Monksland Pipeline

(Gas to Greener Ideas Athlone)

Ecological Impact Assessment




Prepared By:

Moore Group -
Environmental Services

On behalf of:
Gas Networks Ireland

Job Number 23128
3 September 2024

Project Proponent	Gas Networks Ireland
Project	Monksland Pipeline (Gas to Greener Ideas Athlone)
Title	Monksland Pipeline (Gas to Greener Ideas Athlone) Ecological Impact Assessment

Project Number	23128	**Document Reference**	23128 Monksland Pipeline EcIA Rev2	
Revision	**Description**		**Author**	**Date**
Rev2	Final		G. O'Donohoe	3 September 2024
Moore Archaeological and Environmental Services Limited				

TABLE OF CONTENTS **PAGE**

1. INTRODUCTION

Moore Group was commissioned by Gas Networks Ireland to undertake a Habitat Survey and EcIA of the site of a proposed new pipeline to connect Greener Ideas, Athlone to the gas network, referred to as the 'Proposed Development'.

The Proposed Development is a linear development located in agricultural land to the west of Athlone, Co. Roscommon. The pipeline is designed to connect the existing BGE/77 750mm Ories to Perssepark 'Pipe to the West' Pipeline with a 'Hot Tap' connection at Keeloges off the old Athlone to Galway Road R446 and then running along the road carriage way north to Crannagh where it turns west along the L2027 toward Drum Community Centre. From here it traverses wet grassland fields to a point where it passes underneath the Cross River and the Railway and M6 Motorway to reach the permitted Monksland Above Ground Installation (AGI) at Monksland on the north side of the M6.

The proposed underground transmission gas pipeline crosses a number of field boundaries with associated hedgerows and the most notable water course being the Cross River which ultimately discharges to the River Shannon approximately 3.5 river kilometres downstream. The distance between the crossing of the pipeline and the Cross River and the nearest European sites is c.3.15 river km downstream where the Cross River and surrounding callows are designated as part of the River Shannon Callows SAC (Site code 000216) and the Middle Shannon Callows SPA (Site code 004096).

This report provides information on ecological features if present within the potential Zone of Influence of the Proposed Development, of particular significance, primarily designated habitats and species, including habitats/species listed in Annex I, II and IV of the EU Habitats Directive, rare flora listed in the Flora Protection Order along with other semi-natural habitats of conservational value.

This report was compiled by Ger O'Donohoe M.Sc. of Moore Group providing information on habitats in the study area. Ger is the principal ecologist with Moore Group and has 30 years' experience in ecological impact assessment. He graduated from ATU Galway in 1993 with a B.Sc. in Applied Freshwater & Marine Biology and subsequently worked in environmental consultancy while completing an M.Sc. in Environmental Sciences, graduating from Trinity College, Dublin in 1999. He also has over 15 years' experience of carrying out bat surveys and has completed the Bat Conservation Ireland, Bat Detector Workshop which is the standard training for the carrying out of bat surveys in Ireland and follows the Bat Conservation Ireland 'Bat Survey Guidelines' - Aughney *et al*., 2008'. In addition, Ger is an active member of the Galway Bat Group and Bat Conservation Ireland, which monitors bat populations in Ireland, and facilitates the education of bat communities to the public.

Supporting surveys of Bat and Otters were undertaken by O'Donnell Environmental. Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and

Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has 15 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance (Ref: DER/BAT 2023-16) and to capture bats (C25/2023).

The following important ecological receptors were considered in planning and designing the project, and in assessing its likely ecological effects:

- Sites with nature conservation designations, including proposed NHAs, the reasons for their designation, and their conservation objectives, where available;
- Annex IV (Habitats Directive) species of fauna and flora, and their breeding sites and resting places, which are strictly protected under the European Communities (Birds and Natural Habitats) Regulations, 2011;
- Other species of fauna and flora which are protected under the Wildlife Acts, 1976-2012;
- *'Protected species and natural habitats'*, as defined in the Environmental Liability Directive (2004/35/EC) and European Communities (Environmental Liability) Regulations, 2008, including:
    - Birds Directive – Annex I species and other regularly occurring migratory species, and their habitats (wherever they occur);
    - Habitats Directive – Annex I habitats, Annex II species and their habitats, and Annex IV species and their breeding sites and resting places (wherever they occur);
- Other habitats of ecological value in a national to local context, including rocky habitats in the general area;
- Stepping stones and ecological corridors encapsulated by Article 10 of the Habitats Directive.

The report has been compiled in compliance with the European Communities Legal requirements and follows EPA Guidelines on Information to be contained in an EIAR (EPA, 2022) and on Transport Infrastructure Ireland TII policy and guidance outlined in Section 2.

The European Habitats Directive 92/43/EEC (Article 6) indicates the need for plans and projects to be subject to Habitats Directive Assessment (also known as Appropriate Assessment) if the plan or project not directly connected with or necessary to the management of a Natura 2000 site (which includes SACs and SPAs) but which has the potential to have implications on a site's conservation objectives. These implications can be significant effects either individually or in combination with other plans or projects.

As such, a report for the purposes of Appropriate Assessment (AA) Screening was undertaken by Moore Group for the proposed development and a Natura Impact Statement (NIS) prepared in support of the

application. These stand-alone reports are presented separately as part of the S39A application package for the Project. The site location is presented in Figure 1 below.

Figure 1. Showing the site location to the southwest of Athlone in Co. Roscommon.

2. ASSESSMENT METHODOLOGY

2.1. POLICY & LEGISLATION

2.1.1. EU Habitats Directive

The "*Habitats Directive*" (Council Directive 92/43/EEC) on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union. The Habitats Directive provides for the designation, conservation and protection of sites comprising Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), collectively forming the Natura 2000 network of 'European sites'. Article 3 of the Habitats Directive obliges Member States to designate as SACs sites hosting the natural habitat types listed in Annex I and habitats of the species listed in Annex II of the Habitats Directive. Article 10 of the Habitats Directive requires that Member States endeavour to improve the ecological coherence of the Natura 2000 network to manage and conserve features of the landscape which are of major importance for wild fauna and flora, for example ecological corridors or stepping-stones which are important for the migration, dispersal and genetic exchange of species.

Article 6(2) obliges Member States to take the necessary measures to avoid the deterioration of an SAC, or disturbance of a species for which the site is designated. Article 6(3) sets out the requirement for an "Appropriate Assessment", to ensure that a proposed plan or project will not have an adverse effect on the integrity of a SAC. Article 7 applies the requirements of Article 6(2) and 6(3) of the Habitats Directive to SPAs designated under the Birds Directive.

In addition and separate to the Appropriate Assessment requirements, Article 12 of the Habitats Directive obliges Member States to establish a regime of strict protection for certain species listed in Annex IV of the Directive, wherever they occur within their natural range. The protection for species under Article 12 of the Habitats Directive is not confined to the boundary of SACs. Species listed in Annex IV include the otter and certain species of bat.

2.1.2. EU Birds Directive

The "*Birds Directive*" (European Council (2009) Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds) confers legal protection to all naturally occurring wild birds within the EU territory. Member States are obliged to adopt the necessary measures to maintain the population of bird species, and that includes, in accordance with Article 3, an obligation to create, maintain and manage habitats for birds, and specifically for the species of Bird listed in Annex I of the Directive, Article 4 requires Member States to create SPAs which, by virtue of Article 7 of the Habitats Directive, form part of the Natura 2000 network of European sites and are subject to the Appropriate Assessment requirements under Article 6(3) of the Habitats Directive.
Additionally, Article 5 of the Birds Directive requires that Member States establish a general system of protection for all naturally occurring wild birds within the EU territory, similar to the system of strict protection required for Annex IV species under the Habitats Directive.

2.1.3. Wildlife Acts 1976 - 2021[1]

The primary domestic legislation providing for the protection of wildlife in general, and wild birds in particular, and the control of some activities adversely impacting upon wildlife is the Wildlife Act of 1976, as amended. The aims of the Wildlife Act, according to the National Parks and Wildlife Service (NPWS) are "... to provide for the protection and conservation of wild fauna and flora, to conserve a representative sample of important ecosystems, to provide for the development and protection of game resources and to regulate their exploitation, and to provide the services necessary to accomplish such aims." All wild bird species are protected under the Act. The European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) made significant amendments to the Wildlife Acts to ensure consistency with the Habitats and Birds Directives.

[1] Wildlife Act 1976, as amended. Administrative consolidation of the Wildlife Act 1976, Law Reform Commission (2021)

2.2. SURVEY METHODOLOGY

2.2.1. Desk Study

The assessment was carried out in three stages, firstly through desktop assessment to determine existing records in relation to habitats and species present in the potential Zone of Influence of the Proposed Development. This included research on the NPWS metadata website, the National Biodiversity Data Centre (NBDC) database and a literature review of published information on flora and fauna occurring in the development area.

Sources of information that were used to collate data on biodiversity in the potential Zone of Influence are listed below:

- The following mapping and Geographical Information Systems (GIS) data sources, as required:
    - National Parks & Wildlife (NPWS) protected site boundary data;
    - Ordnance Survey of Ireland (OSI) mapping and aerial photography;
    - OSI/ Environmental Protection Agency (EPA) rivers and streams, and catchments;
    - Open Street Maps;
    - Digital Elevation Model over Europe (EU-DEM);
    - Google Earth and Bing aerial photography 1995-2024;
- Online data available on Natura 2000 sites as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie including:
    - Natura 2000 - Standard Data Form;
    - Conservation Objectives;
    - Site Synopses;
- National Biodiversity Data Centre records;
    - Online database of rare, threatened and protected species;
    - Publicly accessible biodiversity datasets.
- Status of EU Protected Habitats in Ireland. (National Parks & Wildlife Service, 2019); and
- Relevant Development Plans in neighbouring areas:
    - Roscommon County Development Plan 2022-2028

2.2.2. Field Study

The second phase of the assessment involved a site visit to establish the existing environment in the footprint of the proposed development area. Areas which were highlighted during desktop assessment were investigated in closer detail according to the Heritage Council Best Practice Guidance for Habitat Survey and Mapping (Smith *et al*., 2011). Habitats in the proposed development area were classified according to the Heritage Council publication "*A Guide to Habitats in Ireland*" (Fossitt, 2000). This publication sets out a standard scheme for identifying, describing and classifying wildlife habitats in

Ireland. This form of classification uses codes to classify different habitats based on the plant species present. Species recorded in this report are given in both their Latin and English names. Latin names for plant species follow the nomenclature of "*An Irish Flora"* (Parnell & Curtis, 2012).

Habitats were surveyed on the 15 February 2024, and again on 9 July 2024 by conducting a study area walkover covering the main ecological areas identified in the desktop assessment. The survey dates include the optimal botanical survey period.

Signs of mammals such as badgers and otters were searched for while surveying the study area noting any sights, signs or any activity in the vicinity especially along adjacent boundaries.

An assessment of the suitability of the site for usage by bats was undertaken by O'Donnell Environmental Consultants. Notes on the age status or trees potentially to be removed or cut was made with reference to bat roost potential and also in regard to field boundaries for bat commuting potential. The bat survey report presented as Appendix 3 to this report and contains a detailed methodology.

An assessment of the suitability of water courses crossed for usage by otters was undertaken by walking the banks of water courses for up to 200m either side of the pipeline route searching for signs of usage e.g. holts, couches, resting places or slides. Further detailed surveys after finding prints and signs under the motorway bridge were undertaken by O'Donnell Environmental Consultants. The results are also presented in Appendix 3 to this EcIA.

Birds were surveyed using standard transect methodology and signs were recorded where encountered during the field walkover surveys.

2.2.3. Site Evaluation and Impact Assessment

The final part of the assessment involves an evaluation of the study area and determination of the potential impacts on the habitats of the study area. This part of the assessment forms the basis for Impact Assessment and is based on the following guidelines and publications:

- Guidelines for Ecological Impact Assessment in the UK And Ireland Terrestrial, Freshwater, Coastal and Marine September 2018 Version 1.1 - Updated September 2019 (CIEEM, 2019);
- EPA Guidelines on Information to be contained in an EIAR (EPA, 2022);
- Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011);
- Ecological Surveying Techniques for Protected Flora & Fauna (NRA, 2008);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, December 2009, Rev 2010);

- Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC (EC, 2007).

While prepared for linear projects the TII Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009) are still relevant and outlines the methodology for evaluating ecological impacts of the project in the present report. According to the TII Guidelines, the Ecological Study should address:

- Designated conservation areas and sites proposed for designation within the zone(s) of influence of any of the Project options,
- All the main inland surface waters (e.g. rivers, streams, canals, lakes and tanks) that are intersected by any of the route corridor options, including their fisheries value and any relevant designations,
- Aquifers and dependent systems and turloughs and their subterranean water systems,
- Any known or potentially important sites for rare or protected flora or fauna that occur along or within the zone(s) of influence of any of the route options,
- Any other sites of ecological value, that are not designated, along or in close proximity to any of the route corridor options,
- Any other relevant conservation designations or programmes (e.g. catchment management schemes, habitat restoration or creation projects, community conservation projects, etc.),
- Any other features of particular ecological or conservation significance along any of the route options.

The TII Guidelines set out a method of evaluating the importance of sites identified and in turn the evaluation of the significance of impacts. The Evaluation Scheme is presented in Appendix 1 for reference.

Impact Assessment is then based on CIEEM Guidelines for Ecological Impact Assessment in the UK and Ireland, 2019.

3. PROJECT DESCRIPTION

The proposed development comprises c. 2.488 km 200 NB pipeline will provide a natural gas supply to the permitted Greener Ideas Facility by connecting the permitted Monksland AGI to the existing BGE/77 750mm Ories to Perssepark 'Pipeline to the West'. The detailed specifications, including the specific locations and distances along the pipeline (chainage), description of the location, and the construction method is provided below in the Table 1 below.

Table 1 Proposed Pipeline Route Description

Route section	Description of Location	Pipeline length (m)	Construction method
Chainage 000 Tie-in point to the existing BGE/77 pipeline	The proposed pipeline will tie into the existing 750 NB 'Pipeline to the West', BGE/77, in an agricultural field to the west of the R446 road.	N/A	Tie in Location
Chainage 000 to 015 Agricultural land	The pipeline will be routed east through agricultural land to the R446 road culvert crossing point.	c. 15 m	Open cut trench in field
Chainage 015 to 020 Crossing the culvert of the tributary of the Newtownflood Stream on the R446	The pipeline will be routed north and cross a culverted tributary of the Newtownflood Stream within the R446 road.	c. 5 m	Open cut trench culvert service crossing
Chainage 020 to 1610 Public roadways R446	The pipeline will be routed north along the R446	c. 1,590 m	Open cut trench in roadway
Chainage 1610 to 1900 Public roadways L2027	The pipeline will be routed west along the L2027 to the Drum Community Centre.	c. 290 m	Open cut trench in roadway
Chainage 1900 to 2065 Agricultural land	The pipeline will be routed northwest from the L2027 through agricultural land.	c. 165 m	Open cut trench in field
Chainage 2065 to 2075 Crossing of the tributary of the Cross River	The pipeline will be routed north and cross through a ditch tributary of the Cross River.	c. 10 m	Open cut trench - flume watercourse crossing
Chainage 2075 to 2155 Agricultural land	The pipeline will be routed northwest through agricultural land to the Cross River launch shaft.	c. 80 m	Open cut trench in field
Chainage 2155 to 2215 Crossing underneath the Cross River	The pipeline will be routed underneath the Cross River, utilising a trenchless crossing method. Launch shaft and receiver shaft will be required at this location. A temporary bridge will be installed over the Cross River to facilitate access.	c. 60 m	Trenchless Crossing Temporary bridge
Chainage 2215 to 2245 Agricultural land	The pipeline will be routed north through agricultural land until the M6 motorway and Galway to Dublin Hueston rail line launch shaft.	c. 30 m	Open cut trench in field
Chainage 2245 to 2365 Crossing underneath the M6 motorway and Galway	The pipeline will be routed beneath the M6 motorway and Galway to Dublin Hueston rail line, utilising a trenchless crossing method. Launch shaft	c. 120 m	Auger bore

to Dublin Hueston rail line crossing	and receiver shaft will be required at this location.		
Chainage 2365 to 2420 Scrub land at the margin of the M6 motorway	The pipeline will be routed west through scrub land at the margin of the M6 motorway; crossing minor drainage ditches.	c. 55 m	Open cut trench
Chainage 2420 to 2430 Crossing of the tributary of the Cross River	The pipeline will be routed north and cross through a ditch tributary of the Cross River.	c. 10 m	Open cut trench - flume watercourse crossing
Chainage 2430 to 2435 Piped tributary of the Cross River	The pipeline will be routed west and cross a underground closed piped tributary of the Cross River within the Greener Ideas Facility site.	c. 5 m	Open cut trench – culvert service crossing
Chainage 2335 to 2488 Greener Ideas Facility and tie-in to the permitted Monskland AGI	The pipeline will be routed west through the Greener Ideas Facility to the permitted Monskland AGI Compound, where it will tie-in to the Monskland AGI.	c. 53 m	Open cut trench in field / Greener Ideas Facility

The Construction Methodology included with the S39A application was prepared by Fingleton White providing the framework from which a detailed Construction Methodology will be developed by the appointed construction contractor. This will include comprehensive method statements and construction techniques to be finalised before site work commences.

