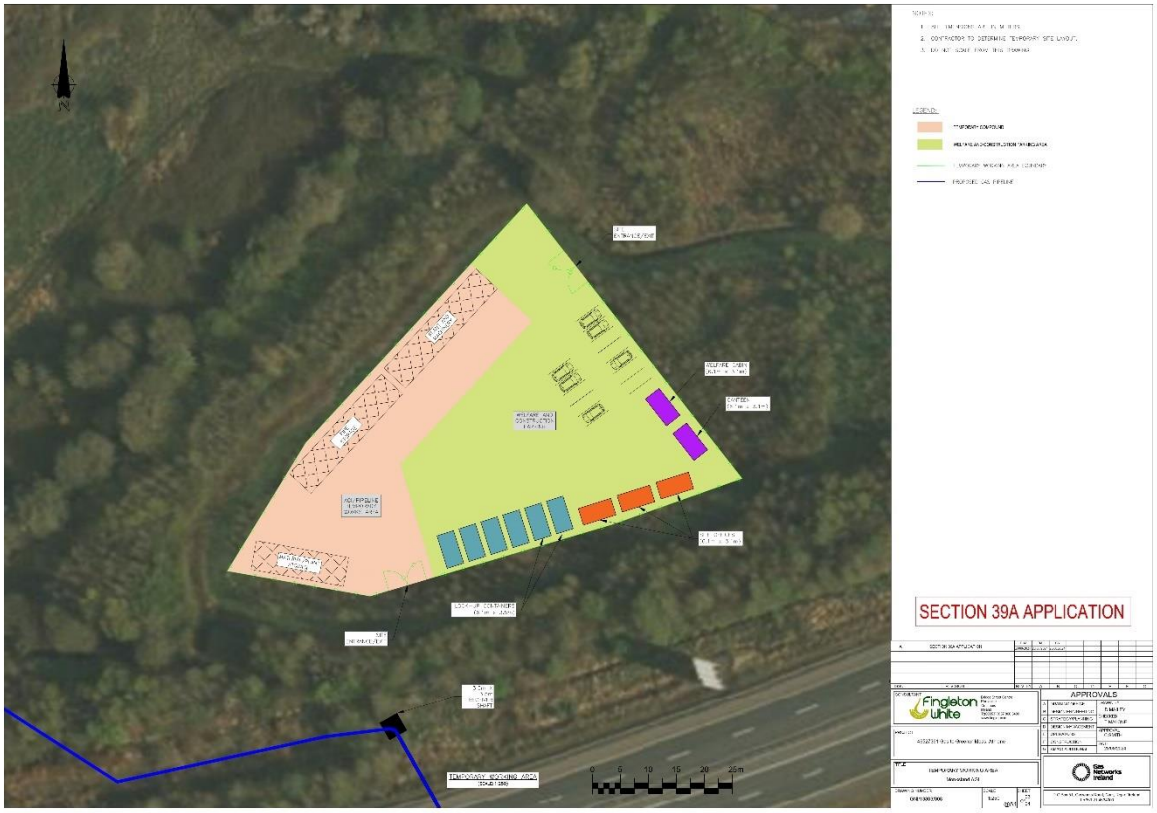

Figure 4.5 *Proposed AGI Temporary Works Area Layout (Fingleton White Ref: GNI-13803-008-03)*

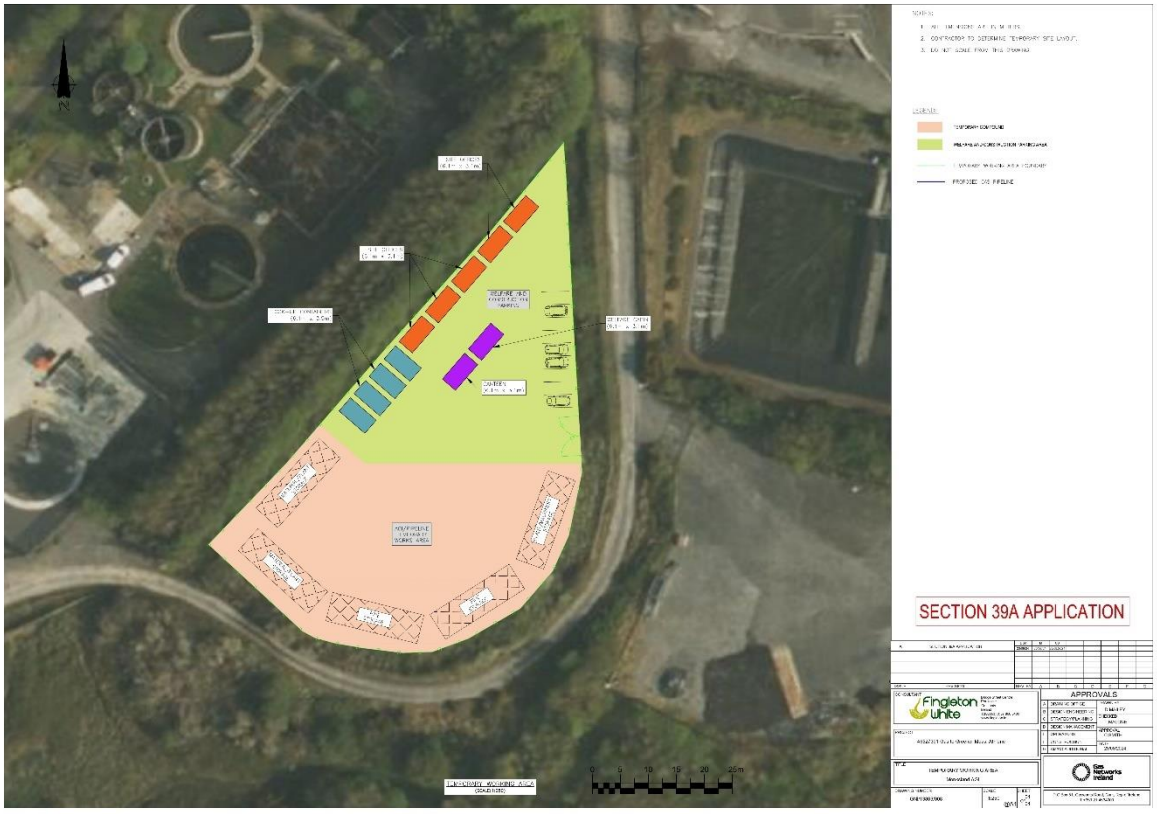

Figure 4.6 *Proposed AGI Temporary Works Area Layout (Fingleton White Ref: GNI-13803-008-04)*

4.2 CONSENTS, PERMITS, AND LICENSES

The appointed construction contractor(s) will secure all statutory consents and licences required to commence on-site construction activities in advance of works commencing, allowing for the appropriate notice period. The inclusion of these approval processes in the project timeline is to be overseen by the appointed construction contractor(s). These will include, but are not limited to:

- Site notices, and construction commencement notices.
- Licence to connect to existing utilities where required.
- Road Opening Licences under Section 13(6) of the Roads Act 1993 (as amended) – Consents to carry out roadworks which including the breaking open, boring or tunnelling under any public road to place, adjust, repair, alter or renew any apparatus.
- Construction Wastewater and Trade Effluent discharges (including foul water, construction water, or other water arising from the works) require:
    - discharge to sewer discharge licences issued by Uisce Éireann under Section 16 of the Local Government (Water Pollution) Acts and Regulations.
    - discharge to surface water (or storm sewer), or discharge to groundwater under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990.
- Water Supply Consents:
    - Consents for connection to water supply mains (mains water supply, local authority fire hydrants, other mains supply in private ownership); and
    - Consent for abstraction from groundwater / surface water (abstraction of > 25 m^3 of water or more per day, for any purpose must be registered with the EPA in accordance with European Union (Water Policy) (Abstractions Registration) Regulations 2018 (S.I. No. 261 of 2018).

The specific consents and licenses required can vary based on factors such as project size, location, potential environmental impacts, and the type of construction activities involved. The appointed construction contractor(s) will consult with local authorities and regulatory bodies prior to commencement of works.

4.3 CONSTRUCTION PROGRAMME AND PHASING

For the proposed road works, it is envisaged that each crew's working section length will be restricted to 100m in length to allow a stop-go system to be put in place using a single lane. It is anticipated that there could be 2 – 3 crews working on the pipeline routes at any one time, therefore 2 – 3 100m working sections along the entirety of the routes. A separation distance between these working sections will be maintained as agreed with the local authority (1 km for example) so that traffic disruption is minimised, and the areas do not cumulatively impact traffic.

Estimates for the duration of the construction works are included in the table below. The overall start-to-finish duration is estimated to be 9 months with development aspects overlapping. Construction is anticipated to commence in Q1 2025 and be completed by Q1 2026. Commissioning of the Proposed Development is estimated to take place over 1 – 2 months.

Table 2.2 *Estimated Construction Duration*

Works Area	Estimated Construction Duration (Months)

Pipeline / Hot Tap	8
AGI	9

4.4 SITE WORKING HOURS

It is expected that the construction of the AGI and pipeline will be completed during normal construction hours i.e. 7am to 7pm Monday to Friday, and 8am to 2 pm on Saturdays. However, it is possible that the appointed construction contractor(s) may wish to carry out certain operations outside these hours, e.g., Sunday or evening hours during long summer days. Such occurrences will be kept to a minimum and take place over a short timeframe and as such are unlikely to cause excessive disturbance.