AWN Consulting have prepared the project outline Construction Environmental Management Plan (oCEMP) included with the S39A application, this provides the framework from which the CEMP will be developed by the appointed construction contractor 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 contractor will then prepare specific method statements setting out site working requirements which manage perceived risks to the environment e.g., traffic management, work safety plans etc.

Construction compounds will be established along the proposed pipeline route. The compounds will serve as the central hubs for various activities and functions during the construction of a project. They are temporary setups that provides essential welfare facilities and space for workers, equipment, materials, and administrative needs. The oCEMP (AWN, 2024) details the elements that the site compounds will include, as well as the factors that will be considered when finalising the locations of these compounds.

The contractor will implement health and safety measures in relation to the safety of the workforce and the public. Additionally, measures will be applied to minimise traffic delays, disruption and maintain access to residences and businesses along the public road. Construction traffic access to the

site will be via the existing roadways where the majority of the pipeline will be installed, the R446 and the L2027.

Construction methodologies to be implemented and materials to be used will ensure that the pipeline is installed in accordance with the guidelines and standards of GNI. See further detail presented in 1379-01-RT-0102-R1 Gas to GIL Athlone Construction Methodology prepared by Fingleton White and submitted with this application including sequencing of works and diagrams. This section summaries the key environmental aspects of the proposed construction elements.

Tie In Location

The new pipeline shall tie into the existing 750 NB BGE/77 pipeline in an agricultural field on the west side of the R446 road located at (Chainage 000).

An approximate 4.5m deep excavation shall be undertaken here to facilitate the hot tap tie-in. An excavated length of approximate 14 m around the hot tap is required to facilitate the drilling equipment.

Hot tapping allows a connection to an existing pipeline to be completed while the line is fully operational, ensuring no shutdown is required and that no gas is lost from the pipe.

Open Cut Trench Methodology in Fields

The Monksland Pipeline shall be laid in agricultural lands (c. 413 m in total) using an open cut method as described in this section. These sections are located at Chainage 000 to 015, Chainage 1900 to 2065, Chainage 2075 to 2155, Chainage 2215 to 2245 and Chainage 2365 to 2488.

In brief the methodology is to excavate trenches to a depth of 1600 mm, ensuring a minimum cover of 1.2 m above the pipe. Subsoil will be stored separately from topsoil to prevent mixing. Trench supports and close sheet piling may be used where necessary to aid construction. Dewatering of the pipe trench may be required along the pipeline route and will be carefully controlled to prevent sediment entering watercourses in accordance with the Construction Environmental Management Plan (CEMP).

Open Cut Trench Methodology in Roadway

The Monksland Pipeline shall be laid in existing roads (c. 1,885 m in total) using an open cut method. These sections are located at Chainage 015 to 1900.

In brief the methodology is to excavate to a minimum depth of 1600 mm (to base of trench) and 500 mm width (both at base and ground level). Extend excavations locally every 12 – 24 m at bell hole locations to facilitate welding. Trench depths will be adjusted based on existing service crossings to meet the minimum cover requirements as per I.S. 328: 2021. Existing services/utilities will be crossed

as per the typical service crossing. The subsoil shall be stored separately to asphalt/bitmac for future reinstatement, any excavated material not used will for reinstatement will be removed as waste. Trench supports and close sheet piling may be used where necessary to aid construction. Dewatering of the pipe trench may be required along the pipeline route and will be carefully controlled to prevent sediment entering watercourses in accordance with the Construction Environmental Management Plan (CEMP).

Open Cut – Service Crossing

The Monksland Pipeline has one crossing of an existing culvert (tributary of the Newtownflood stream) located at Chainage 0150 to 020, and one crossing of an existing piped watercourse (tributary of the Cross River) located at Chainage 2430 to 2435. These crossings will follow a typical third-party service crossing, whereby the pipeline will be installed to avoid interaction with the existing underground service. Given the minimum depth of cover required (1200 mm to the top of the pipe) the pipeline will be constructed to pass underneath the culvert section. A minimum separation distance of 500mm will be maintained between the pipeline and the watercourse/culvert pipe.

The service crossing methodology at this section includes:

- A trench will be excavated beneath the concrete pipe, ensuring that the existing pipe remains intact and undisturbed (minimum separation distance of 500mm).
- The gas pipeline will be laid in the trench below the watercourse/culvert pipe.
- The trench will be backfilled and compacted to restore the ground to its original level.

The pipeline is designed to pass underneath the piped section with an adequate separation distance, eliminating any potential impact on the stream's structural integrity and flow. There are no instream works at this location.

Open Cut Methodology - Flume Water Course Crossing

The Monksland Pipeline has 2 no. open cut watercourse crossing through the tributary of the Cross river located at Chainage 2065 to 2075, and one located at Chainage 2420 to 2430.. This water crossing is proposed to be undertaken using an open cut method, with the water temporarily diverted using a flume (pipe). The flume will temporarily direct water away from the trench area, preventing interference from construction activities and ensuring the safety of workers and the integrity of the watercourse.

At this crossing location the flume (temporary culvert) crossing is installed to allow for an uninterrupted running track for the duration of the construction works, and removed once reinstatement of the working area is completed.

Flume pipes 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. The waters being crossed shall be effectively dammed both upstream and downstream of the trench location so as to ensure that works are undertaken in the dry. Straw bales are placed downstream to capture sediments as required. The water course is then left uninterrupted until a few days (estimated 2-3 days) before the pipeline install time.

The pipe trench is then excavated below the flume pipe. This excavated material is stored separately to the topsoil and subsoil and only this material will be used to backfill the watercourse trench. Trench supports and close sheet piling may be used where necessary to aid construction. Dewatering of the pipe trench may be required along the pipeline route and will be carefully controlled to prevent sediment entering watercourses in accordance with the Construction Environmental Management Plan (CEMP).

Trenchless Methodology – Cross River, Railway and Motorway Crossing

The Monksland Pipeline has 2 no. planned trenchless crossings one for the Cross River (Chainage 2155 to 2215), and one for the Railway and Motorway (Chainage 2245 to 2365).

In brief the methodology includes installation of launch and reception shafts at either end of the crossing, and trenchless excavation to install the pipeline.

The trenchless crossing will require the launch and reception shafts (temporary works) these will be carefully planned, designed, set out and fully excavated. These shafts, constructed using steel sheet piled cofferdams, ensure safe excavation by holding back soil and water pressures. The design of the cofferdams considers factors like excavation depth and equipment loads. Controlled dewatering is necessary to prevent sediment from entering watercourses, as outlined in the Construction Environmental Management Plan (CEMP). After the gas pipe is installed, the pits are backfilled in a structured sequence, with steel sheet piles removed afterward.

The Launch Shaft will be located on the southern side of the Cross River and approximately 12m long x 4m wide x 5m deep sheet piled. The Reception Shaft will be located on the northern site of the river and approximately 5m long x 4m wide x 5m deep sheet piled. Installation of launch and reception shafts at either end of the road/rail crossing. The Road/Rail Crossing will have the Launch Shaft will be located to the south of the railway approximately 15m long x 3.5m wide sheet piled. The Reception Shaft will be located to the north of the motorway and approximately 3.5m long x 3.5m wide sheet piled.

The Preliminary Design for the Cross River Crossing has determined that the trenchless crossing can be achieved with a Conventional Micro-tunnelling approach or Guided Auger-boring / Hybrid MT. These methods include the use of concrete pipe sleeve that provides continual ground support to the

excavated tunnel. The trenchless crossing will achieve a minimum clearance of 1.6m from the riverbed to the top of the pipe is required by IS 328:2021 and GNI standards. The trenchless crossing of the Cross River is a minimum distance of 60m.

Dewatering During Construction

Dewatering and removal of surface run-off is necessary to create a dry working environment and prevent water from seeping into the excavation and flooding the construction site.

Dewatering from the established shallow ground bores will be managed as required to assist with creating a dry working environment and prevent water from seeping into the excavation (launch and receiver) and flooding the construction site.

Dewatering water from within these overburden deposits will be contained within the site, treated, and ultimately discharged to the Cross River.

Construction Duration

The overall start-to-finish duration is estimated to be 9 months. Construction is anticipated to commence in Q1 2025 and be completed by Q1 2026.

Temporary Works Areas

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 temporary works area locations have been identified and indicative space planning undertaken for the Hot Tap compound and Pipeline works area, respectively.

There are 4 no. potential locations identified for the temporary working area and compound at the Monksland AGI. The final AGI compound location will be established in collaboration with the appointed construction contractor(s).

Haul roads will be established within the running track and temporary works area, Depending on the soil conditions. These 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.

Figure 2 shows a detailed view of the existing site on high resolution aerial photography. Figures 3a and 3b shows the layout of the proposed development.

Figure 2. Site Location and redline boundary of the Proposed Development.

*Figure 3a. Showing the site plan – northern section to the permitted Monksland AGI (*Dwg Ref: 1379-01-DG-0001*).*

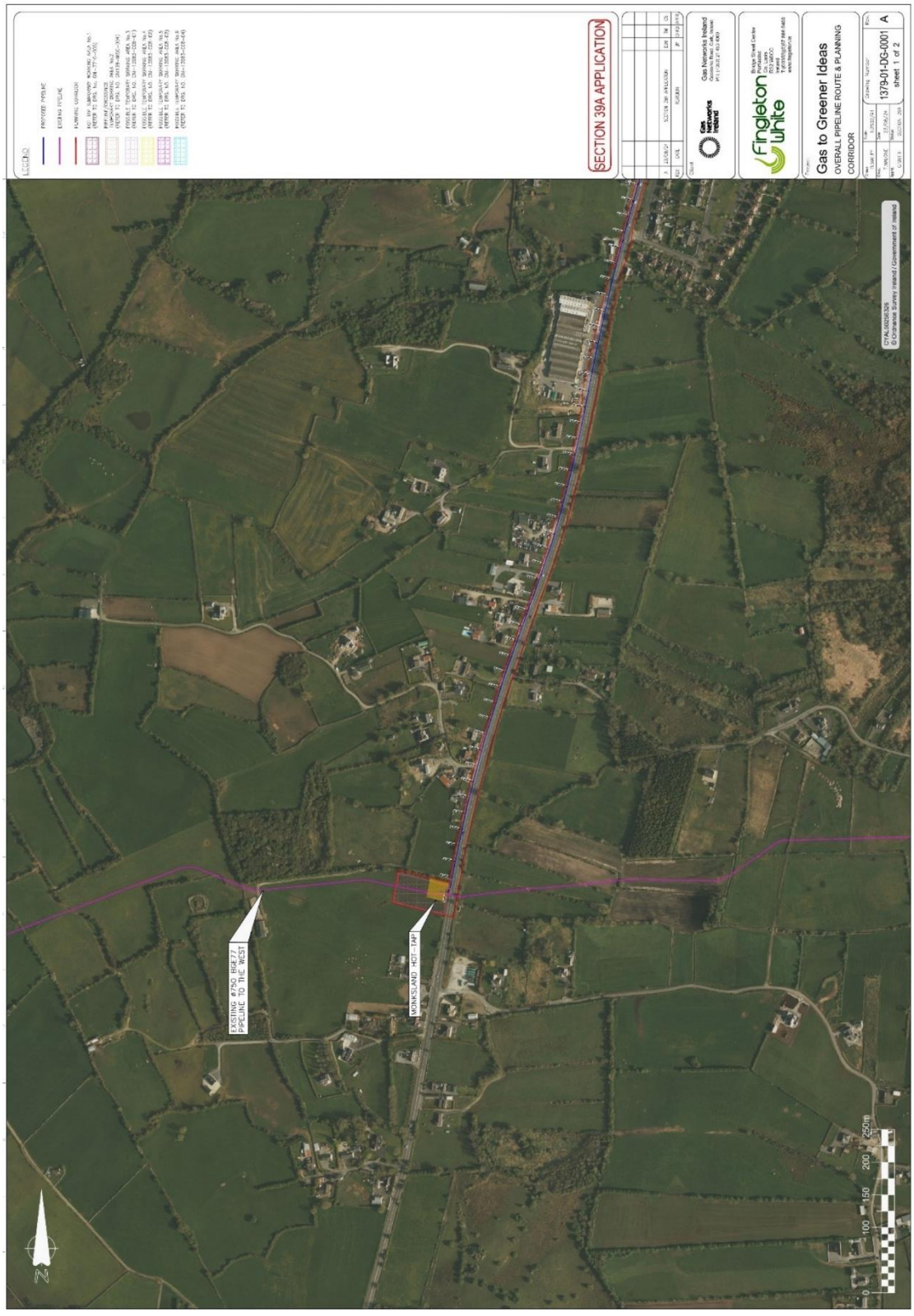


Figure 3b. Showing the site plan – southern section with 'Hot Tap' tie in area (*Dwg Ref: 1379-01-DG-0001-Sht1).*

4. EXISTING ENVIRONMENT

4.1. DESIGNATED CONSERVATION AREAS

A Zone of Influence (ZoI) of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site. In accordance with the OPR Practice Note (2021), PN01, the ZoI should be established on a case-by-case basis using the Source- Pathway-Receptor framework.

The European Commission's "*Assessment of plans and projects in relation to Natura 2000 sites guidance on Article 6(3) and (4) of the Methodological Habitats Directive 92/43/EEC*" published 28 September 2021 states at section 3.1.3, that:

"Identifying the Natura 2000 sites that may be affected should be done by taking into consideration all aspects of the plan or project that could have potential effects on any Natura 2000 sites located within the zone of influence of the plan or project. This should take into account all of the designating features (species, habitat types) that are significantly present on the sites and their conservation objectives. In particular, it should identify:

- *any Natura 2000 sites geographically overlapping with any of the actions or aspects of the plan or project in any of its phases, or adjacent to them;*
- *any Natura 2000 sites within the likely zone of influence of the plan or project Natura 2000 sites located in the surroundings of the plan or project (or at some distance) that could still be indirectly affected by aspects of the project, including as regards the use of natural resources (e.g. water) and various types of waste, discharge or emissions of substances or energy;*
- *Natura 2000 sites in the surroundings of the plan or project (or at some distance) which host fauna that can move to the project area and then suffer mortality or other impacts (e.g. loss of feeding areas, reduction of home range);*
- *Natura 2000 sites whose connectivity or ecological continuity can be affected by the plan or project".*

The range of Natura 2000 sites to be assessed, i.e. the zone in which impacts from the plan or project may arise, will depend on the nature of the plan or project and the distance at which effects may occur. For Natura 2000 sites located downstream along rivers or wetlands fed by aquifers, it may be that a plan or project can affect water flows, fish migration and so forth, even at a great distance. Emissions of pollutants may also have effects over a long distance. Some projects or plans that do not directly affect Natura 2000 sites may still have a significant impact on them if they cause a barrier effect or prevent ecological linkages. This may happen, for example, when plans affect features of the landscape

that connect Natura 2000 sites or that may obstruct the movements of species or disrupt the continuity of a fluvial or woodland ecosystem. To determine the possible effects of the plan or project on Natura 2000 sites, it is necessary to identify not only the relevant sites but also the habitats and species that are significantly present within them, as well as the site objectives.

The Zone of Influence may be determined by considering the Proposed Development's potential connectivity with European sites, in terms of:

- Nature, scale, timing and duration of all aspects of the proposed works and possible impacts, including the nature and size of excavations, storage of materials, flat/sloping sites;
- Distance and nature of potential pathways (dilution and dispersion; intervening 'buffer' lands, roads etc.); and
- Location of ecological features and their sensitivity to the possible impacts.

The potential for source pathway receptor connectivity is firstly identified through GIS interrogation and detailed information is then provided on sites with connectivity. European sites that are located within a potential Zone of Influence of the Proposed Development are listed in Table 2 and presented in Figures 4 and 5, below. Spatial boundary data on the Natura 2000 network was extracted from the NPWS website (www.npws.ie) on 3 September 2024. This data was interrogated using GIS analysis to provide mapping, distances, locations and pathways to all sites of conservation concern including pNHAs, NHA and European sites.

Table 2 European Sites located within the potential Zone of Influence[2] of the Proposed Development.

Site Code	Site name	Distance (km)[3]
000216	River Shannon Callows SAC	1.55
000440	Lough Ree SAC	2.64
004096	Middle Shannon Callows SPA	1.56
004064	Lough Ree SPA	2.61

The Lough Ree SAC (Site Code 000440) and the Lough Ree SPA (Site Code 004064) both lie 2.6km to the northeast. These two sites lie upstream of Athlone and upstream of the Cross River and its tributaries, relative to where the Proposed Development will pass underneath the river. Lough Ree is in a different WFD SubCatchment (Shannon[Upper]_SC_090). There is no S-P-R connectivity between the potential effects of the proposed pipeline development and Lough Ree SAC and SPA and they are therefore considered to be outside the Zone of Influence of the Proposed development and are screened out at Stage 1 Screening.

[2] All European sites potentially connected irrespective of the nature or scale of the Proposed Development.
[3] Distances indicated are the closest geographical distance between the Proposed Development site and the European site boundary, as made available by the NPWS. Connectivity along hydrological pathways may be significantly greater.

A number of other European sites located downstream adjacent to or near the River Shannon are considered including; Pilgrim's Road Esker SAC (001776), Redwood Bog SAC (002353), River Suck Callows SPA (004097), River Little Brosna Callows SPA (004086); Lough Derg, North-East Shore SAC (002241) and Lough Derg (Shannon) SPA (004058). However, these sites are located either on terrestrial habitats (Pilgrim's Road Esker and Redwood Bog) with no pathway or at such a large distance downstream, over 25 river km to the River Suck Callows and over 60 river km to Lough Derg, that they are considered outside the zone of influence of the Proposed development.

The nearest European sites to the Proposed Development are the largely overlapping River Shannon Callows SAC (Site Code 000216) and the Middle Shannon Callows SPA (Site Code 004096), 1.55km directly to the east.

The pipeline will exit the Hot Tap tie-in and cross over a minor water course which is culverted under the adjacent R446 at Crannagh (Chainage 015 to 020). The water course continues as an open drainage ditch leading to the Newtownflood Stream (EPA code 26N15) c. 1.2 river km downstream, flowing a further 825m to the Cross River plus 470m to the SAC/SPA boundary; a total distance of c.2.5 river km.

The proposed underground transmission gas pipeline crosses a number of field boundaries with associated hedgerows and the most notable water course being the Cross River (Chainage 2155 to 2215), the Cross River ultimately discharges to the River Shannon approximately 3.5 river kilometres downstream. Smaller drainage ditches are also considered with regard to connectivity to the Cross River. On the northern side of the Motorway the pipeline will cross an underground closed piped tributary of the Cross River within the Greener Ideas Facility site (Chainage 2430 to 2435), and cross through a ditch tributary of the Cross River (Chainage 2420 to 2430) using a flume method.

The distance between the crossing of the pipeline at the Cross River and the nearest European sites is c.3.15 river km downstream where the Cross River and surrounding callows are designated as part of the River Shannon Callows SAC (Site code 000216) and the Middle Shannon Callows SPA (Site code 004096).

There will be no direct impacts on Annexed Habitats and as such the primary concern is with regard to hydrological connectivity within the zone of influence of nearer European sites.

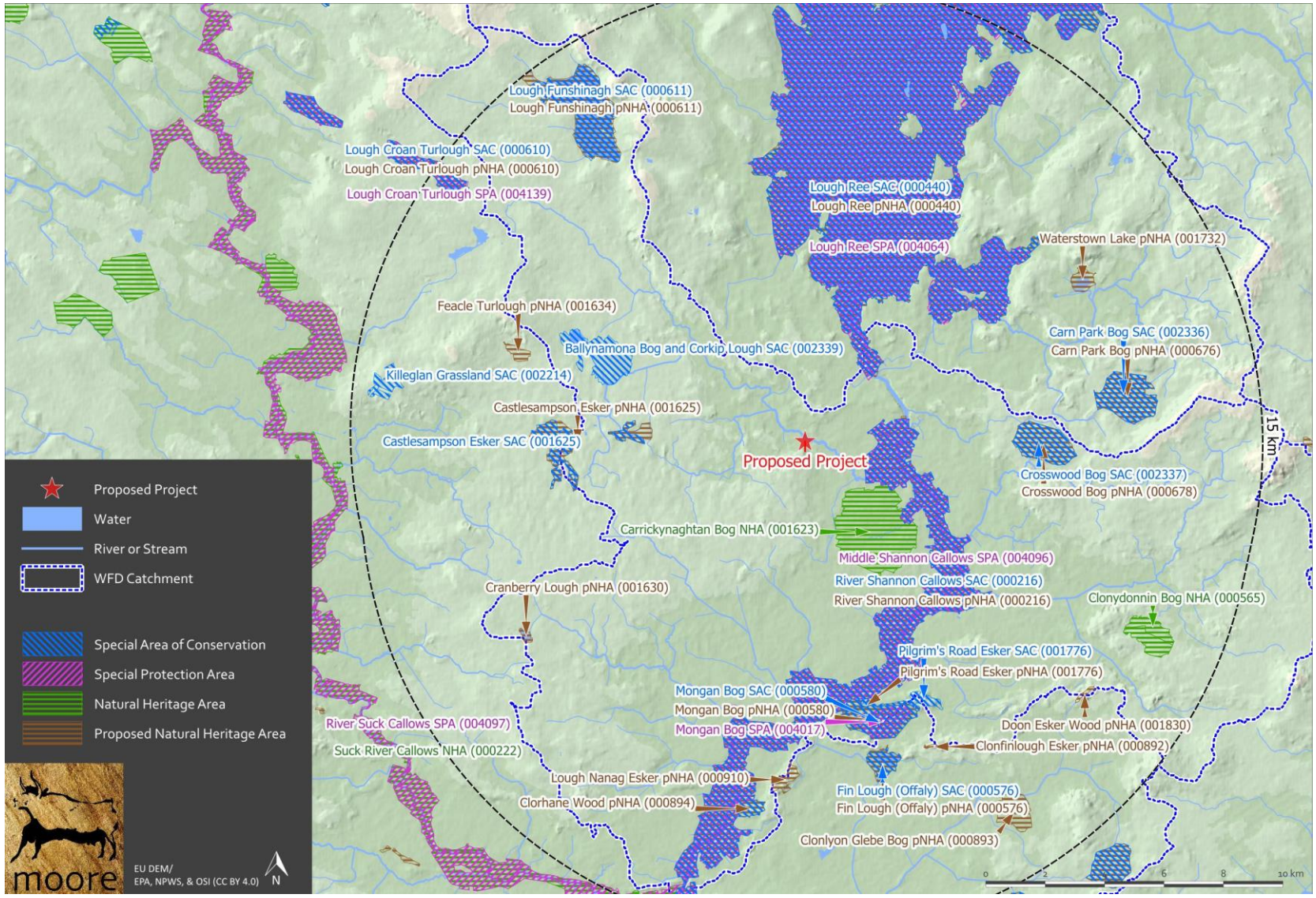


Figure 5. Showing European sites and NHAs/pNHAs within the wider Potential Zone of Influence of the Proposed Development.

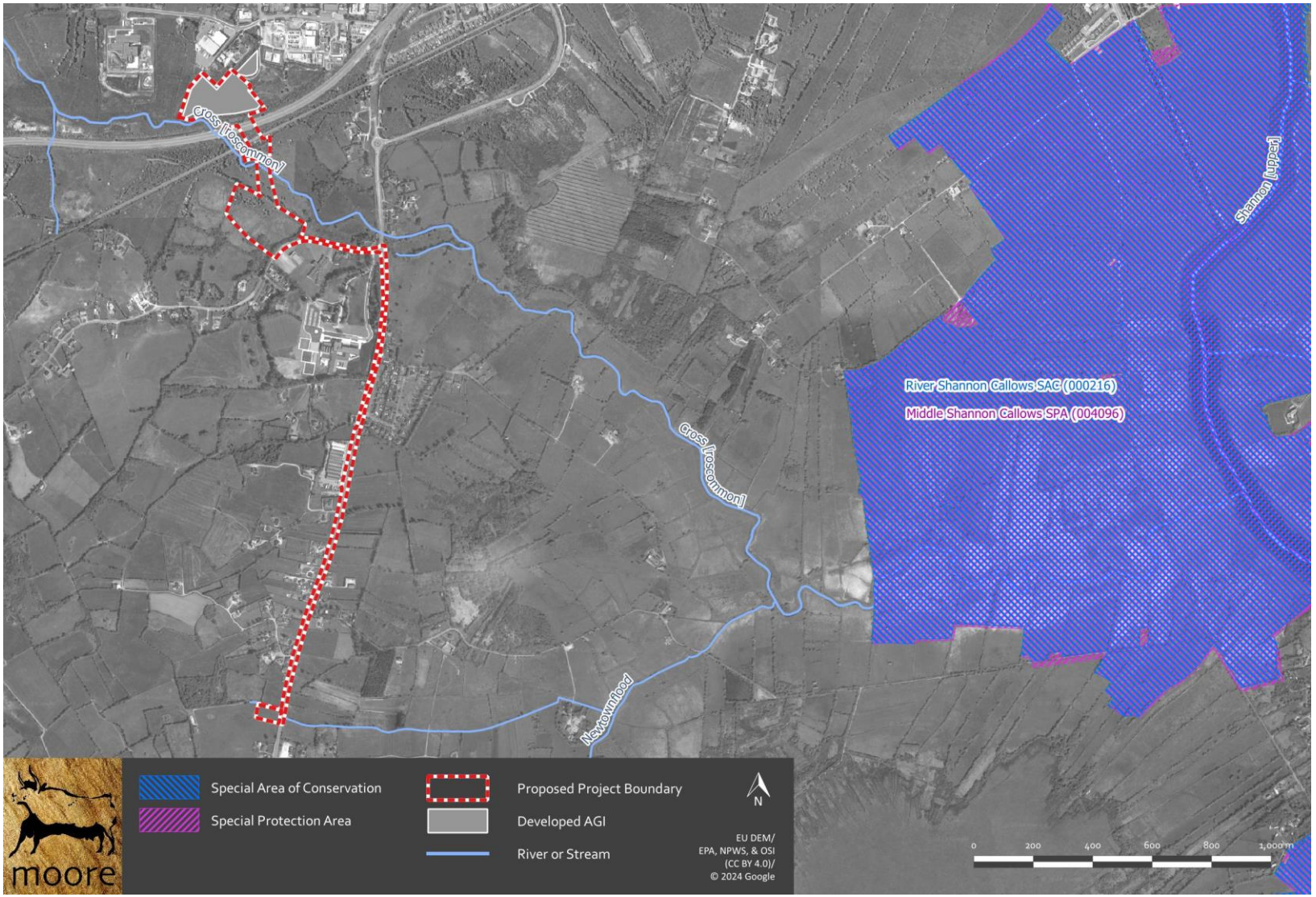


Figure 6. Detailed view of European sites in the nearer Potential Zone of Influence of the Proposed Development.

4.2. HABITAT DESCRIPTIONS

The proposed development areas comprise existing artificial surfaces along the R446 road and the AGI and adjacent developed areas at Monksland with off road areas comprising fields of open improved heavily grazed agricultural grassland along with wet grassland fields adjacent to the Cross River, marginal woodland along the motorway and railway and drainage ditches. There are no records of rare plants in the 1km squares in which the Proposed Development is located (N0040, N0140, N0039, N0038 & N0139). A list of habitats recorded and their corresponding Fossitt codes is presented in Table 3 below and in the Habitat Map in Figure 7a and 7b.

Table 3 Details of habitats recorded and their corresponding Fossitt codes.

Habitat	Habitat Category	Habitat Type
(W) Freshwater	(FW) Watercourses	(FW2) Cross River
		(FW4) Drainage ditches
(G) Grassland	(GA) Improved grassland	(GA1) Improved agricultural grassland
		(GS4) Wet grassland
(W) Woodland and Scrub	(WD) Highly modified/non-native woodland	(WD1) Mixed broadleaved woodland
	(WS) Scrub/transitional woodland	(WS1) Scrub
	(WL) Linear woodland	(WL1) Hedgerows
(E) Exposed rock and disturbed ground	(ED) Disturbed ground	(ED2) Spoil and bare ground
(B) Cultivated and built land	(BC) Built land	(BL3) Buildings and artificial surfaces

(FW2) Cross River

This habitat classification applies to The Cross River under which the pipeline will be placed by a trenchless crossing (Chainage 2155 to 2215. The temporary works methodology will require a temporary bridge crossing to facilitate boring machinery and machinery to dig reception and launch pits to continue under the railway and motorway to the north.

The Cross River is described in the SHRFB Rivers Report (2008[4]); as; *a low lying limestone stream that rises in Co Roscommon approximately four kilometres southwest of Lough Funshinagh. It flows in a south westerly direction until it joins the River Shannon two kilometres south of Athlone. Although the Cross River is a good stream for trout fishing and has undergone rehabilitation work, it was previously damaged by drainage work in 2001 (O'Reilly 2002). An electric fishing survey was conducted on the 25th of July 2008 along a 176m stretch of channel. One boat-based electric-fishing unit was used to conduct three fishings. The site was located immediately upstream of an unnamed bridge in Co. Roscommon, 250m upstream from the Cross's confluence with the River Shannon, approximately two kilometres*

[4] Sampling Fish for the Water Framework Directive. The Central and Regional Fisheries Boards.

south of Athlone. The mean channel width was 6.2m, and the mean depth was 1.3m. The total wetted area sampled was 1,091m^2. This site was composed entirely of glide habitat, with evidence of previous drainage work obvious. The substrate was composed exclusively of mud and silt. The main land use adjacent to the site was pasture. The river bank was not fenced, but steep vertical banks prevented cattle from accessing the channel. A few mature willow trees were present in the riparian zone; however, these were too far away from the channel to provide any shade to the river.