4.5 EMPLOYMENT AND MANAGEMENT WORKFORCE

It is estimated that there will initially be 30-40 site personnel on site on a typical day, however during peak construction periods this is expected to fluctuate up to a maximum of 70 site personnel and contractors on site per day. Site personnel will include management, engineers, construction crews, supervisors, environment health and safety personal, and pipeline specialist contractors.

All employees working on the site will be required to have a SafePass Card (or similar approved Construction Health and Safety Card), manual handling training, Covid 19 training, and the necessary certificates to operate machinery, as required. The details of training required, records maintained, and induction procedures will be outlined in the appointed construction contractor(s) Health and Safety Plan(s).

4.6 SERVICES AND UTILITIES

Temporary site offices and welfare facilities for construction employees will need to be established. The offices and site amenities will need to have their own power supply (generator), water deliveries and foul water collection. The appointed construction contractor(s) will ensure that sufficient facilities are available at all times to accommodate the number of employees on site.

Electrical connections will be made by suitably qualified personnel following consultation with the relevant authorities and will be cognisant of subsequent construction works. High voltage connections will be established for heavy duty equipment and site facilities, as required.

During construction it is anticipated that a temporary supply will come from onsite Generator or via the MV network. All electrical works, including any connection to the ESB network will be carried out by a suitably qualified contractor.

Managing surface water and rainwater at a construction site compound is essential to prevent erosion, flooding, and environmental contamination. Proper management helps maintain a safe and organised working environment while minimising the impact on the surrounding environment.

Prior to commencing any construction activities, the appointed construction contractor(s) shall conduct a comprehensive utility locating survey using advanced technologies such as ground-penetrating radar (GPR) and electromagnetic induction methods. This survey will accurately identify the location and depth of all existing

underground services, including high voltage (HV) cables, water and gas pipelines, and telecommunication lines. Based on the results of the utility locating survey, exclusion zones will be demarcated around identified utilities. These zones will indicate areas where construction activities are restricted or subject to specific safety protocols.

4.7 MATERIAL HANDLING AND STORAGE

During the construction phase a significant amount of construction materials will be delivered to the site. A material storage area will be located within a secure section at the temporary works area(s).

Waste receptacles will be stored adjacent to the construction areas as required and will move in each of the sub-phases as the construction works progress. The segregated receptacles will be maintained close to each other in a designated Waste Storage Area (WSA) insofar as possible and will be clearly signed to identify the types of waste to be placed in each in accordance with the requirements of the Resource and Waste Management Plan. Segregated skips will be located in the material storage area, as required, and wheelie bins (or other suitable waste receptacles) for the offices and welfare facilities will be provided in strategic locations around the compound.

The majority of construction waste materials generated will be soil from excavation works. Suitable topsoil will be stockpiled pending reuse on appropriate sections of the site for backfilling and landscaping. Soil requiring removal offsite will be temporarily stockpiled away from watercourses and construction activities. Suitable locations will be determined as site clearance works and excavations progress taking into account the measures set out in Section 5 of the oCEMP. Material will be removed from site regularly to ensure only minimum stockpiling is required.

4.8 CONSTRUCTION ACCESS

Access during construction will be provided through the following known access/egress locations:

- A new roadside layby and bellmouth entrance shall be provided on the R446 at the hot tap tie in location between the edge of the road and the construction compound entrance.
- The existing agricultural entrance to the north of the Drum Community Centre on the L2027 will provide access to the agricultural lands.
- Access to the north of the Cross River will be provided by the proposed Temporary bridge over the Cross River.
- The Monksland AGI works area (to the north of the M6) will be accessed via industrial estate roads from the R362.

All Temporary Traffic Management will conform to the requirements of:

- Chapter 8 (Temporary Traffic Measures and Signs for Roadworks) of the Department of Transport Traffic Signs Manual (as amended)
- Department of Transport Temporary Traffic Management Design Guidance (August 2019)
- Department of Transport Temporary Traffic Management Operations Guidance (August 2019)
- The requirements of Roscommon County Council's Roads Department and TII (where applicable)

The contractor shall prepare detailed traffic management plans for the project. For works on private land, traffic management plans and signage shall also incorporate any requirements from the landowner.

The Temporary Traffic Management (TTM) measures (Section 5.8 of this CEMP) will ensure that the presence of construction traffic will not lead to any significant environmental degradation or safety concerns in the vicinity of the proposed works. Furthermore, it is in the interests of the construction programme that deliveries, particularly concrete deliveries are not unduly hampered by traffic congestion, and as a result continuous review of haulage routes, delivery timings and access arrangements will be undertaken as construction progresses to ensure smooth operation.

4.9 VISITOR MANAGEMENT

Visitors will only be allowed to enter the site in vehicles via the main haul road or via designated pedestrian access gates. A dedicated, secured footpath to the main site offices will be established for registration and obtaining PPE prior to entering the site. A log will be maintained by security to control access to the site. Visitors will be required to attend a site-specific induction to allow access to the site unless being accompanied by an inducted member of the site team.

5.0 ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION WORKS

5.1 LAND, SOIL, GEOLOGY, WATER (HYDROGEOLOGY AND HYDROLOGY)

Measures for the Control of Suspended Solids

The appointed contractor(s) will develop a works specific Sediment Control Plan (SCP), which will form part of the CEMP (the principles of which are detailed here), in advance of any construction activities commencing. The reduction and prevention of suspended solid pollution will be required during all elements of construction.

The following mitigation measures will be implemented as part of the SCP during the construction phase in order to manage the potential impact associated with excavation, stockpiled materials, and reducing sediment runoff at source.

- Prior to commencement of construction the appointed contractor(s) will prepare and adhere to a method statement identifying the extent of the areas likely to be affected and demonstrating that this is the minimum disturbance necessary to achieve the required works.
- The appointed contractor(s) will identify pathways of preferential flow within the project area and implement suitable mitigation measures to ensure contaminated water from the sites is treated before being released into any watercourse. Pathways of preferential flow are influenced by the site's topography and are subject to change as works are undertaken. Consequently, the appointed contractor(s) will need to determine these pathways on site and agreed with the Ecological Clerk of Works (EcoW), see measures for Ecology, Section 5.2. below.
- Clean water will be kept separate from contaminated water to reduce the volume to be treated.
- To prevent rainwater from inundating the construction area through the open pipeline trenches, running track, cut-off drains / interceptor ditches will be

installed to intercept uncontaminated surface water and prevent it from entering the work zone.

- Run-off velocities and erosive energy will be reduced by extending the lengths of flow paths for rainwater run-off, building interceptor ditches and channels, and lining steep, unavoidable interceptors or conveyance channels with low-gradient designs to minimise secondary erosion. Additionally, ditches will be lined with filter fabric, rock, or polyethylene to prevent channel erosion.
- Designated areas for stockpiling excavated material will be identified >50 m away from any watercourse. Silt fences will be installed around stockpiles to limit movement of entrained sediment in surface water runoff. Stockpiles will be tightly compacted to reduce runoff and graded to aid in runoff collection.
- During earthworks and excavation works care will be taken to ensure that exposed soil surfaces are stable to minimise erosion. Movement of material will be minimised to reduce the degradation of soil structure and generation of dust.
- Hard surface site roads and public roads will be swept to remove mud and aggregate materials from their surface while any unsurfaced roads will be restricted to essential site traffic only.
- A stabilised entranceway consisting of an aggregate on a geotech mesh/fabric base that will be located at any entry or exit point of the construction site. Aggregate will be established at the site entrance points from the construction site boundary extending for at least 10 m.
- Depending on the soil conditions, haul roads will be stabilised utilising materials such as crushed rock, gravel and a layer of geotextiles to improve load-bearing capacity and prevent deformation under heavy traffic. Sediment produced, as a result of the construction processes, will be contained from entering the nearby watercourse using a combination of settlement ponds and silt fences. Regular maintenance, including grading, resurfacing, and drainage management, is required to keep the haul road in good condition during the works.
- Silt fencing will be installed along the working area adjacent to the watercourse, during the construction phase, to ensure no silt entry to the adjacent surface waters. Silt fences will be a permeable woven geotextile fabric (Hy-Tex Terrastop Premium silt fence, or similar) and not a mesh. The silt fences will be positioned to allow an appropriate working area. The silt fencing will be installed as per manufacturer's guidelines.
- Monitoring of the effectiveness of the silt fences will be undertaken (c.f. Section 5.2. below) and maintenance of the fence will be undertaken if it comes into disrepair or significant amounts of silt begin to build up. Once the construction phase is complete, all fencing will be removed and disposed of to a licensed waste facility.
- Excavation works will not be carried out during or following heavy rainfall (i.e. if there is a yellow weather warning in place or 5mm in a 1-hour period).
- No unnecessary tracking or excavating in grassland/vegetated areas will occur (to prevent sediment laden run-off).
- Excavations will remain open for as little time as possible before placement of fill and be revegetated and remediation as soon as practicable.
- Reinstatement and revegetation will be carried out as soon as practicable after pipeline installation and commissioning is completed.
- Additional remediation works and recontouring activities may be necessary following the completion of the primary works, especially after periods of heavy rainfall. These post-completion measures aim to ensure the stability and success of revegetation. Remediation may involve addressing any erosion or sediment displacement that has occurred due to the rainfall.