A total of five fish species were recorded in the Cross River, with perch being the most abundant species, followed by roach. The two brown trout recorded during this survey measured 19.6cm and 30.8cm in length. Based on a classification of growth in rivers by Kennedy and Fitzmaurice (1971), trout growth rate in the Cross was therefore categorised as fast.

The Cross River is the main river in the 26G Upper Shannon catchment which flows into the SHANNON (UPPER)_120. The SHANNON (UPPER)_120 is also the receiving water for the SHANNON (UPPER)_110, the CLOONBONNY STREAM_010 and the BOOR_020 water bodies. The results for the Cross River water quality trend assessment are presented in the 26G Upper Shannon Catchment Summary WFD Cycle 2 Assessment[5];

Average orthophosphate concentrations along the Cross River are relatively low with values of 0.014, 0.015 and 0.018mg/l at CROSS (ROSCOMMON)_020, CROSS (ROSCOMMON)_030 and CROSS (ROSCOMMON)_040 respectively. The Environmental Quality Standard (EQS) of 0.035mg/l is not exceeded at any of the main channel monitoring points where water chemistry data is available.

Total oxidised nitrogen (TON) concentrations are low and remain below the 2.6mg/l threshold at each monitoring point. A moderate spike in ammonia is apparent at CROSS (ROSCOMMON)_030, however the EQS (0.065mg/l) is not exceeded. Similarly, ammonia concentrations at CROSS (ROSCOMMON)_020 and CROSS (ROSCOMMON)_040 are below the EQS. There is no water chemistry data available for CROSS (ROSCOMMON)_010.

During site surveys the river was observed as having a high turbidity, c. 100-250 NTU during the Winter period. The banks contain occasional Fools Watercress (*Apium nodiflorum*) and Water Starwort (*Callitriche stagnalis*) with higher ground having Meadowsweet (*Filipendula ulmaris*), Nettle (*Urtica diocia*) and occasional Water mint (*Mentha aquatica*) along with Reed Canary Grass (*Phalaris arundinacea*) and occasional Fine-leaved Water Dropwort (*Oenanthe aquatica*) observed within the channel.

The most recent EPA water quality rating for the Cross River at Cross Bridge (EPA code RS26C100300 'Bridge S. of Doyle's Bridge' in 2023 was a Q4 or Good status. The 'Bridge S. of Doyle's Bridge' is located

[5] Upper Shannon (Mid Shannon) Catchment Assessment 2010-2015 (HA 26G) Catchment. Catchment Science & Management Unit Environmental Protection Agency December 2018 Version no. 3

at the R446 Bridge over the Cross Reiver downstream of the proposed pipeline crossing. The EPA report notes that; *the Cross River is strongly influenced by groundwater especially in its upper reaches downstream of Lough Funshinagh resulting in a typically low dissolved oxygen saturation for a river. Improvements to good quality were noted in the middle reaches (0200 and 0300) but a decline to poor was recorded at the last site (0400) immediately upstream of the River Shannon not far downstream from Athlone town*.

Figure 7a. Habitat map based on recent aerial photography, northern section.

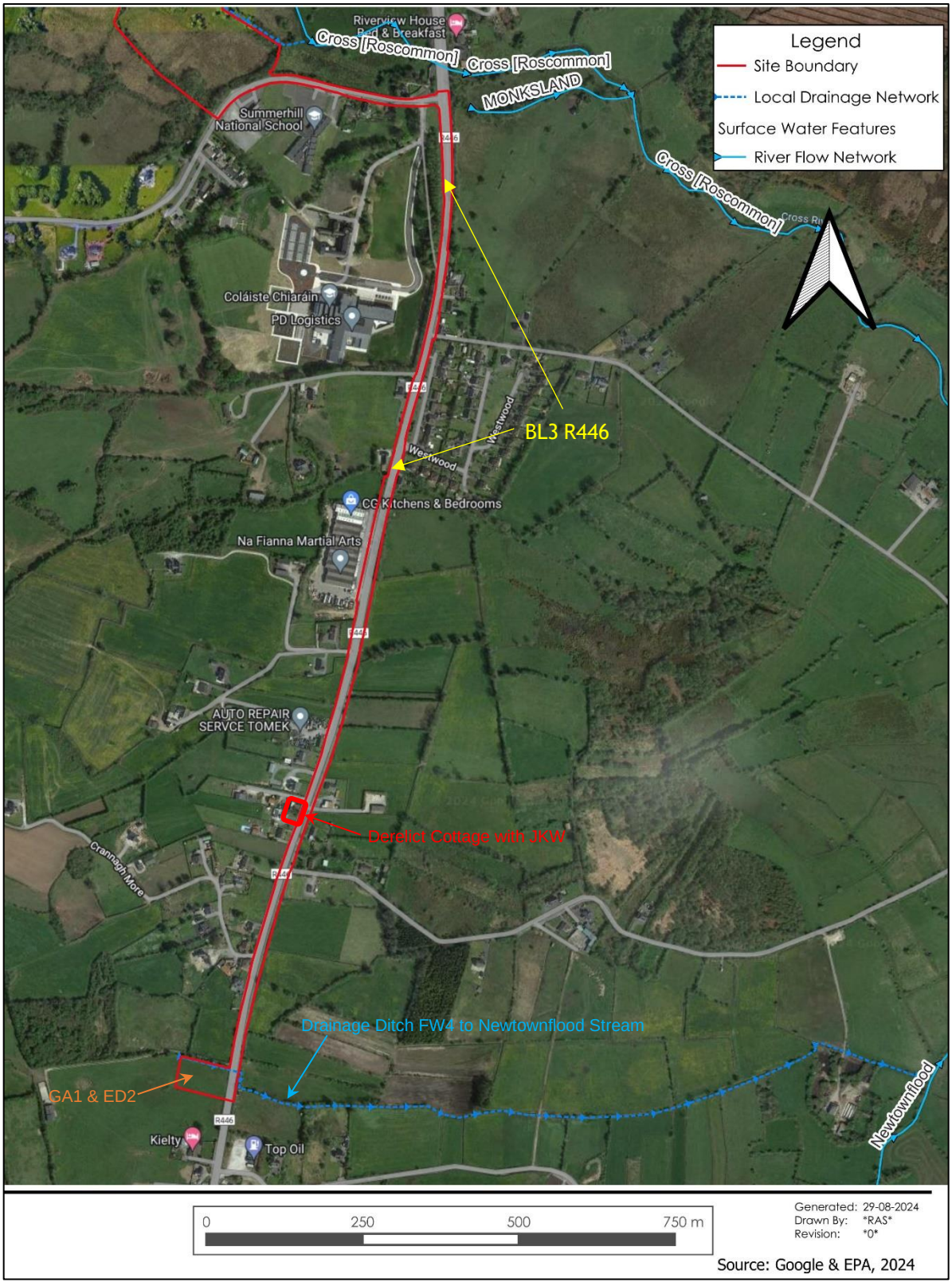


Figure 7b. Habitat map based on recent aerial photography, southern section.

(FW4) Drainage ditches

This habitat classification applies to water courses and the upper reaches of these courses which are in essence large stagnant or slow-moving drainage ditches leading to the Cross River. These have similar marginal species as above with Fools Watercress (*Apium nodiflorum*) and Water Starwort (*Callitriche stagnalis*) in stagnant section along with Duckweed (*Lemna minor*) and with higher ground having Meadowsweet (*Filipendula ulmaris*), Nettle (*Urtica diocia*), occasional Water mint (*Mentha aquatica*), Bulrush (*Typha latifolia*) and Yellow-flag Iris (*Iris pseudacorus*).

The water course located at the Hot Tap Tie-in is considered a drainage ditch which is culverted under the old Galway Road R446 and continues as a large steep sided drainage ditch to the Newtownflood Stream and Cross River.

On the northern side of the Motorway the pipeline will cross an underground closed piped tributary of the Cross River within the Greener Ideas Facility site (Chainage 2430 to 2435), and cross through a ditch tributary of the Cross River (Chainage 2420 to 2430) using a flume method.

(GA1) Improved agricultural grassland

The proposed pipeline runs northwards, from the hot tap connection at the corner of a field of Improved grassland (GA1) (Chainage 000 to 015), part of which has had topsoil stripped and is now classed as Spoil and bare ground (ED2), along the R446 regional road. The route then follows a local road west as far as the Drum Community Centre, where it turns north to enter agricultural land. All roads and footpaths are classed as Buildings and artificial surfaces (BL3).

The majority of the fields adjacent to the proposed development are improved with the exception of the first two fields surveyed at the northern extent either side of the Cross River which comprise wet grassland and wetter sections of the development area in the vicinity of the Monksland AGI.

The improved grassland fields are essentially large, in most cases, open fields of grassland which are managed for either silage, hay or grazing dominated by common forage grasses such as Perennial Rye-Grass and Yorkshire Fog with little in the way of herbs present along with Creeping Thistle, Meadow Buttercup, Nettle and Silverweed (*Potentilla anserina*). As the ground gets higher, species of drier habitats also increase, with Perennial Rye-Grass, Crested Dogs-Tail (*Cynosurus cristatus*) and False-Oat Grass (*Arrhenatherum elatius*) all recorded. The edges of the fields contain some well grown Hawthorn (*Crataegus monogyna*) and Ash (Fraxinus excelsior).

A field of damp Improved agricultural grassland (GA1) lies to the north of the Cross river, with an area of Gorse (*Ulex europaeus*) dominated scrub in its northeastern corner. The fields, including the roadside boundary are lined by hedgerows (WL1), which have largely been allowed to develop into taller

treelines (WL2). Hawthorn, Grey Willow, Elder (*Sambucus nigra*) and Blackthorn (*Prunus spinosa*) are the dominant species, together with taller Ash, much of it diseased.

(GS4) Wet grassland

The pipeline crosses two fields of Wet grassland (GS4)(Chainage 1900 to 2155) opposite Drum Community Centre, with characteristic species such as abundant Soft Rush (*Juncus effusus*), Meadowsweet (*Filipendula ulmaria*), Yorkshire Fog (*Holcus lanatus*), Star Sedge (*Carex echinata*) and Creeping Buttercup (*Ranunculus repens*). The two fields are divided by a Drainage ditch (FW4) (tributary of the Cross River(Chainage 2065 to 2075)) lined by treelines (WL2) on both banks. In less shaded portions of this ditch, Floating Sweet Grass (*Glyceria fluitans*) and Bulrush (*Typha latifolia*) were observed, elsewhere the tall Ash (Fraxinus excelsior), Alder (*Alnus glutinosa*) and Grey Willow (*Salix cinerea*), clothed in Ivy (*Hedera hibernica*) entirely shades the ditch. Stands of Mixed broadleaf woodland (WD1) and Scrub (WS1) have developed in parts of these fields, with Ash, Beech (*Fagus sylvatica*), Willow and Hawthorn (*Crataegus monogyna*), fringed by dense Bramble (*Rubus fruticosus*).

(WD1 & WS1) Woodland & Scrub

The majority of lands within the planning boundary to the north of the M6 motorway are occupied by the site of the Greener Ideas Power Station, which is currently under construction, as well as associated carparking and access roads. These are classed as (BL3). A triangular section of land southeast of this site comprises an area of shelterbelt trees between the Monksland industrial area and the M6, classed as Mixed broadleaf woodland (WD1). Trees are generally of similar age (10-20 years), and a mix of native species such as Grey Willow, Hawthorn and Common Alder, and non-native species, including Oriental Plane (*Platanus orientalis*) and Grey Alder (*Alnus incana*). The understorey comprises abundant Nettle (*Urtica dioica*), Yorkshire Fog (*Holcus lanatus*), Rough Meadow Grass (*Poa trivialis*) and Creeping Thistle (*Cirsium arvense*). A grassy track runs through part of this section, and along its western perimeter, with Nettle and False Oat Grass (*Arrhenatherum elatior*), while a dense hedge of Dogwood (*Cornus* sp.) forms the western boundary. Lands closer to the M6 to the south, as well as those adjacent to the Cross River, and southwest of the Greener Ideas site, comprise tall Wet grassland (GS4), with Meadowsweet, Great Willowherb (*Epilobium hirsutum*), Iris, False Oat-Grass and Reed Canary Grass. The areas fringing the Railway line are scrubby in patches with frequent Gorse.

(BL3) Buildings and artificial surfaces

These areas refer to road crossings and hardstanding areas of tracks and existing pathways along the R446 regional road and L2027 local road (Chainage 015 to 1900). All roads and footpaths are classed as Buildings and artificial surfaces (BL3).

Invasive Species

A large infestation of Japanese knotweed (*Reynoutria japonica* (JKW) 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. It was apparent that the JKWhas been previously treated with herbicide resulting in reduced growth, excepting for a single mature stand which appears to have been missed in the original herbicide treatment. Despite this treatment, many small plants were recorded in the vicinity of the road boundary wall outside the planning application boundary.

4.3. FAUNA

4.3.1. Mammals

Badgers

There are no badger setts in the study area and no potential for badgers on the site. The field boundaries were surveyed and no setts were recorded.

Bats

The report on bat roost potential and commuting potential prepared by O'Donnell Environmental is presented as Appendix 3. The main findings of the report are summarised as follows.

At a national level, the basic unit of conservation is the Natural Heritage Area or proposed National Heritage Area (NHA/pNHA). NHAs are designated to protect habitats, flora, fauna and geological sites of national importance. No nationally designated sites within 15km of the proposed development contain bats as their conservation interest and are therefore not relevant to the current assessment.

National Biodiversity Data Centre (NBDC) holds previous records of bat presence from within the 10km square (N04) in which the proposed site is located. A total of 6 species were recorded. These records are for: Brown Long-eared Bat, Natterer's Bat, Common Pipistrelle, Soprano Pipistrelle, Daubenton's Bat, Whiskered Bat.

It is important to note that an absence of other bat species records is likely reflective of a lack of surveys undertaken to date rather than absence of bat species.

Following a data request of the BCI database on 25th March 2024, a single known roosting site is located within 10km of the proposed development. This roosting site is located within a private residence approximately 4.3km northwest of the proposed development within Athlone town. This roost is attributed to the following species: *Pipistrellus pygmaeus, Nyctalus leisleri, Myotis spp., Myotis natterreri, Pipistrellus pipistrellus*, and *Plecotus auritus*.

Collins (2023) defines the 'Core sustenance Zone' (CSZ) as the area surrounding a bat roost within which habitat availability and quality possess significant influence on the resiliency and conservation status of the roost. This metric is species-specific and can be utilised to indicate the area within which

developments may impact the flight-paths and foraging habitat of bat roosts. No roosts within the BCI database and CSZs associated with each species (between 2-4km radius) overlap with the proposed development. Additionally, the identified roost is located on the other side of Athlone town and buffered by considerable associated light and noise pollution.

Trees and man-made structures were surveyed within the proposed site boundary for their suitability in providing for roosting bats. Full access was provided by the client. Results are discussed separately below.

All trees within and proximal to the proposed development were surveyed from ground-level for the suitability for roosting bats. The only trees of relevance in relation to the proposed development were located at the northern end of the proposed development. The remaining trees, including those located along the R446, were considered and no suitability for roosting was identified. The zone of influence associated with in-road laying of pipeline is considered to be limited and mostly restricted to the road corridor.