- Regular inspection of surface water run-off and sediment control measures will be carried out during the construction phase. A log the regular inspections will be maintained, and any significant blockage or spill incidents will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

Measures for the Control and Treatment of Construction Surface Water

No water that has gathered on-site from any source (groundwater, surface water, hydrostatic testing water, or precipitation) will be pumped directly to surface water. All water intercepted on-site will be managed as and controlled for the duration of the construction works to prevent flow of silt-laden surface water flowing into watercourses.

The discharges of groundwater, surface water, hydrostatic testing water, or precipitation ('construction water') from the construction site will be managed and controlled for the duration of the construction works. Construction water that contains a high sediment load and potential for other pollutants will require removal. All discharges to surface waters will be suitably treated prior to discharge. There will be no direct discharge of untreated, silty, or contaminated water from any element of the works without appropriate attenuation, settlement and silt trapping.

Construction water will originate from the dewatering boreholes that will be installed near the Cross River to assist with creating a dry working environment in the pipeline trench and the launch and receiver shafts which facilitate the trenchless crossing. Dewatering from the established boreholes will be managed as required to assist with creating a dry working environment and prevent water from seeping into the excavations (pipeline trench, launch/receiver shaft) and flooding the construction site.

During commissioning there will be discharge of water generated from hydrostatic pressure tests. This water will be managed as required with temporary diversion / pumping to Intermediate Bulk Containers (IBCs) for removal offsite, however this may require on site discharge. This is clean water that has been pumped through the new pipeline under pressure to verify pipeline integrity under I.S. 328.

Construction water will also come from localised pumping of surface water run-off, rainfall, and groundwater ingress in the pipeline trench and launch/receiver shafts during and after heavy rainfall events.

The control and treatment measures for construction water to be implemented include:

- During construction, surface waters drainage, including any excavation dewatering, will be treated to allow settlement prior to discharge.
- A staged treatment system (treatment-train) will be in place during construction works that will ensure the quality of the discharge water is maintained and will comprise hydrocarbon interception for removal of petrol/diesel, settlement tanks for silt removal, and pH balancing (as required). Final treatment will be via appropriately sized silt bags or silt socks, allowing water to settle out or filter before discharge. Used silt bags will be disposed of in an environmentally appropriate manner.
- The level of suspended solids in any discharges to fisheries waters (the Cross river and its tributaries) as a consequence of construction works shall not exceed 25 mg/l of suspended solids, nor result in the deposition of silts on gravels or any element of aquatic flora and fauna (as per IFI (2016) Guidelines).
- Regular inspection of the staged treatment system and discharge quality will be carried out during the construction phase. A of log the regular inspections

will be maintained, and any exceedance of 25 mg/l of suspended solids will be recorded for root cause investigation purposes and updating procedures to ensure incidents do not reoccur.

- Whenever possible, water pumped out from excavations will be discharged onto permeable vegetated areas after undergoing sediment removal through filtration.
- When discharging clean water into watercourses, measures like baffles, geotextiles, sediment mat, or riprap will be set up at the discharge point to avoid disturbing the watercourse. The design of the outfalls and the construction method statements for their installation shall be agreed with IFI prior to construction.
- Discharge to surface water (or storm sewer), or discharge to groundwater under Section 4 of the Local Government (Water Pollution) Act 1977, as amended in 1990.

Should any discharge of contaminated construction water be required during the construction phase the discharge will be removed from site via road tanker or similar.

Measures for the Reuse of Soils, and Sourcing of Aggregates

Where excavated soil is intended for reuse on site, topsoil will be stockpiled separately to the subsoil at designated locations. Stockpiled topsoil and subsoil will be kept free from disturbance for the duration of construction to reduce risk of physical damage and compaction pending reuse across the site for backfilling and landscaping.

All excavated materials will be visually inspected by suitably qualified persons assessed for signs of possible contamination such as staining or strong odours. Should any unusual staining or odour be noticed, samples of this soil will be analysed for the presence of potential contaminants to ensure that historical pollution of the soil has not occurred. Should it be determined that any of the soil excavated is contaminated, this will be segregated and appropriately disposed of by a suitably permitted/licensed waste disposal contractor. Suitable soils and stones will be retained, and reused on-site as backfill where possible.

If any waste soil requires removal from site, it will be classified by an experienced and qualified environmental professional to ensure that the waste soil is correctly classified for transportation and recovery/disposal offsite.

Regulation 27 (By-products), as amended, of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2011-2020, (Previously Article 27 of the European Communities (Waste Directive)), allows material from one site to be reused on another site. By-product notifications are made to the EPA via their online notification form. This process requires certain conditions to be met and excavated material should not be removed from site until approval from the EPA has been received. The potential to reuse material as a by-product will be confirmed during the course of the excavation works, with the objective of eliminating any unnecessary disposal of material. Regulation 27 will also be investigated to see if material can be imported onto the site for beneficial reuse instead of using virgin materials.

Regulation 28 (End-of-waste status) as amended, of S.I. No. 323/2020 - European Union (Waste Directive) Regulations 2011-2020, (Previously Article 28 of the European Communities (Waste Directive)), allows certain specified waste to cease to be waste when it has undergone a recovery, including recycling, operation and complies with specific criteria. Regulation 28 will be considered for waste streams, where the regulation may be utilised.

Imported CL.503 material will be required to provide a suitable bedding layer that will be placed in accordance with IS 328:2021, GNI/AO/SP/007, Guidelines for Managing Openings in Public Roads 2017 (The Purple Book) and compacted in the trench before laying the pipeline. All suppliers will be vetted for:

- Aggregate compliance certificates/declarations of conformity for the classes of material specified for the Proposed Development,
- Environmental Management status; and
- Regulatory and Legal Compliance status of the Company

All imported fill and aggregate that may be required for the Proposed Development will be sourced from reputable suppliers.

A site-specific Resource and Waste Management Plan (RWMP) will be prepared by the construction contractor prior to any excavations or construction works taking place on site.

Measures for the Control of Pollution from Other Substances

The following mitigation measures will be implemented during the construction phase in order to prevent any spillages of fuels and other construction chemicals and prevent any resulting discharge of pollutants to soil, surface water or groundwater systems:

- All plant and machinery will be regularly maintained and serviced to minimise the risk of release of hydrocarbons. This will only be undertaken by qualified personnel;
- Designation of bunded maintenance and refuelling areas on the Site;
- Provision of spill kit facilities across the Site, strategically located in high risk areas;
- Where mobile fuel bowsers are used, the following measures will be undertaken:
    - Any flexible pipe, tap or valve will be fitted with a lock and will be secured when not in use;
    - The pump or valve will be fitted with a lock and will be secured when not in use;
    - All bowsers to carry a spill kit and operatives must have spill response training;
    - Portable generators or similar fuel containing equipment will be placed on suitable drip trays.

In the case of drummed fuel or other potentially polluting substances which may be used during the construction phase, the following measures will be adopted:

- Secure storage of all containers that contain potential polluting substances in a dedicated internally bunded chemical storage cabinet unit or inside a concrete bunded area;
- Oil and fuel storage tanks shall be stored in designated areas, and these areas shall be stored within temporary bunded areas, doubled skinned tanks or bunded containers to a volume of 110% of the capacity of the largest tank/container. Drainage from the bunded area(s) shall be diverted for collection and safe disposal.
- Clear labelling of containers so that appropriate remedial measures can be taken in the event of a spillage;
- All drums to be quality approved and manufactured to a recognised standard;

- If drums are to be moved around the Site, they will be secured and on spill pallets; and
- Drums will be loaded and unloaded by competent and trained personnel using appropriate equipment.

Refuelling and maintenance of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area or within the construction compound (or where possible off the site) which will be away from surface water drains – a minimum 50 m buffer zone will be adhered to. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double skinned tank. An adequate supply of spill kits and hydrocarbon adsorbent packs will be stored in this area. All relevant personnel will be fully trained in the use of this equipment. Guidelines such as "Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors" (CIRIA 532, 2001) will be complied with.

Measures for the Use of Concrete

Any ready-mixed concrete will be brought to site by truck. A suitable risk assessment for wet concreting will be completed prior to works being carried out which will include measures to prevent discharge of alkaline waste waters or contaminated storm water to the underlying subsoil. Wash water from cleaning ready-mix concrete wagons and mixers will be contaminated. Wagons and mixers will be washed off-site in a designated washout area. Washout to be removed off site and disposed of appropriately at a licenced facility or reused for concrete creation.

Mitigation in the form of avoiding the use of traditional concrete has been incorporated into the design with precast structures, including temporary bridge , precast marker slabs and concrete jacking pipes, being utilised.

Measures for the Management of Construction Compounds and Materials Storage

The Site Selection for Construction Compounds will be undertaken in accordance with Section 4.1 of the oCEMP.

- All materials will be stored in compounds and will be stored in a manner that is safe and in line with best industry practice. Fuels and chemicals will be stored in an appropriately bunded area/with double skinned tanks.
- Aggregate materials such as sands and gravels will be stored in clearly marked receptacles within a secure compound area to prevent cross-contamination.
- Any watercourses and vegetation (trees/hedgerows) to be retained that occur in areas of land that will be used for site compound / storage facilities will be fenced off in advance of establishment works.
- All surface water runoff will be intercepted and directed to the appropriate on-site treatment system for the removal of pollutants prior to discharge. Clean water from compound roofs etc will be kept separate from contaminated water to reduce the volume to be treated.
- Construction materials, including aggregates etc. will be stored a minimum of 40 m distance from the Cross River and 20 m distance from any other surface water body, to prevent any blockage to flood water flow paths from occurring during high rainfall events.
- Site welfare facilities will be established to provide sanitary facilities for construction workers on site. The appointed contractor(s) will ensure that sufficient facilities are available at all times to accommodate the number of employees on site. Welfare facilities will be situated at a minimum distance of

40 m distance from the Cross River and 20 m distance from any other surface water body. Foul water from the offices and welfare facilities on the site will be contained within the portable toilets and collected by a licensed waste sewerage contractor.

Measures for the Watercourse Crossings (instream works)

In combination with the measures outlined above, the specific measures below will be implemented at the proposed 2 no. trenched watercourse crossings works (tributary to the Cross River Chainage 2065 to 2075, and Chainage 2420 to 2430):

- Prior to the commencement of works a comprehensive photographic record of the existing condition of the watercourse before any construction activities commence will be undertaken. This documentation will serve as a reference point for reinstalment activities after the completion of works.
- The works area for the flume crossings will be isolated from surface water using sandbags or suitable containment methods to create a seal that span the full width of the watercourse. Heavy gauge plastic may be required in order to ensure a watertight seal is obtained. This keeps a stretch of the river dry and the water is transferred downstream of the works area through gravity fed flumes.
- Sufficiently large flume pipes will be sized to ensure they are capable of accommodation flood flow water volumes are inserted into the watercourse, ensuring they extend past the area of the proposed trench and running track.
- Measures like geotextiles, sediment mat, or riprap will be set up at the downstream of the flume to avoid disturbing the watercourse bed.
- Water pumped out from the isolated stream bed will be and treated before disgrace into the downstream watercourse.
- Following the dewatering process but prior to initiating the construction activities, the exposed bed material will be systematically extracted from sections that will undergo disruption, especially in areas where machinery will be operating.
- Excavated stream bed material will be stockpiled separately from all other material, in a designated area at least 15m from any watercourse.
- De-watering from the isolated stream bed and from within the trench during pipeline works may be required. Water within the contained area contaminated with suspended solids or other potential pollutants shall not be released directly to surface water. It will be pumped to a suitable treatment system before discharge into the downstream watercourse.
- No vehicles or machinery will cross the streambed.
- Once crossing works are complete, the previously excavated stream bed material will be used to reinstate the stream bed to its original level.
- Should riverbed material excavated be deemed unfit for reinstatement of the riverbed, stone of the same size and geology shall be sourced for reinstatement purposes.
- Prior to reinstatement and removal of the flume the work area will be re-watered to avoid sudden ingress of water causing erosion of the replaced bed or bank material.
- Works to stream banks and instream works to be conducted during times of settled weather and low water flows. Working during times of heavy rainfall will be avoided.
- Watercourse banks will be reformed to their original profile. Geocoir will be laid and secured to the newly profiled bank to avoid any risk of erosion or run-off during high intensity rainfall events. A fast growing, deep rooting grass seed

mix will be spread along these banks, as well as native plants and fencing, as appropriate, and agreed with the landowner.
- Once the dams and flume are removed, the watercourse will be allowed to flow normally for the remainder of construction.
- Upon completion of all construction works, all silt fencing will be removed and disposed of to a licensed waste facility.

Regular review of the works area will be undertaken to ensuring effective mitigation of impacts associated with the temporary damming/fluming works by an Environmental Officer or the ECoW. Best practice guidance will be followed for the proposed works including Inland Fisheries Ireland 'Guidelines on protection of fisheries during construction works in and adjacent to waters' (IFI, 2016) and Transport Infrastructure Ireland's 'Guidelines for the crossing of watercourses during the construction of national road schemes' (TII, 2008).

5.2 ECOLOGY AND BIODIVERSITY

Appointment of Ecological Clerk of Works

A suitably qualified Ecological Clerk of Works (ECoW) will be appointed at the outset of the construction works to ensure that all environmental and ecological commitments are adhered to throughout the project. The ECoW will be specifically responsible for overseeing the correct implementation of all protective measures for European sites as detailed in the project Natura Impact Statement (NIS). The ECoW will provide guidance on the required mitigations to the Project Team, and in particular the Site Manager. The Site Manager shall ensure that all personnel working on-site are trained and aware of the mitigation measures detailed below. While the Ecological Clerk of Works (ECoW) oversees ecological and environmental compliance, they are not solely responsible. All project staff, including the appointed contractor(s) environmental personnel, share the responsibility for ensuring that environmental best practices are adhered to. The appointed contractor(s) staff must work together to maintain high environmental standards and mitigate impacts, thereby ensuring the success of the project's environmental commitments.

The ECoW will monitor works practices with targeted efforts and attendance at site at project start up to ensure mitigation measures and best practice measures are in place. The ECoW will also be present onsite to monitor excavation and dewatering operations during the project construction phase. The frequency of the ECoW's attendance on site will be dictated by the nature of the works. It is recommended that a weekly site visit be completed during the construction visit, but this may need to be more frequent during specific works practices such as deep excavations or dewatering. The ECoW will be fully appraised of all of the mitigation measures included in the project EcIA and NIS, the accompanying S39A Application and the reasons why they are to be applied.

The appointed ECoW will be a member of the Chartered Institute of Ecology and Environmental Management (CIEEM), or equivalent, and will have at least 5 years consultancy experience, with commensurate experience in the role of ECoW for work on similar construction projects. The appointed Ecologist or environmental scientist will have the authority to stop works or temporarily halt or delay ongoing works where further consideration or on-site improvements of mitigation may be necessary.

Removal of Vegetation, Trees, and Reinstatement Post Construction

The construction work areas will be clearly delineated prior to the commencement of any works taking place on site. No vegetation clearance will occur outside the designated areas within the proposed development site. The retention of existing green corridors such as hedgerows and promotion of biodiversity through native species landscaping will be undertaken where feasible.

The following measures will be implemented:

- All trees that are to be retained, both within and adjacent to the Proposed Development boundary (where the Root Protection Area (RPA). of the tree extends into the Proposed Development boundary), will be fenced off at the outset of works and for the duration of construction to avoid structural damage to the trunk, branches or root systems of the trees;
- Temporary fencing will be erected at a sufficient distance from the tree so as to enclose the Root Protection Area (RPA) of the tree. The RPA will be defined based upon the recommendation of a qualified arborist;
- Where fencing is not feasible due to insufficient space, protection for the tree/hedgerow will be afforded by wrapping hessian sacking (or suitable equivalent) around the trunk of the tree and strapping stout buffer timbers around it;
- The area within the RPA will not be used for vehicle parking or the storage of materials (including soils, oils and chemicals). The storage of hazardous materials (e.g. hydrocarbons) or concrete washout areas will not be undertaken within 10m of any retained trees, hedgerows and treelines;
- The construction contractor will seek to avoid removing any hedges or trees during the nesting season and where this is not possible, an ecologist will be engaged to ensure compliance with the Wildlife Act 1976, as amended. The Applicant (GNI) employ their own internal policies on Tree Cutting and Hedge Trimming that applies the applicant Biodiversity Mitigation Hierarchy on all projects to avoid and minimise any tree/hedgerow loss and to add biodiversity net gain, where practicable. The Applicant will engage with the Local Authority to identify and agree suitable biodiversity measures and/or lands to achieve biodiversity net gain before completion of the project.

All areas of hedgerow vegetation removed will be fully reinstated with an appropriate native planting mix of local provenance including the following species:

- Elder *Sambucus nigra*
- Hawthorn *Crataegus monogyna*
- Rowan *Sorbus aucuparia*
- Birch *Betula Spp*. (wetter areas)
- Guelder Rose *Viburnum opulus*

Measures for the protection of the Cross River and Tributaries

These mitigation measures apply to works within proximity to the Cross River and its tributaries in respect of surface water quality and the protection of downstream European sites.

- Prior to works commencing construction contractor(s) temporary works design and Method Statements in relation to the Cross River temporary bridge crossing and crossing under the Cross River will be agreed in prior to the

commencement of these works with the project ECoW and Inland Fisheries Ireland (IFI) and provided to National Parks and Wildlife Services (NPWS).

- IFI will be notified a minimum of 5 working days prior to work commencing in relation to the Cross River temporary bridge crossing and crossing under the Cross River.
    - The following IFI representatives are to be notified: Catherine Kerins <catherine.kerins@fisheriesireland.ie> and Arnold Donnelly <arnold.donnelly@fisheriesireland.ie>
- The Method Statements will contain relevant environmental mitigation and control measures and Emergency Response Plan having regard to relevant pollution prevention guidelines in particular the IFI document “Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters”.
- An appraisal report will be sent to IFI in relation to geotechnical and ground conditions to determine that the crossing is likely to be completed safely without risk to the aquatic environment.
- The abutments for the temporary crossing will be a minimum setback of 2 m from the top of the riverbank.
- The temporary bridge crossing will be constructed in such a way that it drains away from the Cross River and that any runoff is taken away from the River banks on either side.
- Work buffer zones of a minimum of 10 metres will be adhered to along the Cross River (with the exception of the temporary bridge crossing).
- The project silt fences will be installed under the ECoW supervision and will be maintained until all ground disturbance is ceased. Once installed, the silt fence will be inspected regularly during construction and more frequently during heavy rainfall events. The ECoW will also supervise the removal of the silt fences following the completion of the works.
- The works within the immediate vicinity of the cross river, including the trenchless crossing and temporary bridge (Chainage 2100 to 2235) will be confined to May 1st to September 30th inclusive unless otherwise agreed with Inland Fisheries Ireland.
- Launch and receptor shafts for the trenchless crossing will be located a minimum of 20m from the riverbanks of the Cross River.
- Monitoring will be undertaken whilst each watercourse crossing and directional drilling is being completed. This monitoring will be agreed with IFI in advance of works.