Two structures, consisting of the M6 bridge and railway bridge are present proximal to the proposed development that display suitability for roosting bats. These structures were surveyed from ground-level using binoculars and torches to identify possible roosting locations. Due to the deep and fast flowing waters of the River Cross, the interior arches of the railway bridge was not safely accessible and thus surveyed from the most proximal point along the riverbank.

The M6 bridge consists of a single-span concrete structure that forms a part of the M6 roadway and spans the River Cross. It is located approximately 33m from the site boundary and 54m from the proposed pipeline at their nearest points. The pre-cast concrete forms provide limited suitability for roosting bats. No artificial bat roosts are present within the bridge. Mammal passes along the River Cross allowed for the assessment of interior spaces. Numerous expansion joints between concrete forms provide crevices suitable for small numbers of roosting bats. Overall, the M6 bridge presents ‘low’ suitability for roosting bats following Collins (2023).

The railway bridge consists of a single-span stonework structure crossing the River Cross, forming a portion of the Midland Great Western Railway Main Line. This structure is located 22m from the site boundary and 82m from the proposed pipeline at their nearest points. Due to deep and fast-flowing waters of the River Cross, close inspection of the arches was not possible. Binoculars and high-luminosity torches were used from the most proximal point along the riverbank to assess the bridge for bat roosting suitability. Overall, the railway bridge is well-maintained and appears recently well-pointed with no obvious gaps or crevices present. However, features of roosting suitability cannot be discounted entirely. Based on available information, the railway bridge presents ‘negligible’ suitability for roosting bats following Collins (2023).

Full-spectrum passive bat detectors were deployed at six monitoring stations across two survey seasons (see Appendix 3 for details) and are discussed separately below. Overall, a relatively high level of bat activity was recorded. Of the nine confirmed Irish species known to occur nationally, seven were recorded within the proposed development; this represents a high diversity of species. The Annex II listed Lesser Horseshoe Bat was not recorded, and the proposed development is outside their current range despite the presence of suitable landscape.

Detected bats

Seven species of bat were recorded foraging and/or commuting within and adjacent to the proposed planning corridor. The following species were detected and confirmed:

- Common pipistrelle (*Pipistrellus pipistrellus)*
- Soprano pipistrelle *(Pipistrellus pygmaeus)*
- Leisler's bat *(Nyctalus leisleri)*
- Brown long-eared bat *(Plecotus auritus*)
- Natterer's Bat (*Myotis nattererii*)
- Daubenton's Bat (*Myotis daubentonii*)
- Whiskered Bat (*Myotis mystacinus*)

Otters

The desk study aspect of the Otter Survey (Appendix 3) revealed two relevant internationally designated sites with Otter listed as a qualifying interest: Lough Ree SAC (0440) located 2.64km northeast and River Shannon Callows SAC (0216) located 1.55km east of the proposed development. Both sites are connected hydrologically via the Cross River and it is considered likely that individuals associated with these designated sites utilise the area surrounding the proposed development at least occasionally.

No evidence of Otter holts was identified along the watercourses surveyed as part of the proposed development. The primary watercourse, the Cross River, is largely characterised by steep banks comprised of rank grassland and dense vegetation extending right up to the riverside. Additionally, the Cross River appears to periodically inundate the surrounding area during periods of inclement weather. Considering the riverbank structure and periodic high-water levels resulting in inundation of the riverbanks, the portion of the Cross River surveyed as part of the proposed development is considered generally unsuitable for the formation of Otter holts.

Multiple mammal tracks were identified along the mammal underpass associated with the M6 bridge and a drainage channel associated with the Cross River, of which a portion were attributed to Otter. Scat in the form of Otter spraint was identified in two locations: along the mammal underpass and along the Cross River, both of which are located outside the development boundary.

Despite the lack of evidence of underground dwellings attributed to Otter, the Cross River is considered to provide suitable foraging and commuting habitat for Otter and the species is likely to regularly occur here.

4.3.2. Birds

There are abundant hedgerow habitats available for breeding birds in the proposed development area. All breeding birds are protected under the Wildlife Acts. A list of breeding bird species recorded during fieldwork in 2024 is presented in Table 3 below.

Table 4 Birds recorded during fieldwork in February and July 2024.

Birds	Scientific name	BWI Status	Habitat Type
Magpie	*Pica pica*	Green	Anywhere in lowland areas
Woodpigeon	*Columba palumbus*	Green	Gardens, woods, hedges
Wren	*Troglodytes troglodytes*	Green	Gardens, woods, hedges
Blackbird	*Turdus merula*	Green	Woods, gardens, hedgerows
Hooded Crow	*Corvus cornix*	Green	Woods, gardens, hedgerows
Goldfinch	*Carduelis carduelis*	Green	Hedgerows, parks, gardens
Starling	*Sturnus vulgaris*	Amber	Hedgerows, parks, gardens
Swallow	*Hirundo rustica*	Amber	Summer migrant

It may be noted that no Wintering Birds were recorded in off-road or green areas during field surveys in February and it was established that the overall lands are either unsuitable feeding and/or roosting sites for Wintering Birds, due to habitat conditions being dominated by semi-improved agricultural grassland or subject to relatively high levels of grazing disturbance.

5. ASSESSMENT OF IMPACTS

5.1. SITE EVALUATION

The ecological value of the site was assessed following the guidelines set out in the Institute of Ecology and Environmental Management's Guidelines for Ecological Impact Assessment (2019) and according to the Natura Scheme for evaluating ecological sites (after Nairn & Fossitt, 2004). Judgements on the evaluation were made using geographic frames of reference*, e.g.* European, National, Regional or Local.

Due cognisance of features of the landscape which are of major importance for wild flora and fauna, such as those with a "*stepping stone*" and ecological corridors function, as referenced in Article 10 of the Habitats Directive were considered in this assessment.

Following a detailed literature review, desktop assessment and field survey the footprint of the proposed development site can be categorised into the following habitat types:

- Wet grassland (GS4)
- Improved agricultural grassland (GA1)
- Buildings and artificial surfaces (BL3)
- Depositing lowland rivers (FW2)
- Drainage ditches (FW4)
- Spoil and bare ground (ED2)
- Mixed broadleaved woodland (WD1)
- Hedgerows (WL1)
- Scrub (WS1)

The Cross River is the habitat of highest ecological value, acting as an important corridor for wildlife, and an important habitat in itself; it is classed as of high local value. The tall hedgerows/treelines and patches of woodland bordering the fields south of the Cross River provide potential habitat for wildlife, and are of moderate local value. Other habitats are considered to be of low local value.

5.2. IMPACT ASSESSMENT

5.2.1. Direct Impacts

Habitats

Sites of Conservation Concern

The Proposed Development will require a temporary crossing of the Cross River and the creation Temporary Works Areas within 10m of the river to be constructed to facilitate and contain works effectively. The majority of the Temporary Works Areas will be >10m from the Cross riverbank, however works required for the temporary bridge, including the stoned pad for crane to enable bridge installation will be within 10m of the river. The construction activity associated with drilling under the Cross River and Railway and Motorway will require surface water management to prevent pollution and degradation of habitats from a chemical spill or smothering from excessive suspended solids.

In the absence of mitigation measures during construction to control potential pollution of surface water, in particular with regard to the construction and operation of a temporary crossing of the Cross

River, the potential effect on the River Shannon Callows SAC and the Middle Shannon Callows SPA is uncertain.

It cannot be excluded, on the basis of objective information, that the Proposed Development, individually or in combination with other plans or projects, will have a significant effect on the following European sites and they are brought forward to Stage 2 AA

- River Shannon Callows SAC (Site code 000216)
- Middle Shannon Callows SPA (Site code 004096)

Construction management will be employed to avoid potential impacts on the Cross River leading to the River Shannon, and a Natura Impact Statement has been prepared for the proposed development and is included with this S39A application.

Streams and Water Quality

The drainage ditches and water courses crossed by the proposed pipeline all lead to or include the Cross River. As previously established, the Cross River leads to the River Shannon and its associated conservation areas. While the Cross River is of high local value, as a depositing lowland river that has undergone some historical maintenance (c.f. Section 7.3.2.1), it is its connectivity to the River Shannon that is of primary importance in terms of a supporting habitat for Otters and Trout and with regard to water quality leading to the River Shannon.

There will be **no significant direct effects** on these water courses.

Deterioration in water quality as a result of elevated suspended solids or from earth movement has the potential to have an effect on downstream habitats and ultimately species discussed under 'Fauna' below.

Woodland & Scrub

The majority of lands within the planning boundary to the north of the M6 motorway are occupied by the site of the Greener Ideas Power Station, which is currently under construction, as well as associated carparking and access roads. A triangular section of land southeast of this site comprises an area of shelterbelt trees between the Monksland industrial area and the M6, classed as Mixed broadleaf woodland (WD1). A very small portion of this woodland will be affected by the reception pit for the proposed drilling under the adjacent Motorway. The area of woodland is relatively young landscape planting and the effect of loss will **not be significant.**

Hedgerows

The proposed development will result in the short term loss of c.60m of Low value hedgerow opposite Drum Community Centre to facilitate site access and the pipeline and c.30m of Low value hedgerow in a central field boundary to the south of the Cross River. The hedgerows are of relatively low value given the high degree of gaps and relatively low species composition and the effect will **not be significant**.

Wet Grassland

The predominant habitat in fields that the pipeline will cross comprises rush dominated wet grassland and the temporary disturbance of this habitat will **not be significant**.

Fauna

Badgers

There were no badger setts along field boundaries which would be disturbed and no signs of badgers in the study area. There will be **no negative effects** on badgers.

Otters

The Otter Survey (Appendix 3) sets out that there is no evidence of Otter holts or other protected mammal dwellings were present within or proximal to the development boundary. Evidence of Otter usage in the surrounding area was identified, with two areas of prints and two areas of scat identified. It is likely that Otter utilise the area within and surrounding the proposed development at least periodically, especially in relation to the Cross River. Any loss of trees, hedgerow and earthen bank habitat, alongside artificial lighting will cause a reduction in the suitability of the site and its surroundings for foraging and commuting Otter.

Construction works and site clearance likely will cause some local displacement of Otter as a result of noise. Deep excavations can potentially entrap Otter and other mammals commuting across the site. During construction, should there be pooled water in any excavations there is potential for drowning. Inappropriate or excessive lighting during the construction phase can cause disturbance to mammals at night. The inappropriate disposal of food wastes during the construction phase can encourage scavenging by mammals (and birds) at the site.

Localised increases in noise and dust levels are likely to occur during the construction phase. In the absence of mitigation, these impacts could give rise to indirect negative impacts on Otter and associated watercourses present in the local environment. Noise will occur through the operation of machinery (excavation, pile driving, etc.). Dust may arise during construction works if dry soil or other material is allowed to become windborne.

The overall effect on Otter as a result of the construction phase of the proposed development in the absence of mitigation is considered to be a **temporary, slight, negative effect** at the local level.

Bats

The construction phase will likely result in the loss of vegetation including linear features such as treelines and hedgerows. Additionally, lone-standing trees may need to be removed to facilitate excavation works. An ecological assessment of those trees which will likely be removed as a result of the proposed development was carried out, and no evidence was recorded of the use of the trees by bats. Four trees (No. T_49, T_50, UT_01, UT_02) were identified to have 'PRF-I' suitability for roosting bats and therefore may periodically support individual or small numbers of bats (Appendix 3). All

remaining trees surveyed were considered to show no features suitable for potential roosting opportunities.

Vegetation removal and illumination of retained vegetation will impact foraging and commuting bats that use hedgerows and other similar features. Hedgerows and treelines maintain landscape connectivity and provide commuting bats with waypoints and corridors through which they commute to and from roosts/foraging areas. The loss of these linear hedgerow features on site will cause a reduction in landscape connectivity in the immediate vicinity of the proposed site.

Inappropriate or excessive illumination of hedgerow areas at night can cause disturbance to roosting, commuting and foraging bats. Artificial lighting is thought to increase the chances of bats being predated upon by avian predators of bats (e.g. owls), and therefore bats may modify their behaviour to avoid illuminated areas. The oCEMP (AWN, 2024) outlines hours of work and site lighting during the construction phase of the development. No night works are proposed. No construction lighting is proposed, except in the winter months when deemed necessary for safety and security.

The use of heavy machinery in the root zone of trees can cause damage to nearby treeline features and lone-standing trees, resulting in increased tree morbidity and mortality. Equally, the use of machinery in proximity to trees can result in accidental damage to the trunk and branches of trees. In the medium and long terms this could result in the death of trees which provide bat roosting opportunities.

Relative to the construction stage, no additional habitat loss will occur during the operational phase. Additionally, no lighting is proposed for the operational phase of the proposed development.

The overall effect on bats as a result of the construction phase of the proposed development in the absence of mitigation is considered to be a **temporary, slight, negative effect** at the local level.

Breeding Birds

Potential effects on nesting birds may occur as a result of vegetation cutting. The majority of birds encountered are typical open farmland birds of BWI Green status which are not susceptible to habitat loss. The potential effects on local bird populations are **not significant** and will be avoided.

Field surveys carried out deemed the overall lands to be unsuitable feeding and/or roosting sites for Wintering Birds, due to habitat conditions being dominated by semi-improved agricultural grassland or subject to relatively high levels of grazing disturbance.

Amphibians

Frogspawn is likely to occur in stagnant or slow moving drainage ditches in early Spring. If frog spawn is found to be present and likely to be disturbed by the proposed works, a licence from NPWS will be sought prior to moving to a suitable location locally.

5.2.2. Indirect Impacts

The primary consideration in terms of source-receptor-pathways for indirect impacts relates to surface water and potential indirect impacts on hydrologically linked habitats and aquatic species.

The potential for impact is considered whereby the Proposed Development would result in a significant detrimental change in surface water quality either alone or in combination with other projects or plans as a result of indirect pollution of surface water. The effect would have to be considered in terms of changes in water quality which would affect the habitats or species for which the River Shannon Callows SAC and the Middle Shannon Callows SPA are designated.

Indirect effects could potentially arise from cementitious water arising from concrete use. However, the amount of concrete or cement to be used is not significant and trucks will not be allowed to wash out on site. 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. Similarly, petrochemical/hydrocarbon use on site will be controlled during construction management. The primary concern is with regard to the discharge of surface water that may accumulate during the excavation and the level of suspended solids in that water. The water is expected to accumulate from natural sources such as minor amounts of groundwater ingress and/or rain water and is not expected to be contaminated except with a degree of silt associated with deep excavations.

The likelihood of impacts on hydrologically connected European sites is low and will be avoided by best practice construction management.

6. MITIGATION MEASURES

An Outline CEMP (AWN, 2024) has been compiled to address the works at the construction stage and outline the mitigation, monitoring and control measures to be implemented during the works so as to complete the works in an environmentally safe/sustainable manner.

The Environmental Procedures and the associated control measures will be communicated to all persons working for and on behalf of the Construction Contractor to ensure that all persons are aware of the importance of controlled construction environmental management practices during these works and necessary actions to be taken if works deviate from the environmental procedures.

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.

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).

- 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 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 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;

- 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).

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.

Japanese knotweed recorded at the Derelict Cottage on the R446, which is outside of, but adjacent to the road works area is addressed in an Invasive Species Management Plan by suitably qualified specialist which sets out appropriate controls to be observed by site personnel, should any invasive species be encountered during construction.

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.

7. CUMULATIVE EFFECTS

Cumulative impacts or in combination effects are changes in the environment that result from numerous human-induced, small-scale alterations. Cumulative impacts can be thought of as occurring through two main pathways: first, through persistent additions or losses of the same materials or resource, and second, through the compounding effects as a result of the coming together of two or more effects.

Consideration of Plans

The following development plans been reviewed and taken into consideration as part of this assessment:

- Roscommon County Development Plan 2022-2028
- National Biodiversity Action Plan 2023-2027

The review focused on policies and objectives that relate to Natura 2000 sites and natural heritage. Policies and objectives relating to sustainable land use were also reviewed.

Roscommon County Development Plan 2022-2028

Natural Heritage Policy 1: Ensure the protection, conservation and enhancement of the biodiversity of the county

Natural Heritage Policy 2: Support the implementation of the relevant recommendations contained in the National Biodiversity Action Plan, including no net loss in biodiversity, and the All-Ireland Pollinator Plan.

Natural Heritage Policy 3: Implement the County Roscommon Heritage Plan and the Biodiversity Action Plan, or any subsequent plans, in partnership with all relevant stakeholders

Natural Heritage Policy 4: Proposals where woodland, tree or hedgerow removal is proposed will be required to demonstrate a sufficient level of protection to Annex IV species, such as Bats and Otter, in accordance with the Habitats Directive.

Natural Heritage Policy 5: Ecological Impact Assessment (EcIA) will be required for proposed developments likely to significantly impact on natural habitats and/or species, and which are not subject to Environmental Impact Assessment

Natural Heritage Policy 6: Require all new developments in the early pre-planning stage of the planning process to identify, protect and enhance ecological features by making provision for local biodiversity

(e.g. through provision of swift boxes, bat roost sites, green roofs, etc.) having regard to the recommendations outlined in the Habitat Mapping in Co. Roscommon, 2011 and the County Roscommon Swift Survey, 2020

Natural Heritage Policy 7: Implement Article 6(3) and where necessary Article 6(4) of the Habitats Directive and to ensure that Appropriate Assessment is carried out in relation to works, plans and projects likely to impact on European sites (SACs and SPAs), whether directly or indirectly or in combination with any other plan(s) or project(s). All assessments must be in compliance with the European Communities (Birds and Natural Habitats) Regulations 2011. icy 1:Contribute towards the protection from significant adverse effects, of the ecological integrity and the visual, recreational, environmental and amenity value of the County's proposed Natural Heritage Areas (pNHAs) and associated habitats, including any designated Natural Heritage Areas (NHAs) during the lifetime of this Plan.

Natural Heritage Policy 8: Ensure that no plans, programmes, etc. or projects are permitted that give rise to significant cumulative, direct, indirect or secondary impacts on the integrity of European Sites arising from their size or scale, land take, proximity, resource requirements, emissions (disposal to land, water or air), transportation requirements, duration of construction, operation, decommissioning or from any other effects, (either individually or in combination with other plans, programmes, etc. or projects).

Natural Heritage Policy 9: Ensure that any plan or project that could have a significant adverse impact (either alone or in combination with other plans and projects) upon the conservation objectives of any Natura 2000 Site or would result in the deterioration of any habitat or any species reliant on that habitat will not be permitted unless in exceptional circumstances.

Natural Heritage Policy 10: Actively promote the conservation and protection of areas designated as an NHA (including proposed sites) and to only consider proposals for development within or affecting an NHA where it can be clearly demonstrated that the proposed development will not have a significant adverse effect on the NHA or pNHA.

The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the biodiversity, protected species and designated sites. There will be no adverse effects on biodiversity as a result of the Proposed Development, and no in-combination effects in this regard.

National Biodiversity Action Plan 2023-2027

Objective 2 - Meet Urgent Conservation and Restoration Needs

Outcome 2A: The protection of existing designated areas and species is strengthened and conservation and restoration within the existing protected area network are enhanced.

Outcome 2B: Biodiversity and ecosystem services in the wider countryside are conserved.

Outcome 2C: All freshwater bodies are of at least 'Good Ecological Status' as defined under the EU Water Framework Directive.

Outcome 2D: Genetic diversity of wild and domesticated species is safeguarded.

Outcome 2E: A National Restoration Plan is in place to meet EU Biodiversity Strategy 2030 nature restoration targets.

Outcome 2F: Biodiversity and ecosystem services in the marine environment are conserved and restored.

Outcome 2G: Invasive alien species (IAS) are controlled and managed on an all-island basis to reduce the harmful impact they have on biodiversity and measures are undertaken to tackle the introduction and spread of new IAS to the environment.

There will be no adverse effects on designated sites or biodiversity as a result of the Proposed Development. The Proposed Development will not impact on connectivity within the wider area. No Third Schedule Invasive species were present within the site, and the proposed development will not contribute to the spread of any Third Schedule invasive species.

Consideration of Projects

A review of the planning section of the Roscommon County Council website indicates that, within the last three years, the following development have been granted planning permission within the vicinity of the Proposed Development.

Table 5.Planning applications granted permission in the vicinity of the Proposed Development.

Planning Ref.	Description of development	Comments
21405	Permission for a ground floor extension to existing access corridor with extended roof canopy to set back north façade, alterations to existing west and south façade windows at ground level for additional access and escape doors, external escape stairs and ladder to the south façade, alteration to existing high level windows on the south facade to be replaced with air intake louvres, and provision of exhaust flues and enclosure to the existing roof, and all associated site works at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
21444	Permission to construct a single storey side extension onto existing dwelling house comprising of a "granny flat" unit and all associated site works at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the

Planning Ref.	Description of development	Comments
		implementation of Construction Management.
21499	Permission to construct a single storey extension to include an additional classroom and 2 No. SET rooms with a link corridor and all associated site development works at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
22199	Permission to construct a dwelling house, domestic garage and septic tank with percolation area and associated site works at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
222	Permission for development consisting of the provision of a new warehouse with ancillary accommodation and a loading bay. The building will be set mainly at single level - ground floor (905 sq.m) except small technical mezzanine floor (85 sq.m), total building floor area of 990 sq.m The maximum parapet height for proposed building shall not exceed 20 meters above ground level. Development will include also all associated infrastructure, road works, additional carparking associated with development and removal of existing temporary modular office accommodation (Environmental Impact Statement (EIAR) accompanies this application) at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
22234 Parent App; 18256	Permission for development consisting of revisions and alterations of the permitted development of a gas fired power plant under Planning Register Reference PD/18/256. The revisions and alterations relate to the design of the gas fired power plant and will include a change to the electrical output of the power plant to 102MW with associated balance of plant, equipment and buildings including: an engine hall building with a height of 16.9m, (comprising 5 no. gas engines and ancillary infrastructure), an electrical annex building with a height of 18.7m; A workshop building with a height of 5.1m; An administrative building with a height of 6.1m; A tank farm building with a height of 5.7m; A security hut with a height of 3.3m; An exhaust stack with a height of 28.0m; A gas AGI including an instrument kiosk with a height of 4.9m and an analyser kiosk with a height of 2.9m; 2 no. storage containers, each 2.6m in height, radiator coolers with height of 8.5m; Tanks including 2 X diesel oil storage tanks (volume of 1860m3 combined); SCR urea tank (73m3) ; Lube oil storage tank (3m3); Lube oil maintenance tank (26m3); Pilot oil tank (26m3); Fire water storage tank (563m3); Waste oil effluent tank (16m3); Underground surface water attenuation tank (590m3). The revised proposal will involve a revised red line site boundary to provide for drainage and other works within the adjacent roadway. The development optimises the same access permitted under PD/18/256 and includes 12 no. number parking spaces, footpaths, landscaping; fencing and all other associated site development plant and equipment and other works including surface water and foul wastewater drainage, all on site 1.8 hectares in size (A Natura Impact Statement(NIS) is submitted as part of the planning application) (Permission is sought for a period of 10 years)	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.

Planning Ref.	Description of development	Comments
22301	Permission for development consisting of partial demolition to the rear of the existing dwelling; construction of a single storey extension to the rear, single storey extension to the side and proposed porch to the front with internal alterations to the existing dwelling; decommissioning of an existing septic tank and provision of a new tertiary treatment system and infiltration area; widening of the existing vehicular entrance; and all ancillary site works at Rathuil, Keelty Townland, Athlone, Co. Roscommon, in accordance with the plans submitted with the application. (Application made for development consisting of partial demolition to the rear of the existing dwelling; construction of two storey extension to the rear, single storey extension to the side and proposed porch to the front with internal alterations to the existing dwelling; decommissioning of an existing septic tank and provision of a new tertiary treatment system and infiltration area; widening of the existing vehicular entrance; and all ancillary site works) at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
22314	Permission for an extension to the existing fire water retention pond consisting of the formation of new pond adjacent to the existing, both linked together with underground pipes, pump cabinet, perimeter fencing and access gates, footpaths, and all associated site works (This application relates to development which comprises an activity which holds an Industrial Emissions Directive Licence (Reg. NO. P0100-02)) at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
22387	Permission for alterations to existing planning permission ref number PD/22/2 to include the following - increase in size of loading dock from 18 sq.m. to 38 sq.m., alteration in parapet height of the one storey building from 6m. to 6.6m., new window on southern elevation to office, new roller shutter forklift access door and high level canopy to southern elevation, new fire escape door to eastern elevation, new enclosed fire escape stair case on southern elevation serving roof and mezzanine level to maximum height of 20m, repositioning of single storey block 2 m. to the east, internal layout alteration to single storey block, omission of electrical switch room to the north west elevation, extension of ramp to loading dock from 10m. to 16m., increase in size of mezzanine area for plant only from 85 sq.m. to 159 sq.m., additional doors to north and western elevation for maintenance access at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
22447	Permission to erect 300.00m2 or 55.00 kWp of photovoltaic panels on the existing roof of manufacturing building with all associated site works at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
2360042	Permission: 1. To retain as constructed shared access road 2. To construct domestic dwelling house along with domestic garage, new Treatment system and percolation area and all ancillary site development works at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
2360212	Permission for proposed new extension to existing dwelling house, demolition of existing rear extension, proposed domestic garage and all ancillary works at	No potential for cumulative effects given the Proposed Development will have no

Planning Ref.	Description of development	Comments
		significant negative effects on Biodiversity after the implementation of Construction Management.
245	Retention Permission for development consisting of change of use of 139.7m2 single storey office Building 14 originally a dwelling house constructed prior to 1979 to its current use as an office since 2000. This application related to development which comprises an activity which holds an Industrial Direct License (Reg. No P010002) at	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.
ABP-317588-23	110kV substation to serve the facility was permitted in January 2024. The sub-station will be connected to Athlone 110kV sub-station via approximately 1.95km, 110kV single circuit underground connection (UGC). The UGC will be laid principally by open trench construction technology. The standard trench is 825mm wide by 1,325m deep with variations to adapt to road bridge, service crossings etc. Approximately 0.5km of the UGC will be underneath public land to the north west and south east of the M6 motorway and the remainder under public roads. The c.90m of the UGC under the M6 motorway will require Horizontal Directional Drilling (HDD), with 2 no. temporary drilling pits, located immediately north west and southeast of the M6 motorway at the crossing point. The drilling pits will comprise a temporary work area with equipment and 2m high HERAS fencing. HDD works under the motorway will not require the removal of existing semi-mature trees on either side of the motorway. The UGC route will consist of a trench containing 3 no. 160mm diameter HDPE power cable ducts, 2 no. 125mm diameter HDPE communications ducts and a 63mm diameter Earth Continuity Duct, along with associated cable joint bays, link boxes and communication chambers. The development will be integrated with the Athlone sub-station via a new electrical equipment bay to be situated within the substation site.	No potential for cumulative effects given the Proposed Development will have no significant negative effects on Biodiversity after the implementation of Construction Management.

There are no predicted cumulative or in-combination effects from the Proposed Development given the successful employment of industry standard best practice construction management measures.

The Roscommon County Development Plan in complying with the requirements of the Habitats Directive requires that all Projects and Plans that could affect the Natura 2000 sites in the same zone of impact of the Proposed Development site would be initially screened for Appropriate Assessment and if requiring Stage 2 AA, that appropriate employable mitigation measures would be put in place to avoid, reduce or ameliorate negative impacts. In this way any, in-combination impacts with Plans or Projects for the development area and surrounding townlands in which the development site is located, would be avoided.

Any new applications for the Proposed Development area will be initially assessed on a case by case basis initially by Roscommon County Council which will determine the requirement for AA Screening as per the requirements of Article 6(3) of the Habitats Directive.

8. CONCLUSIONS

It is the conclusion of this EcIA, that with the implementation of the mitigation and restriction measures detailed in Section 6 will ensure that the residual effect on biodiversity will be neutral, slight, and short-term.

There are no potential impacts on biodiversity during the operational phase, therefore there is no mitigation required. The residual effect on biodiversity during the operational phase is considered to be neutral, imperceptible and long-term.

9. REFERENCES

CIEEM (2019) Guidelines for Ecological Impact Assessment in the UK And Ireland Terrestrial, Freshwater, Coastal and Marine September 2018 Version 1.1 - Updated September 2019.

Department of the Environment, Heritage and Local Government (2010) Guidance on Appropriate Assessment of Plans and Projects in Ireland (as amended February 2010).

EPA (2022) EPA Guidelines on Information to be contained in an EIAR; EPA, May 2022.

European Commission (2000) Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.

European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43EEC. European Commission, Brussels.

European Commission (2007) Guidance document on Article 6(4) of the 'Habitats Directive '92/43/EEC: Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interests, compensatory measures, overall coherence and opinion of the Commission. European Commission, Brussels.

European Commission (2018) Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitat's Directive 92/43/EEC.

Fossitt, J. (2000) A Guide to Habitats in Ireland. The Heritage Council.

Nairn, R. and J. Fossitt (2004) The Ecological Impacts of Roads, and an Approach to their Assessment for National Road Schemes. In: J. Davenport and J.L Davenport (eds) The Effects of Human Transport on Ecosystems: Cars and Planes, Boats and Trains, 98-114. Dublin. Royal Irish Academy.

NPWS (2019) The Status of EU Protected Habitats and Species in Ireland. National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2020) National Parks and Wildlife Service Metadata available online at https://www.npws.ie/maps-and-data

NRA (2008) Ecological Surveying Techniques for Protected Flora & Fauna. Available at: http://www.nra.ie/Environment/

NRA (2009) Guidelines for Assessment of Ecological Impacts of National Road Schemes. Dublin: National Roads Authority. Available at: http://www.nra.ie/Environment/

Parnell, J. and T. Curtis (2012) Webb's An Irish Flora. Cork University Press.

Smith, G.F., O'Donoghue, P., O'Hora, K. and E. Delaney (2011) Best Practice Guidance for Habitat Survey and Mapping. The Heritage Council.

Appendix 1 TII Evaluation of Habitats

Ecological valuation: Examples

International Importance:

- 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation.
- Proposed Special Protection Area (pSPA).
- Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended).
- Features essential to maintaining the coherence of the Natura 2000 Network.[4]
- Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive.
- Resident or regularly occurring populations (assessed to be important at the national level)[5] of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive.
- Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971).
- World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972).
- Biosphere Reserve (UNESCO Man & The Biosphere Programme).
- Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979).
- Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979).
- Biogenetic Reserve under the Council of Europe.
- European Diploma Site under the Council of Europe.
- Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).[6]

National Importance:

- Site designated or proposed as a Natural Heritage Area (NHA).
- Statutory Nature Reserve.
- Refuge for Fauna and Flora protected under the Wildlife Acts.
- National Park.
- Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park.
- Resident or regularly occurring populations (assessed to be important at the national level)[7] of the following:
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing 'viable areas'[8] of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

- Area of Special Amenity.[9]
- Area subject to a Tree Preservation Order.
- Area of High Amenity, or equivalent, designated under the County Development Plan.
- Resident or regularly occurring populations (assessed to be important at the County level)[10] of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Site containing area or areas of the habitat types listed in Annex I of the Habitats Directive that do not fulfil the criteria for valuation as of International or National importance.
- County important populations of species, or viable areas of semi-natural habitats or natural heritage features identified in the National or Local BAP,[11] if this has been prepared.
- Sites containing semi-natural habitat types with high biodiversity in a county context and a high degree of naturalness, or populations of species that are uncommon within the county.
- Sites containing habitats and species that are rare or are undergoing a decline in quality or extent at a national level.