In addition to the measures outline above, the mitigation measures outlined in Section 5.1 of the oCEMP for the protection of surface water quality and the aquatic environment will be implemented in full during construction.

Measures for Bats

Four trees (No. T_49, T_50, UT_01, UT_02) displaying ‘PRF-I’ suitability for roosting bats will be subject to survey by an Ecologist who is licensed to carry out bat disturbance and handling provided felling is required for these individuals. The survey will confirm that no bats are present prior to felling of the tree. Upon felling works, the tree will be lowered to the ground and allowed to remain for 24 hours prior to removal to facilitate any unidentified roosting bats to safely egress. If bats are found a derogation license will be secured from NPWS prior to works.

Boundary habitats and trees which are to be retained will be fenced off prior to the commencement of works to protect these habitats from accidental ingress and damage to the root zone in order to preserve connectivity for commuting and foraging bats.

Lighting required for health, safety or security reasons, shall be directed away from sensitive ecological features such as the River Cross and surrounding treelines and hedgerows.

Measures for Otters

Suitable fencing will be used to exclude mammals from any hazardous areas including deep excavations, or a means of escape will be provided.

The temporary bridge that will be installed during construction will maintain passage along both sides of the river through the maintenance of minimum 0.6m x 1.0m space on the river side of the temporary abutments.

Standard surface water control measures as outlined in CIRIA (2001), and Section 5.1 of the oCEMP are considered are considered sufficient to avoid any indirect impacts on foraging and commuting Otter as a result of surface water contamination.

Lighting required for health, safety or security reasons, shall be directed away from sensitive ecological features such as the River Cross and surrounding treelines and hedgerows.

Pre-construction survey will be carried out to ensure that the baseline conditions are presented in the current report remain valid. Following CIEEM guidance, mammal surveys have a validity period of 12 to 18 months.

Biosecurity and Invasive Species Management

There will be no spread of invasive species as a result of the proposed development. Biosecurity of both plant and animal species will be employed pre and post works and will form part of the Appointed Contractor's CEMP.

A large infestation of Japanese knotweed (Reynoutria japonica) was recorded growing on the property of the cottage located on the R446 (ITM 600804 739020; Chainage 450) adjacent to the proposed pipe laying works.

Biosecurity protocols in relation to aquatic environment will be implemented by the construction contractor(s) in line with the IFI field work protocol for field survey work (2010). An Invasive Alien Species (IAS) Survey and IAS Management Plan (INVAS, 2024) has been developed that will; be adhered to during construction, in summary this includes the below measures.

Planning and Preparation:

- Conduct a toolbox talk for all staff on Japanese knotweed risks and responsibilities.
- Clearly demarcate the infested zone and establish a biosecurity station.
- Restrict access to authorised personnel until excavation is completed and signed off.

Excavation of Pipeline Trench:

- Excavate trench to a depth of 1,800 mm, extending 7 metres on either side of the infestation (total length 20 metres).
- Install a proprietary root barrier membrane (Hy-tex C3) at a depth of 1,800 mm along the base and sides of the trench.

- Place the membrane between two sheets of plywood on the walls and between two layers of 100mm sand at the base.
- Wrap the proposed pipeline in the membrane for extra protection.

Excavated Soil Management:

- Remove contaminated soil to a licensed landfill (IMS, Naul, Co. Dublin) under a Reg 49 licence from NPWS.
- Submit necessary documents: WAC certificate (with 2kg soil sample), waste acceptance document from IMS, haulier's permit, and management plan.
- Ensure bio-secure loading of soil into trucks; clean trucks and equipment before leaving the site.

Cleaning and Decontamination:

- Set up a cleaning area with sand and teram layers for truck and equipment decontamination.
- Contain runoff from cleaning and load into the last truck for removal.
- Wash Stations will be established at the exit point and all personnel must disinfect their PPE and equipment used on site at these stations.
- All machinery that will be used on the site must be thoroughly cleaned before entering the site (to avoid contaminating the site with invasive species from elsewhere) and cleaned before leaving the works area.

Documentation and Record Keeping:

- Maintain detailed records of all operations, including excavation area, depth, volume of material removed, personnel and equipment inventory, and any issues encountered.

5.3 AIR QUALITY

The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the following measures have been proposed by drawing on best practice guidance from Ireland, and the UK Institute of Air Quality Management publication '*Guidance on the Assessment of Dust from Demolition and Construction*' (IAQM, 2024)

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before works commence on site. Community engagement includes explaining the nature and duration of the works to local residents and businesses.
- The name and contact details of a person to contact regarding air quality and dust issues shall be displayed on the site boundary, this notice board should also include head/regional office contact details.

Site Management

- During working hours, dust control methods will be monitored as appropriate, depending on the prevailing meteorological conditions. Dry and windy conditions are favourable to dust suspension therefore mitigations must be

implemented if undertaking dust generating activities during these weather conditions.
- A complaints register will be kept on site detailing all telephone calls and letters of complaint received in connection with dust nuisance or air quality concerns, together with details of any remedial actions carried out

Preparing and Maintaining the Site

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicles / Machinery and Sustainable Travel

- Ensure all vehicles switch off engines when stationary - no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Impose and signpost a maximum-speed-limit of 15 kph haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)

Operations

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

Waste Management

- Bonfires and burning of waste materials is prohibited.

Measures Specific to Earthworks

- Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable.
- Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
- Only remove the cover in small areas during work and not all at once.
- During dry and windy periods, and when there is a likelihood of dust nuisance, a bowser will operate to ensure moisture content is high enough to increase the stability of the soil and thus suppress dust.

Measures Specific to Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
- For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust.

Measures Specific to Trackout

- A speed restriction of 15 kph will be applied as an effective control measure for dust for on-site vehicles.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10 m from receptors where possible.

Monitoring

- Undertake daily on-site and off-site inspections, where receptors (including roads) are nearby, to monitor dust, record inspection results in the site inspection log. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of site boundary, with cleaning to be provided if necessary.
- Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

5.4 CLIMATE

During the construction phase the following best practice measures shall be implemented on site to prevent significant GHG emissions and reduce impacts to climate:

- Prevention of on-site or delivery vehicles from leaving engines idling, even over short periods.
- Ensure all plant and machinery are well maintained and inspected regularly.
- Minimising waste of materials due to poor timing or over ordering on site will aid to minimise the embodied carbon footprint of the site.
- Waste materials will be re-used on site where possible and where re-use is not possible on-site they will be sent off-site for recycling, re-use or recovery.
- Sourcing materials locally where possible to reduce transport related CO_2 emissions.

5.5 NOISE AND VIBRATION

With regard to construction activities, best practice control measures for noise and vibration from construction sites are found within BS 5228-1. Whist construction noise and vibration impacts are expected to vary during the construction phase depending on the distance between the activities and noise sensitive buildings, the contractor will ensure that all best practice noise and vibration control methods will be used, as necessary in order to ensure impacts at off-site noise sensitive locations are minimised. The best practice measures set out in BS 5228-1 and BS 5228-2 include guidance on several aspects of construction site mitigation measures, including, but not limited to:

- Selection of quiet plant;
- Noise control at source;
- Screening;
- Hours of work;
- Liaison with the public, and;
- Monitoring.

The TII Noise Guidelines 2004 (NRA 2004) and TII Noise Guidelines 2014 (NRA 2014) specify noise levels that are deemed acceptable in terms of construction noise for national road projects and are commonly applied for other linear projects in Ireland. These limits have been derived for the construction of new national road projects which predominately pass through rural environments with quieter ambient noise levels compared to those in urban settings. These limits are set out in Table 4.1

The contractor will put in place the most appropriate vibration control measures depending on the level of vibration reduction required at individual working areas i.e. based on the construction threshold values for vibration set out in Table 4.2.

Table 5.1 *Proposed Construction Noise Levels (CNLs) at the Facade of Dwellings during the Construction Phase*

Days and Times	Noise Levels (dB re 2 x 10^{-5} Pa)	
	$L_{Aeq,1hr}$	L_{ASmax}
Monday to Friday 07:00hrs to 19:00hrs	70	80
Monday to Friday 19:00hrs to 22:00hrs	60*	65*
Saturdays 08:00hrs to 16:30hrs	65	75

Days and Times	Noise Levels (dB re 2 x 10^{-5} Pa)	
	$L_{Aeq,1hr}$	L_{ASmax}
Sundays and Bank Holidays 08:00hrs to 16:30hrs	60*	65*

Note *: Construction activity at these times, other than that required for emergency works, will normally require the explicit permission of the local authority.

Table 5.2 *Recommended construction vibration thresholds for buildings*

Structure Type	Allowable Vibration (in terms of PPV) at the Closest Part of Sensitive Property to the Source of Vibration, at a Frequency of 4Hz and less:	
	Transient Vibration	Continuous Vibration
Reinforced or framed structures. Industrial and heavy commercial buildings	50mm/s	25mm/s
Unreinforced or light framed structures. Residential or light commercial-type buildings	15mm/s	7.5mm/s
Protected and Historic Buildings *	6mm/s – 15mm/s	3 mm/s – 7.5mm/s
Identified Potentially Vulnerable Structures and Buildings with Low Vibration Threshold	3mm/s	

Note *: The relevant threshold value to be determined on a case by case basis. Where sufficient structural information is unavailable at the time of assessment, the lower value within the range will be used.

Detailed comment is offered on these items in the following paragraphs. Noise control measures that will be considered include the selection of quiet plant, enclosures and screens around noise sources, limiting the hours of work and noise monitoring, where required.

Selection of Quiet Plant

This practice is recommended in relation to static plant such as compressors and generators. It is recommended that these units be supplied with manufacturers' proprietary acoustic enclosures. The potential for any item of plant to generate noise will be assessed prior to the item being brought onto the site. The least noisy item should be selected wherever possible. Should a particular item of plant already on the site be found to generate high noise levels, the first action should be to identify whether or not said item can be replaced with a quieter alternative.

Noise Control at Source

If replacing a noisy item of plant is not a viable or practical option, consideration will be given to noise control at source. This refers to the modification of an item of plant or the application of improved sound reduction methods in consultation with the supplier. For example, resonance effects in panel work or cover plates can be reduced through stiffening or application of damping compounds; rattling and grinding noises can often be controlled by fixing resilient materials in between the surfaces in contact.

The following best practice migration measures will be employed:

- Site compounds will be located away from noise sensitive boundaries within the site constraints.
- The lifting of bulky items, dropping and loading of materials within these areas will be restricted to normal working hours.

- For mobile plant items such as dump trucks, excavators and loaders, utilising an acoustic canopy to replace the normal engine cover and/or ensuring the enclosure panels are closed during operation can reduce noise levels over normal operation. Mobile plant will be switched off when not in use and not left idling.
- For steady continuous noise, such as that generated by diesel engines, noise control measures include fitting a more effective exhaust silencer system to reduce the noise emitted.
- For percussive tools such as pneumatic breakers, a number of noise control measures include fitting muffler or sound reducing equipment to the breaker tool and ensuring any leaks in the air lines are sealed.
- Erecting localised screens around breaker or drill bit when in operation in close proximity to noise sensitive boundaries.
- For concrete mixers, control measures will be employed during cleaning to ensure no impulsive hammering is undertaken at the mixer drum.
- For compressors, generators and pumps, these will be surrounded by acoustic lagging or enclosed within acoustic enclosures providing air ventilation.
- 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.

Screening

Screening is an effective method of reducing the noise level at a receiver location and can be used successfully as an additional measure to all other forms of noise control. Standard construction site hoarding (2.4m in height) with a mass per unit of surface area greater than 7 kg/m^2 can provide adequate sound insulation, and has been used in the predictive noise calculations. Based on the predicted CNL, screening giving a 10 dB reduction will be required at works locations within 50m of the closest NSLs.

Hours of Work

It is anticipated that the construction of the proposed development will be completed during normal construction hours i.e. 7 am to 7 pm Monday to Friday, and 8 am to 2 pm on Saturdays. However, it is possible that the contractor may wish to carry out certain operations outside these hours i.e. Sunday or evening hours during long summer days etc.

Consideration will be given to the scheduling of activities in a manner that reflects the location of the site and the nature of neighbouring properties. Each potentially noisy event/activity will be considered on its individual merits and scheduled according to its noise level, proximity to sensitive locations and possible options for noise control.

Depending on the noise emission levels experienced and associated noise impact, the appointed contractor(s) will be flexible and able to conduct certain works at hours which reflect periods when the neighbouring properties have lower sensitivities to noise.

Liaison with the Public

A designated Community Liaison Officer (CLO) will be appointed to site during construction works. Any noise and vibration complaints will be logged and followed up in a prompt fashion by the CLO. In addition, prior to particularly noisy or vibratory construction activity the CLO will inform the nearest sensitive locations of the time and expected duration of the works.

Noise and Vibration Monitoring

During the Construction Phase the appointed contractor will carry out noise monitoring at representative NSLs to evaluate and inform the requirement and / or implementation of noise management measures. Noise monitoring will be conducted in accordance with ISO 1996–1 (ISO 2016) and ISO 1996–2 (ISO 2017). The selection of monitoring locations will be based on the nearest representative NSLs to the working area which will progress along the length of the Proposed Development.

On review of the likely vibration levels associated with construction activities, it may be concluded that the construction of the Proposed Development is not expected to give rise to vibration that is either significantly intrusive or capable of giving rise to structural or cosmetic damage to adjacent buildings.

In the case of vibration levels giving rise to human discomfort, in order to minimise such impacts, the monitoring will be undertaken at a selection of sensitive buildings, where proposed works have the potential to be at or exceed the vibration limit values.

5.6 LANDSCAPE AND VISUAL

Site Management Procedures

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

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

Tree Protection

Existing trees and hedgerows to be retained are particularly sensitive to negative impacts during the construction phase if proper protection measures are not adhered to. With regard to the protection of the retained trees on site during proposed construction works, reference will be made to BS5837: Trees in relation Design, Demolition and Construction – Recommendations (BSI, 2012).

5.7 ARCHAEOLOGICAL, ARCHITECTURAL AND CULTURAL HERITAGE

There is low potential for previously unrecorded sub-surface archaeological or architectural heritage remains to survive along the proposed development route. There is however potential for archaeological features or finds to survive where the proposed route traverses the Cross River and townland boundaries.

In order to mitigate against the archaeological risks of the proposed development, the following is required:

- The appointment of a suitably qualified archaeological consultant to design and implement a mitigation strategy pre- and during the construction phase.
- This mitigation strategy will include archaeological testing where the route crosses townland boundaries, and a programme archaeological monitoring of the construction phase in greenfield areas.
- Provision will be made for the recording of any architectural heritage or archaeological features identified during geophysical survey or monitoring in areas where they will be impacted on by the development (in consultation with and with the permission of the National Monuments Service).

Please note that the recommendations given here are subject to the approval of the National Monuments Service, Department of the Housing, Local Government and Heritage.

5.8 TRAFFIC AND TRANSPORTATION

The appointed construction contractor(s) will develop a comprehensive Construction Traffic Management Plan (CTMP) prior to the commencement of works to mitigate the impacts of the construction phase on the surrounding road network. The CTMP will include the following measures:

- Temporary Traffic Management (TTM) measures during construction works will be implemented in accordance with Chapter 8 (Temporary Traffic Measures and Signs for Roadworks) of the Department of Transport Traffic Signs Manual (as amended).
- Temporary Traffic Management Design Guidance (August 2019) document provides guidance that will be followed in the design of TTM.
- Construction traffic will be closely monitored and controlled throughout the project. Temporary Traffic Management Operations Guidance (August 2019) document provides guidance that will be followed for TTM operations.
- The TTM and signing layout will take the individual features of the site into consideration and will be developed as part of the CTMP. TTM are subject to change as works are undertaken. Consequently, the appointed contractor(s) will need to determine the required signage depending on the area and stage of works.
- Construction and delivery vehicles will be instructed to use only the approved and agreed means of access; and movement of construction vehicles will be restricted to these designated routes.
- Appropriate vehicles will be used to minimise environmental impacts from transporting construction material, for example the use of dust covers on trucks carrying dust producing material.
- Speed limits of construction vehicles to be managed by appropriate signage, to promote low vehicular speeds within the site.
- A road sweeper will be employed to clean the public roads adjacent to the site of any residual debris that may be deposited on the public roads leading away from the construction works.
- All vehicles will be suitably serviced and maintained to avoid any leaks or spillage of oil, petrol or diesel. Spill kits will be available on site. All scheduled maintenance carried out off-site will not be carried out on the public highway.
- Safe and secure pedestrian facilities are to be provided where construction works obscure any existing pedestrian footways. Alternative pedestrian facilities will be provided in these instances, supported by physical barriers to segregate traffic and pedestrian movements, and to be identified by appropriate signage.

- Road crossings will be managed through appropriate traffic management strategies, including road closures and diversions where necessary, to ensure safety and minimise disruption.
- Appropriate supervision will be provided to control the flow of traffic when large trucks / machinery needs to cross public roads. STOP/GO boards will be used during movement.
- Car parking areas within the construction site will be prepared and maintained to a high standard. This includes ensuring the surface is finished to avoid mud and debris being tracked onto adjoining road.
- Deliveries and collections of materials will be planned and scheduled. Efforts will be made to stagger these activities, particularly avoiding the morning and evening peak hours, to reduce congestion and minimise delays.
- All construction vehicles will be required to park in designated areas off the adjacent road network. Parking on footpaths, grass verges, and double-parking will be strictly prohibited or limited to brief durations outside of peak hours.

Through the implementation of the above (non-exhaustive) list of measures, the appointed construction contractor(s) aims to minimise the impact on the surrounding road network, ensuring the safety of the public while facilitating the efficient progress of the construction project.