Local Importance (higher value):

- Locally important populations of priority species or habitats or natural heritage features identified in the Local BAP, if this has been prepared;
- Resident or regularly occurring populations (assessed to be important at the Local level)[12] of the following:
  - Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive;
  - Species of animal and plants listed in Annex II and/or IV of the Habitats Directive;
  - Species protected under the Wildlife Acts; and/or
  - Species listed on the relevant Red Data list.
- Sites containing semi-natural habitat types with high biodiversity in a local context and a high degree of naturalness, or populations of species that are uncommon in the locality;
- Sites or features containing common or lower value habitats, including naturalised species that are nevertheless essential in maintaining links and ecological corridors between features of higher ecological value.

Local Importance (lower value):

- Sites containing small areas of semi-natural habitat that are of some local importance for wildlife;
- Sites or features containing non-native species that are of some importance in maintaining habitat links.

Appendix 2 Site Photos

Photo 1. Showing the Cross River and adjacent habitats.

Photo 2. Example of wet grassland habitats with gappy boundary hedgerows in the background.

Appendix 3 Mammal Report – O'Donnell Environmental

Bat and Otter Survey Report

Gas to GIL Power Athlone - Monksland AGI, Co. Roscommon.

September 2024

Prepared for:

Gas Networks Ireland

CIEEM REGISTERED PRACTICE 2024-2025

O'DONNELL ENVIRONMENTAL

Summary

Project: Gas to GIL Power Athlone - Monksland AGI, Co. Roscommon.

Coordinates: N 00574 40630 (IG); 53.416010, -7.9920977 (WGS84).

Report by: Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM.

Statement of Competence: O'Donnell Environmental is an independent environmental consultancy established by Tom O'Donnell BSc (Hons) MSc CEnv MCIEEM in 2019. O'Donnell Environmental is a Chartered Institute of Ecology and Environmental Management (CIEEM) 'Registered Practice' which demonstrates our commitment to high professional standards, accountability and the delivery of the best outcomes for biodiversity and our Clients.

Tom O'Donnell is a Chartered Environmentalist and a full member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Environmental and Earth System Science [Applied Ecology] in 2007 and an MSc in Ecological Assessment in 2009, both from UCC. Tom has 15 years professional experience in the environmental industry, including working on projects such as windfarms, overhead power lines, roads, cycleways and residential developments. Tom is licensed by NPWS for roost disturbance (Ref: DER/BAT 2023-16) and to capture bats (C25/2023).

Colm Breslin BSc (Hons) is a Qualifying member of the Chartered Institute of Ecology and Environmental Management. He was awarded a BSc in Biological, Earth and Environmental Sciences [Ecology and Environmental Biology] in 2023 from UCC. Colm has experience in habitat mapping, bat activity surveys and preliminary roost assessments for a variety of windfarm and residential developments. Colm is licenced by NPWS for roost disturbance (Ref: DER/BAT 2024-09), to capture bats (C03/2024), and to photograph bats (008/2024).

Project Reference: 202113.18			
Document Rev. No.	**Status**	**Contributor**	**Date**
A	Draft Issue	TO'D, CB	14.08.2024
1	Final Issue	TO'D, CB	16.08.2024
2	Final Issue	TO'D, CB	02.09.2024

Table of Contents

1 Introduction

O'Donnell Environmental Ltd. was commissioned by Gas Networks Ireland to undertake dedicated bat and Otter surveys within the zone of influence of the proposed Gas to GIL Power Athlone project.

The proposed development will consist of the following aspects:

- Installation of 2.488km of buried 200NB carbon steel pipe.
- Installation of hot tap offtake valve arrangement at tie in location.
- Installation of below ground isolation valve and below ground pig launching connection to facilitate future pigging operations, at the hot tap connection into the existing transmission pipeline
- Tie into the permitted above ground compound (AGI) (named Monksland AGI) adjacent the customer's location, this will be located within a fenced enclosure, to accommodate the pressure reduction station (AGI).

The proposed pipeline route is outlined in **Figure 2.1** below and involves a long section of conventional pipeline installation in open trench at nominal depth, a trenchless crossing of the Cross River (RVX01), and a trenchless crossing of a Railway Line (RLX01) and the M6 Motorway (RDX01). The new pipeline shall tie into the existing 750 NB 'Pipeline to the West' adjacent the R446 road south of Athlone town. The proposed pipeline shall run approximately 1.6 km north through public road R446 and then approx. 300m West along minor road L2027. It will then travel north through privately owned agricultural land and will pass under the Cross River south of where the river crosses the railway line.

The pipeline shall be installed under the river using trenchless methods. After crossing the river, the route shall continue north to a point where the M6 motorway runs alongside the railway. The pipeline shall be installed under the railway and motorway at this point using trenchless methods.

The pipeline shall terminate at the new Monksland AGI compound located on the north side of the motorway within 250m of the proposed crossing point.

2 Methodology

Surveys targeted bats and Otter and assessed the likelihood of impacts arising on these receptors as a result of the proposed development. Bat surveys were conducted through desk study, preliminary roost assessment (PRA), ground-level tree assessment (GLTA) and passive monitoring. Otter surveys were conducted through daytime mammal walkovers. All surveys were informed through multiple site visits between Autumn 2023 and Summer 2024. Each of these elements are described below.

2.1 BATS

2.1.1 Desktop Review

A desktop review of publicly available relevant data was undertaken on the National Biodiversity Data Centre (NBDC) and National Parks & Wildlife Service (NPWS) websites[1]. The National Biodiversity Data Centre was reviewed for relevant data, specifically i) existing species records for the 10km square in which the study site is located (N04) and ii) an indication of the relative importance of the wider landscape in which the study site is located, based on Model of Bat Landscapes for Ireland (Lundy et al. 2011). In the latter, the index ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats.

O'Donnell Environmental requested bat roost data from Bat Conservation Ireland's database on 25th March 2024. Any relevant roosting locations were reviewed in relation to the emerging scheme design.

2.1.2 Potential Roost Assessment

Detailed visual assessment of relevant trees and structures was carried out following guidance set out in 'Bat Surveys for Professional Ecologists: Good Practice Guidelines', Collins (2023). Targeted surveys were carried out to determine the presence of bats or Potential Roosting Features (PRFs) where proposed works may impact a PRF directly or indirectly. All trees and structures within the zone of influence (defined as within the site boundary for bat species) were considered for suitability for roosing bats.

Trees

Daytime visual assessments of trees within the proposed development site were carried out by Tom O'Donnell and Colm Breslin on 11th October 2023, 15th February 2024, 9th July 2024 and 25th July 2024 following guidance presented in Collins (2023), to describe the potential bat roosting suitability of the trees within the area of interest. Winter is the optimal period for carrying out these surveys when reduced leaf cover maximises light penetration and minimises obstruction of vision (BTHK, 2018; Collins, 2023). Surveys were completed within the optimal survey season and supplemented by additional site visits in other seasons.

Safely accessible trees of relevance were tagged by O'Donnell Environmental (Tag No. 49 & 50). Trees contained within the site boundary were surveyed from ground level using binoculars, torches and endoscope as necessary to identify possible roosting locations. The survey was non-destructive, and relevant Potential Roost Features (PRFs) were visually inspected where

[1] Accessed 13th May 2024.

safely possible to identify any evidence of bat roosting. Signs of bat use include bat droppings, feeding remains, potential bat access points identified by characteristic staining and scratches, noise made by bats etc.

While tree surveys can confirm the presence of roosting bats, they often cannot conclusively confirm the absence of roosting bats (Collins, 2023). In trees in general, and in the winter in particular, evidence of recent bat occupation can rapidly disappear. For example, droppings can persist in buildings for many years while they generally do not persist for long in tree roosts. Tree roosts have been shown to be used in a more transient manner than buildings with many species (including Leisler's Bat) exhibiting roost switching behaviour (Collins, 2023). For example, Waters et al. (1999) observed roost switching in Leisler's Bats every 2 to 10 days during the active season.

In relation to trees, Collins (2023) has moved away from the subjective approach used in Collins (2016) for categorising individual PRFs in trees. Collins (2023) acknowledges the subjectivity of the previous approach, and the many constraints associated with surveying trees for bats. The preliminary ecological appraisal (now termed the Daytime Bat Walkover (DBW)) of trees present on the proposed development site follows the categorisations scheme outlined in **Table 2.1**.

Table 2.1. Scheme for describing the potential suitability of PRFs in trees on a proposed development site for bats.

Suitability	Description
None	Either no PRFs in the tree or highly unlikely to be any.
FAR	Further Assessment Required to establish if PRFs are present in the tree.
PRF	A tree with at least one PRF present.

Following the confirmation of the possible presence of PRFs in trees, the assessment of suitability is further refined during the Ground Level Tree Assessment (GLTA), whereby the potential suitability of such PRFs is now categorised according to the system detailed in **Table 2.2** below.

Table 2.2. Scheme for describing the potential suitability of PRFs in trees for bats.

Suitability	Description
PRF-I	PRF is only suitable for individual bats or very small numbers of bats either due to size or lack of suitable surrounding habitats.
PRF-M	PRF is suitable for multiple bats and may therefore be used by a maternity colony.

Following Collins (2023), trees displaying PRF-M suitability are subject to further survey including emergence surveys and PRF aerial inspection surveys.

Structures

Daytime visual assessments of the structures with roosting suitability and potential to be impacted by the proposed works were carried out concurrently with trees. The proposed development involves works in proximity of two bridge structures: the M6 bridge and railway bridge (see **Figure 2.1**; **Plates 3.5-3.6**).

Structural surveys of bridges involved ground-level surveys using binoculars where safely accessible. Full access was possible to the M6 bridge due to constructed mammal passes. The

railway bridge was not safely accessible and was thus surveyed from the most proximal point along the riverbank using binoculars and high-luminosity torches.

The potential suitability of structures for roosting bats present at the proposed development site was classified according to the guidelines in Collins (2023), see **Table 2.3** below.

Table 2.3. Scheme for describing the potential suitability of structures for bats.

Suitability	Description
None	No habitat features likely to be used by any roosting bats at any time of the year (i.e. a complete absence of crevices/suitable shelter at all ground/underground levels.)
Negligible	No obvious habitat features likely to be used by roosting bats; however, a small element of uncertainty remains as bats can use small and apparently unsuitable features on occasion.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically at any time of the year. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable and not a classic cool/stable hibernation site, but could be used by individual hibernating bats.
Moderate	A structure with one or more potential roost sites that could be used by bats due their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost type only, such as maternity and hibernation – the categorisation described in this table is made irrespective of species conservation status, which is established after presence is confirmed.
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat. These structures have the potential to support high conservation status roosts, e.g. maternity or classic cool/stable hibernation site.

After 'Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition)', Collins (2023).

2.1.3 Passive Bat Monitoring

Bat activity surveys were carried out passively to quantify local bat activity levels, species richness and the significance of interaction within the development footprint. Full-spectrum passive bat detectors were deployed for two active bat seasons: autumn 2023 and summer 2024 (see **Table 2.4** for details).

Table 2.4. Passive bat survey summary.

Monitoring Station	Survey Period	Survey Nights
Autumn 2023		
Bat_01	11th October – 5th November 2023	25
Bat_02	11th October – 5th November 2023	25
Summer 2024		
Bat_03	9th July – 25th July 2024	16
Bat_04	9th July – 12th July 2024	3
Bat_05	9th July – 25th July 2024	16
Bat_06	9th July – 25th July 2024	16

Species identification was aided by post hoc sonogram analysis using Wildlife Acoustics' Kaleidoscope Professional software (v. 5.6.6) and British Trust for Ornithology (BTO) 'Acoustic Pipeline' sound analysis tool. Automatic identifications were manually reviewed and verified following the parameters set out in Russ (2012; 2021) and Middleton et al. (2014).

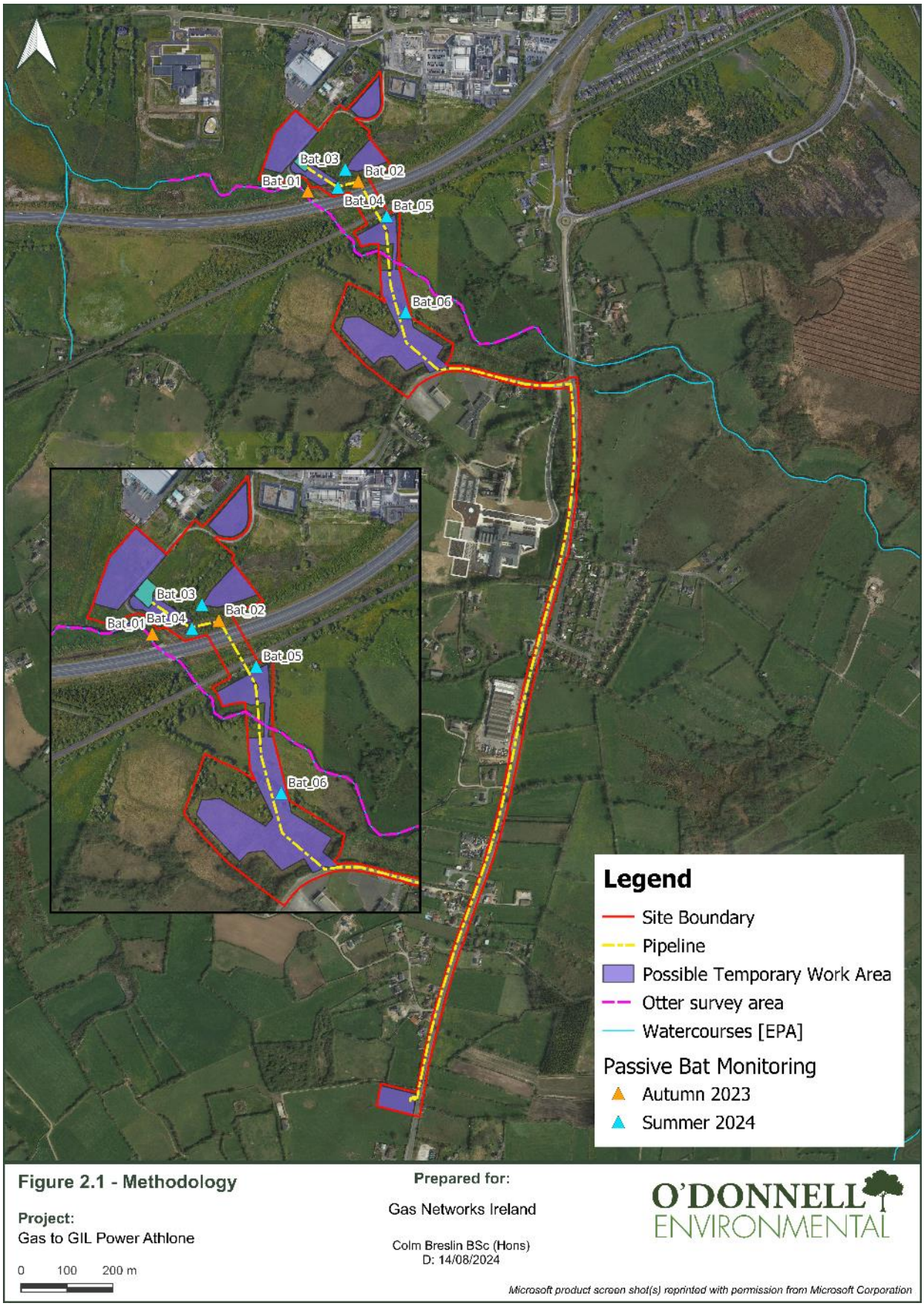
2.2 OTTER

Dedicated Otter surveys were carried out on 11th October 2023, 15th February 2024, 9th July 2024 and 25th July 2024. Surveys took place during the optimal time period and in accordance

with best practices standards (e.g. 'Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes' (NRA, 2006). Surveys aimed to identify any Otter holts within or proximal to the alignment up to a minimum of 200m upstream and downstream of the River Cross and its associated drainage channels. See **Figure 3.1** for Otter survey locations.