5.9 WASTE MANAGEMENT

This section outlines the measures that will be undertaken to minimise the quantity of waste produced at the site and the measures to handle the waste in such a manner as to minimise the effects on the environment. A site-specific Resource and Waste Management Plan (RWMP) will be prepared by the construction contractor prior to any excavations or construction works taking place on site. The RWMP will ensure that the management of resource and Construction & Demolition (C&D) waste at the site is undertaken in accordance with the current legal and industry standards. The plan will aim to ensure maximum recycling, reuse and recovery of waste with diversion from landfill, wherever possible. It will also seeks to provide guidance on the appropriate collection and transport of waste from the site to prevent issues associated with litter or more serious environmental pollution (e.g. contamination of soil and/or water) and should be regularly revisited throughout the project's lifecycle so that opportunities to maximise waste reduction / efficiencies are exploited throughout, and that data is collected on an ongoing basis so that it is as accurate as possible.

Adherence to the RWMP prepared for the construction works will ensure that the management of waste arising is dealt with in compliance with the provisions of the *Waste Management Act 1996* as amended, and associated Regulations, the *Litter Pollution Act of 1997* as amended and the *National Waste Management Plan for a Circular Economy 2024 - 2030 (NWMPCE) (2024)*, and that it will achieve optimum levels of waste reduction, re-use and recycling.

Typical waste materials that will be generated from the construction works will include:

- Soil and stones;
- Concrete, bricks, tiles and ceramics;
- Wood, glass and plastics;
- Metals;
- Gypsum-based construction material;
- Paper and cardboard;

- Mixed construction and demolition (C&D) waste;
- Chemicals (solvents, paints, adhesives, detergents etc.).

The management of all hazardous waste arisings, if they occur, shall be coordinated in liaison with Health and Safety Management.

The following mitigation measures will be implemented:

- Left over materials (e.g. timber off-cuts, concrete and metal) and any suitable construction materials shall be re-used on-site, where possible; (alternatively, the waste will be sorted for recycling, recovery or disposal);
- All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;
- Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);
- A Resource Manager (RM) will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;
- All construction staff will be provided with training regarding the waste management procedures;
- All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;
- All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and
- All waste leaving the site will be recorded and copies of relevant documentation maintained.

The mitigation measures presented above has been designed to address the potential effects associated with the development. These measures are designed to prevent, minimise, or offset the adverse impacts of the project.

Correct classification and segregation of the excavated material is required to ensure that any potentially contaminated materials are identified and handled in a way that will not impact negatively on workers as well as on water and soil environments, both on and off-site.

If any potentially contaminated material is encountered, it will need to be segregated from clean / inert material, tested and classified as either non-hazardous or hazardous in accordance with the EPA publication titled *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*, which establishes the criteria for the acceptance of waste at landfills.

In the event that Asbestos Containing Materials (ACMs) are found within the excavated material, the removal will only be carried out by a suitably permitted waste contractor, in accordance with *S.I. No. 386 of 2006 Safety, Health and Welfare at Work (Exposure to Asbestos) Regulations 2006-2010.* All asbestos will be taken to a suitably licensed or permitted facility.

In the event that hazardous soil, or historically deposited waste is encountered during the construction phase, the appointed construction contractor(s) will notify RCC and

provide a Hazardous / Contaminated Soil Management Plan, to include estimated tonnages, description of location, any relevant mitigation, destination for disposal / treatment, in addition to information on the authorised waste collector(s).

5.9.1 Waste Minimisation

Waste minimisation measures proposed are summarised as follows:

- Materials will be ordered on an 'as needed' basis to prevent over supply;
- Materials will be correctly stored and handled to minimise the generation of damaged materials;
- Materials will be ordered in appropriate sequence to minimise materials stored on site;
- A waste tracking log will be established;
- Sub-contractors will be responsible for similarly managing their wastes; and
- All wood waste generated by site works will be inspected and examined and will be segregated as re-useable wood and scrap wood waste.

5.9.2 Waste Storage

The main waste storage area will be located in the site compound. A dedicated and secure area containing bins, and/or skips, and storage areas, into which all waste materials generated by construction site activities, will be established within the development.

Waste materials generated will be segregated at the site compound, where it is practical. Where the on-site segregation of certain wastes types is not practical, off-site segregation will be carried out. There will be skips and receptacles provided to facilitate segregation at source. All waste receptacles leaving site will be covered or enclosed. The appointed waste contractor will collect and transfer the wastes as receptacles are filled. On-site segregation of waste materials will be carried out to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:

- Concrete rubble;
- Metals;
- Timber; and
- Waste generated by workers activities.

The site Resource Manager will ensure that all staff are informed of the requirements for segregation of waste materials by means of clear signage and verbal instruction. Appointed employees will be made responsible for ensuring good site housekeeping.

5.9.3 Pest Management

A pest control operator will be appointed as required to manage pest onsite during the construction phase of the project. Organic and food wastes generated by staff will not be stored in open skips, but in closed waste receptacles. Any waste receptacles will be carefully managed to prevent leaks, odours and pest problems.

5.9.4 Responsibility

It will be the responsibility of the construction manager to ensure that a written record of all quantities and natures of wastes removed from the site are maintained on-site in a waste file (in hardcopy or electronically).

It is the responsibility of the project manager or his/her delegate that all contracted waste haulage drivers hold an appropriate waste collection permit for the transport of waste loads and that all waste materials are delivered to an appropriately licensed or permitted waste facility in compliance with the relevant Regulations as outlined in the RWMP.

The contractor, as part of regular site inspection audits, will determine the effectiveness of the waste management strategy and will assist the project manager in implementing the measures under the RWMP and in determining the best methods for waste minimisation, reduction, re-use, recycling and disposal as the construction phase progresses and waste materials are generated.

Prior to commencement of the excavation and construction activity and removal of any waste off-site, details of the proposed destination of each waste stream will be established, along with waste collection permit numbers.

5.9.5 Monitoring

The management of waste during the construction phase will be monitored by the Contactor's appointed Resource Manager to ensure compliance with the above-listed mitigation measures, and relevant waste management legislation and local authority requirements, including maintenance of waste documentation.

The objective of setting targets for waste management is only achieved if the actual waste generation volumes are calculated and compared. This is particularly important during the excavation and construction works where there is a potential for waste management to become secondary to progress and meeting construction schedule targets. The mitigation measures outlined in the oCEMP specifies the need for a RM to be appointed who will have responsibility to monitor the actual waste volumes being generated and to ensure that contractors and sub-contractors are segregating waste as required. Where targets are not being met, the waste manager will identify the reasons for targets not being achieved and work to resolve any issues. Recording of waste generation during the project will enable better management of waste contractor requirements and identify trends. The data should be maintained to advise on future projects.

5.10 UTILITIES

Ongoing consultation with Uisce Éireann, EirGrid, ESB Networks, and other relevant service providers within the locality and compliance with any requirements or guidelines they may have will ensure a smooth construction schedule without disruption to local and business community. The appointed construction contractor(s) will be obliged to put best practice measures in place to ensure that there are no interruptions to these utilities, unless this has been agreed in advance.

All applicable standards, guidelines and codes of practice will be adhered to regarding both installation of the gas transmission pipeline and working in the vicinity of existing services, in particular the Gas Networks Ireland (GNI) Guidelines for Designers and Builders – Industrial and Commercial (Non-Domestic) Sites (2018) and the Health & Safety Authority (HSA) Code of Practice for Avoiding Danger from Underground Services (2016).

Prior to commencing any construction activities, the appointed construction contractor(s) shall conduct a comprehensive utility locating survey using advanced technologies such as ground-penetrating radar (GPR) and electromagnetic induction

methods. This survey will accurately identify the location and depth of all existing underground services, including high voltage (HV) cables, water and gas pipelines, and telecommunication lines. Based on the results of the utility locating survey, exclusion zones will be demarcated around identified utilities. These zones will indicate areas where construction activities are restricted or subject to specific safety protocols.

All plant, machinery and equipment will be stored within a temporary construction compound or within the Works Area. Oils and fuels will not be stored on site and will be stored in an appropriate bunded area within the temporary storage compound.

6.0 CONSTRUCTION HEALTH AND SAFETY PLAN

The appointed construction contractor(s) will prepare a Construction Health and Safety Plan, which will be put in place prior to commencement of the works. A comprehensive site induction shall be conducted for all personnel prior to commencing any work on the site. The induction will cover the following topics:

- Overview of the project layout and site boundaries
- Site-specific hazards and risks
- Emergency evacuation procedures and assembly points
- Safe access and egress routes
- Location of first aid facilities and fire extinguishers
- Proper use of PPE
- Site rules and regulations
- Reporting procedures for incidents and near misses

All personnel, including subcontractors, visitors, and new workers, must complete the site induction before starting any work.

7.0 EMERGENCY PREPAREDNESS/ENVIRONMENTAL INCIDENT PLAN

Environmental incidents are events that result in harm or potential harm to the environment. These incidents include, but are not limited to, hazardous material spills, hydrocarbon spills, chemical spills, leaks, soil erosion, surface water pollution, groundwater pollution, air quality breaches, noise disturbances, and wildlife disruption.

An emergency plan for the construction works will be prepared by the appointed contractor(s) for all works, including specific sections for areas with high risk to the environment i.e. trenchless crossing.

Categories of Incidents

Incidents are categorised into three levels based on severity:

1. Major Incidents: Pose significant risk to the environment, health, and safety.
2. Moderate Incidents: Have a moderate impact and potential for environmental harm.
3. Minor Incidents: Minimal impact and easily manageable incidents.

Various types of environmental incidents that may occur on the construction site include hazardous material spills, soil erosion and sediment runoff, water contamination, air quality breaches, noise disturbances, and disruption of wildlife habitats.

Planning and Prevention

Environmental issues and potential emergencies are integral to project planning. Effective preventive and control measures are implemented, communicated to all project workers, including subcontractors, through tools like Contract Environmental Induction, Toolbox Talks, and Method Statement briefings.

Emergency contact details, Drainage Plan/Site Plan (with spill kit locations), will be posted on notice boards. Spill kits are available in the site compound's stores, strategically placed around the site, and within working vehicles. Vehicles carry sufficient spill kits matching their diesel/oil load.

Spill kits will be readily available on site. Proper placement of spill kits is crucial. They will be located as close as possible to potential spill areas and housed in clearly marked containers. These kits are mandatory at fuel storage or refuelling zones and will also be positioned near watercourses when work is being carried out nearby or within surface water drainage catchment. Mobile bowsers must always carry spill kits and drip trays/spill nappies. The choice and quantity of spill containment materials depend on the substance in use and the potential spill volume. Different absorbent types are accessible:

- Oil-Selective Absorbents: These are white or light blue and do not absorb water. They are suitable for spills on both land and water.
- Universal Absorbents: Grey in colour, these are intended for land spills.
- Chemical Absorbents: These could be yellow or grey and are designed for chemical or acid spills on land.

These absorbent types come in various forms:

- Granules, Sand and Shredded Fibres: These are applicable for spills on land.
- Pads: These can be used on land, particularly on hard surfaces, to contain or direct spills.
- Booms: These are designed to confine and absorb spills on water surfaces.

In addition to spill containment materials, spill kits must include appropriate Personal Protective Equipment (PPE), with gloves as a minimum requirement, and a copy of the Emergency Spill Response Plan. They will also feature disposal bags suitable for hazardous waste, including used absorbents and contaminated materials.

Regular inspections are necessary to ensure spill kits are adequately stocked and in good condition. This is especially crucial for kits located in remote areas, as they might be susceptible to vandalism or misuse. After usage, replenishing the spill kit promptly is vital to prepare for potential future spills. A detailed inventory of the kit's contents can be placed within the kit or in the site office at a minimum.

In order to prioritise safety and mitigate potential risks, as with any construction project a proactive approach will be taken towards anticipating and managing extreme weather events during the construction process. Weather forecasting will be reviewed to monitor meteorological conditions closely and identify the occurrence of storm events, lightening, heat or cold weather etc.

Emergency Response Protocols

There will be a Designated Emergency Coordinator and Responsible Personnel for Emergency Response. This individual(s) will bear primary responsibility for executing

the spill response procedure. Nevertheless, other personnel present on-site, including the General Foreman, Area Supervisor, Safety Officers, Fitters, General Operatives and those in charge of refuelling, will also possess awareness of the emergency spill response procedure. It is necessary to provide training for all staff members responsible for addressing spills. These individuals must:

- Be familiar with the whereabouts of spill kits and/or materials, as well as their proper application.
- Grasp the fundamentals of spill containment and possess knowledge of site drainage systems and the locations of surrounding environments where spills might be received.
- Understand the appropriate Personal Protective Equipment (PPE) specifications for managing oils, fuels, and other hazardous substances utilised on the site.
- Possess knowledge about the proper disposal methods for contaminated materials.
- This information can be conveyed in inductions but also will be repeated in toolbox talks on a regular basis.

When an impending extreme weather event is detected through forecasting systems, as part of safety protocols the work zones, construction equipment, materials, and machinery that may be vulnerable to damage or displacement by severe weather will be 'made safe' by being secured or moving to safe locations. The site will be monitored and adjustments to safety measures as needed to address changing conditions.

Coordination with Emergency Services and Regulatory Authorities

An Emergency Contacts List will be developed prior to commencement of construction. The Designated Emergency Coordinator and Responsible Personnel for Emergency Response will be aware of the appropriate authorities to be notified, if necessary, as well as the emergency services to be contacted if the incident exceeds the site's capacity for containment. The emergency contact list may encompass details for:

- Environmental Protection Agency (EPA);
- EPA 24-hour emergency incident line 0818 33 55 99.;
- Inland Fisheries Ireland (IFI);
  (Contacts: Catherine Kerins <catherine.kerins@fisheriesireland.ie> and Arnold Donnelly <arnold.donnelly@fisheriesireland.ie>)
- IFI 24-hour pollution line 0818 34 74 24;
- Emergency Services;
- Local Authority;
- An Garda Síochána;
- Health & Safety Authority;
- National Park and Wildlife Services; and
- Specialised cleanup and waste disposal contractor.

Response to an Incident

All employees will be instructed to bring any environmental incidents they identify to the immediate attention of the Project / Site or Line Manager, after first taking what steps they can to contain/ remediate the incident (without putting the health and safety of themselves or others at risk).

In the event of an incident, prompt actions must be taken: the incident response team and project management will be notified without delay, and relevant emergency response protocols will be activated based on the severity of the incident. Priority shall be given to ensuring the safety of both workers and the surrounding community, with a focus on containing spills and leaks to prevent additional dispersion. Cleanup procedures will be conducted in adherence to guidelines.

Reporting and Investigation

Immediate Reporting

- Document incident details, including date, time, location, materials involved, and actions taken.
- Notify regulatory agencies and stakeholders as required by law.

Investigation and Root Cause Analysis

- Conduct a thorough investigation to determine the cause of the incident.
- Identify contributing factors and take corrective actions to prevent recurrence.

8.0 TRAINING PLAN

The following outline training plan outlines the training objectives and activities designed to educate construction site personnel about the Construction Environmental Management Plan, Construction Health and Safety Plan, Emergency Preparedness and Environmental Incidents Plan. The goal is to ensure that all team members are knowledgeable about the plan's protocols and can respond effectively in case of environmental incidents or emergencies.

Sample Training Objectives

- Familiarise personnel with the Construction Environmental Management Plan, Emergency Preparedness and Environmental Incidents Plan.
- Provide understanding of environmental incident categories, response protocols, and reporting procedures.
- Ensure proper usage of equipment, communication channels, and safety measures during incidents.
- Educate personnel on their roles and responsibilities within the incident response team.

Sample Training Sessions

1. Introduction to the Plan
    - Overview of the purpose and importance of the Construction Environmental Management Plan, Emergency Preparedness and Environmental Incidents Plan.
2. Evacuation and Safety Procedures
    - Overview of evacuation routes and assembly points in case of significant incidents.
    - Training on ensuring personal safety and the safety of others during an emergency.
3. Emergency Response Procedures

- Discussion on the different categories of incidents: Major, Moderate, and Minor.
- Description of common types of environmental incidents that may occur on the construction site. (Refuelling spillages, hydrocarbon spillage, hydraulic oil leak, alkaline wash water leak)
- Detailed explanation of the steps to take when an environmental incident occurs.

4. Roles and Responsibilities
    - Clarification of roles within the incident response team, including Team Leader, First Aid Responders, Spill Control, Communication, etc.
    - Discussion on teamwork, communication, and coordination during incidents.
5. Reporting and Documentation
    - Guidance on properly documenting incident details, including filling out incident report forms.
    - Explanation of the importance of accurate and timely reporting.

Training Frequency, Training Material and Resources

New personnel will undergo this training upon induction to the construction site. Providing comprehensive training sessions will equip all construction site personnel with the necessary knowledge and skills to effectively respond to incidents and safeguard the environment and worker safety.

9.0 REVIEW AND FINALISATION OF THE PLAN

The oCEMP is an essential framework that guides the chosen construction contractor in implementing environmentally responsible practices throughout the construction programme.

The appointed construction contractor(s) will provide a further detailed CEMP that will include any subsequent conditions relevant to the Proposed Development and set out further detail of the overarching vision of how the appointed construction contractor(s) of the Proposed Development manage the Site in a safe and organised manner.

A systematic review and finalisation process ensures the plan's adaptability and effectiveness. Regular audits and inspections serve as crucial checkpoints to assess performance and identify improvements.

Given project dynamics and potential changes, the CEMP remains dynamic, evolving alongside site activities and project alterations.

The plan will be evaluated through routine audits, identifying areas for enhancement and ensuring alignment with project changes and regulations. As circumstances evolve, the CEMP is updated for ongoing suitability.

10.0 REFERENCES

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    - Waste Management (Licensing) Regulations 2000 (S.I. No. 185 of 2000) as amended
    - Waste Management (Packaging) Regulations 2014 (S.I. No. 282 of 2014)
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    - Waste Management (Landfill Levy) Regulations 2015 (S.I. No. 189 of 2015)
    - European Communities (Waste Electrical and Electronic Equipment) Regulations 2014 (S.I. No. 149 of 2014)
    - Waste Management (Batteries and Accumulators) Regulations 2014 (S.I. No. 283 of 2014) as amended
    - Waste Management (Food Waste) Regulations 2009 (S.I. No. 508 of 2009) as amended 2015 (S.I. No. 190 of 2015)
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    - Waste Management (Hazardous Waste) Regulations 1998 (S.I. No. 163 of 1998) as amended
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    - European Communities (Shipments of Hazardous Waste exclusively within Ireland) Regulations 2011 (S.I. No. 324 of 2011)
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