2.3 LIMITATIONS

All surveys took place during the optimal survey seasons and were complemented by additional site visits. Despite the railway bridge (B_02) not being directly accessible, the interior arches were clearly visible from the most proximal point along the River Cross. There is considered to be no limitations associated with the current report.


Bat_03
Bat_02
Bat_01
Bat_04
Bat_05
Bat_06
Legend
Site Boundary
Pipeline
Possible Temporary Work Area
Otter survey area
Watercourses [EPA]
Passive Bat Monitoring
Autumn 2023
Summer 2024
Figure 2.1 - Methodology
Project:
Gas to GIL Power Athlone
0 100 200 m
Prepared for:
Gas Networks Ireland
Colm Breslin BSc (Hons)
D: 14/08/2024
O'DONNELL ENVIRONMENTAL
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3 Results

The proposed development involves works spanning the River Cross, alongside drainage channels associated with the river. The proposed works area to the north consists largely of agricultural grassland with areas of marginal wet grassland which is bordered by treelines and hedgerows. A large proportion of the proposed works will take place within the R446 and L2027 public roads. The proposed development area is largely unlit and experiences minimal light pollution, with the exception of areas bordering public roadways and business parks.

3.1 BATS

3.1.1 Desktop Review

Special Areas of Conservation (SAC) and Special Protection Areas for birds (SPA) are those sites that are deemed to be of European (i.e. international) importance. They form part of a network of sites to be designated across Europe in order to protect biodiversity within the community, known as Natura 2000 sites. No internationally designated sites within 15km of the proposed development contain bats as their conservation interest and are therefore not relevant to the current assessment.

At a national level, the basic unit of conservation is the Natural Heritage Area or proposed National Heritage Area (NHA/pNHA). NHAs are designated to protect habitats, flora, fauna and geological sites of national importance. No nationally designated sites within 15km of the proposed development contain bats as their conservation interest and are therefore not relevant to the current assessment.

National Biodiversity Data Centre (NBDC) holds previous records of bat presence from within the 10km square (N04) in which the proposed site is located. A total of 6 species were recorded. These records are for:

- Brown Long-eared Bat
- Natterer's Bat
- Common Pipistrelle
- Soprano Pipistrelle
- Daubenton's Bat
- Whiskered Bat

It is important to note that an absence of other bat species records is likely reflective of a lack of surveys undertaken to date rather than absence of bat species.

The overall bat suitability index value (31.11) according to 'Model of Bat Landscapes for Ireland' (Lundy et al. 2011) suggests the landscape in which the proposed site is located is of moderate to high suitability for bats in general. Species specific scores are detailed in **Table 3.1**. The Annex II (EU Habitats Directive) listed bat species, Lesser Horseshoe Bat, is assigned a score of '3' despite being outside their known range due to the presence of suitable landscape features.

Table 3.1 - Suitability of the study area for the bat species according to 'Model of Bat Landscapes for Ireland' (Lundy et al. 2011).

Common name	Scientific name	Suitability index
All bats		*31.11*
Soprano pipistrelle	*Pipistrellus pygmaeus*	46
Brown long-eared bat	*Plecotus auritus*	39
Common pipistrelle	*Pipistrellus pipistrellus*	45
Lesser horseshoe bat	*Rhinolophus hipposideros*	3
Leisler's bat	*Nyctalus leisleri*	44
Whiskered bat	*Myotis mystacinus*	19
Daubenton's bat	*Myotis daubentonii*	32
Nathusiius pipistrelle	*Pipistrellus nauthusii*	16
Natterer's bat	*Myotis nattererii*	36

Following a data request of the BCI database on 25th March 2024, a single known roosting site is located within 10km of the proposed development. This roosting site is located within a private residence approximately 4.3km northwest of the proposed development within Athlone town. This roost is attributed to the following species: *Pipistrellus pygmaeus*, *Nyctalus leisleri*, *Myotis* spp., *Myotis natterreri*, *Pipistrellus pipistrellus*, and *Plecotus auritus*.

Collins (2023) defines the 'Core sustenance Zone' (CSZ) as the area surrounding a bat roost within which habitat availability and quality possess significant influence on the resiliency and conservation status of the roost. This metric is species-specific and can be utilised to indicate the area within which developments may impact the flight-paths and foraging habitat of bat roosts. No roosts within the BCI database and CSZs associated with each species (between 2-4km radius) overlap with the proposed development. Additionally, the identified roost is located on the other side of Athlone town and buffered by considerable associated light and noise pollution.

3.1.2 Preliminary Roost Assessment

Trees and man-made structures were surveyed within the proposed site boundary for their suitability in providing for roosting bats. Full access was provided by the client. Results are discussed separately below.

Trees

All trees within and proximal to the proposed development were surveyed from ground-level for the suitability for roosting bats. Results of ground level surveys of trees are discussed below (see **Table 3.2**) and shown in **Figure 3.1**. Due to the large number of trees surveyed, only trees showing 'PRF-I' suitability and above are shown in **Figure 3.1**. The only trees of relevance in relation to the proposed development were located at the northern end of the proposed development. The remaining trees, including those located along the R446 and L2027, were considered and no suitability for roosting was identified. The zone of influence associated with in-road laying of pipeline is considered to be limited and mostly restricted to the road corridor.

Plate 3.1 – Trees adjacent to the GIL Power Athlone Site.

The survey was non-destructive and no roosting bats were encountered during survey and no unoccupied roosts which contained signs of bats were encountered. It is considered unlikely that any tree on-site has potential for significant roosting much as maternity, but occasional roosting by individual or small number of bats is likely to occur, at least occasionally. Four trees displayed 'PRF-I' suitability for supporting individual or small numbers of bats, generally characterised by sub-optimal roosting features (see **Table 3.2**; **Figure 3.1**). Over time, the value of many of these roosting features to bats may increase.

The remaining trees displayed no roosting potential following Collins (2023), and largely took the form of early mature specimens with narrows stems and simple growth displaying no signs of damage and therefore roosting features (see **Plate 3.1** for examples). However, when considered cumulatively, these trees form a locally important network of foraging and commuting habitat within and surrounding the proposed development.

Plate 3.2 – Mature Hawthorne (Tag No. 49).

Plate 3.3 – Mature Ash (No. UT_01).

Plate 3.4 – Mature Hawthorne (Tag No. 50).

Plate 3.5 – Tree group consisting of mature Ash and Sycamore (No. UT_02).

A number of bat species, including Leisler's Bats and Soprano and Common Pipistrelles, roost in trees all year round. In winter most species roost individually, but Leisler's Bat and Soprano Pipistrelle have been recorded roosting in groups in the UK (BTHK, 2018). During the spring and summer period maternity colonies form and these roosts are of greatest conservation importance. Some bat species can roost in trees where suitable roosts are present. Leisler's Bats occasionally form maternity roosts in trees, but are normally found in buildings (Collins, 2023).

In Ireland potential bat roosting features are often associated with decay in trees. While trees of any age can contain suitable bat roosting features, typically roosts are found in mature and veteran trees. Decay in trees often begins with damage, where a limb tears off for example or where damage is caused by an external factor such as badly executed limb removal. Where trees are well maintained, from an arboriculture perspective, they often do not contain these features, and therefore typically do not present many optimal roosting opportunities for bats. Equally, young and vigorously growing trees often do not contain decay associated with rot holes, tear-outs etc. and when damage occurs the trees are generally capable of self-healing.

Table 3.2 – Bat Tree Survey Results

Tree No.	Species	PRF Survey Comment	Suitability
T_49	Hawthorne	Mature specimen with complex growth form. Narrow diameter main stems covered in dead interweaving ivy stems on northern aspect. Additional minor wounds including tear-offs due to cattle with potential to increase in roosting suitability in the future.	PRF-I
T_50	Hawthorne	Mature specimen with Thick interweaving ivy stems and Low ivy cover. Additional minor damage in the form of tear-offs and minor rot-holes of shallow depth which will increase in roosting value through time.	PRF-I
UT_01	Ash	Mature specimen bordering drainage channel. Evidence of Ash dieback disease. Dense ivy cover extending up the majority of main stem. View of PRFs at height restricted.	PRF-I
UT_02	Ash, Sycamore	Tree group consisting of two mature Ash and Sycamore specimens covered in dense ivy. View of PRFs at height restricted as a result.	PRF-I

*Note: *UT refers to untagged trees which were not safely accessible for tagging.*

Structures

Two structures, consisting of the M6 bridge and railway bridge (see **Plates 3.6-3.7**; **Figure 3.1** for locations), are present proximal to the proposed development that display suitability for roosting bats. These structures were surveyed from ground-level using binoculars and torches to identify possible roosting locations. Due to the deep and fast flowing waters of the River Cross, the interior arches of the railway bridge was not safely accessible and thus surveyed from the most proximal point along the riverbank.

The M6 bridge (B_01) consists of a single-span concrete structure that forms a part of the M6 roadway and spans the River Cross. It is located approximately 33m from the site boundary and 54m from the proposed pipeline at their nearest points. The pre-cast concrete forms provide limited suitability for roosting bats. No artificial bat roosts are present within the bridge. Mammal passes along the River Cross allowed for the assessment of interior spaces. Numerous expansion joints between concrete forms provide crevices suitable for small numbers of roosting bats. Overall, the M6 bridge presents 'low' suitability for roosting bats following Collins (2023).

The railway bridge (B_02) consists of a single-span stonework structure crossing the River Cross, forming a portion of the Midland Great Western Railway Main Line. This structure is located 22m from the site boundary and 82m from the proposed pipeline at their nearest points. Due to deep and fast-flowing waters of the River Cross, close inspection of the arches was not possible. Binoculars and high-luminosity torches were used from the most proximal point along the riverbank to assess the bridge for bat roosting suitability. Overall, the railway bridge is well-maintained and appears recently well-pointed with no obvious gaps or crevices present. However, features of roosting suitability cannot be discounted entirely. Based on available information, the railway bridge presents 'negligible' suitability for roosting bats following Collins (2023).

Plate 3.6 – M6 Bridge (B_01)

Plate 3.7 – Railway Bridge (B_02)

Plate 3.8 – M6 Bridge (B_01) with numerous longitudinal expansion joints suitable for small numbers of crevice dwelling bats. View of railway bridge in background of photo.

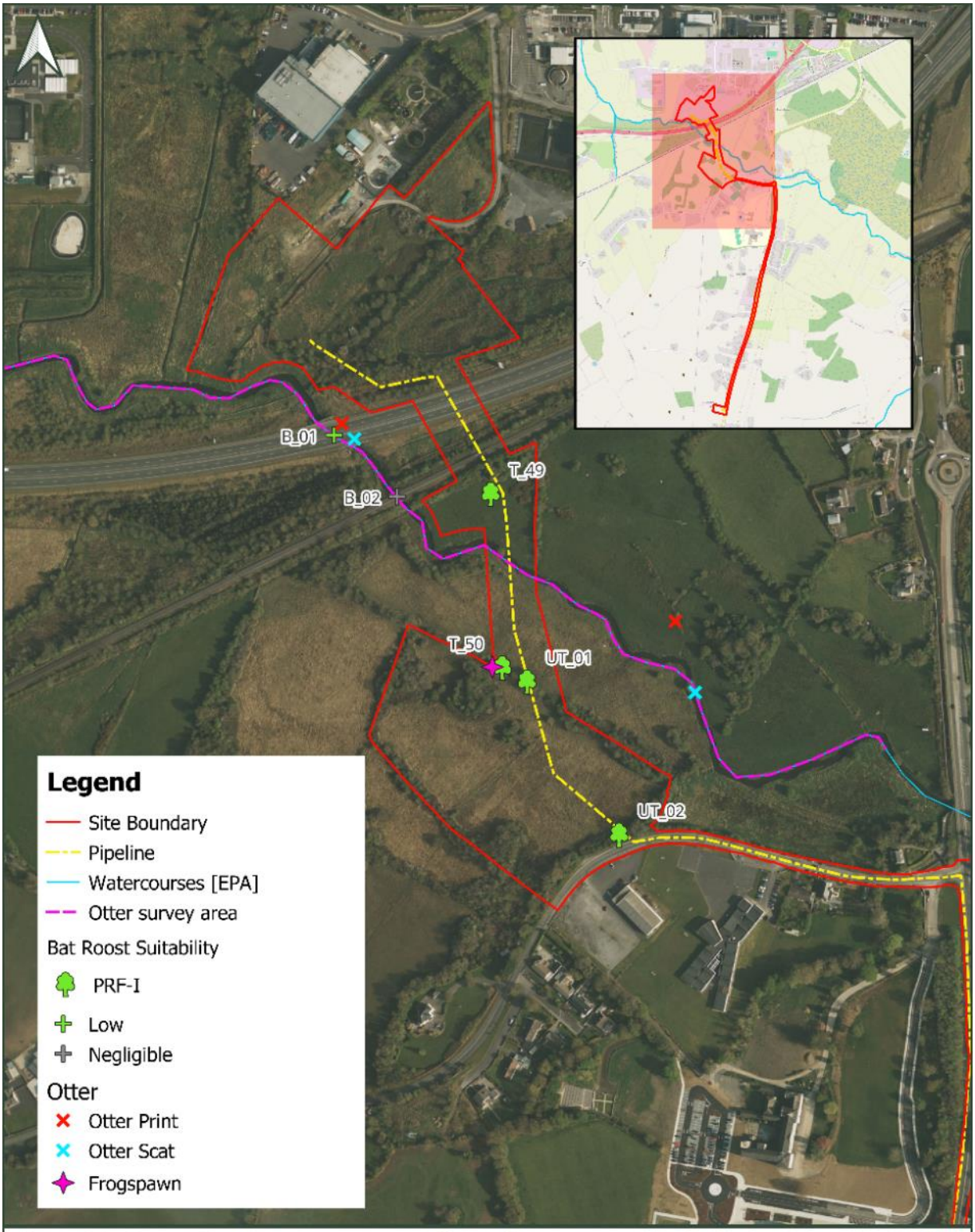

Figure 3.1 - Survey Results

Project:
Gas to GIL Power Athlone

Prepared for:
Gas Networks Ireland

Colm Breslin BSc (Hons)
D: 14/08/2024

3.1.3 Passive Bat Monitoring

Full-spectrum passive bat detectors were deployed at six monitoring stations across two survey seasons (see **Table 2.4** for details) and are discussed separately below. Overall, a relatively high level of bat activity was recorded. Of the nine confirmed Irish species known to occur nationally, seven were recorded within the proposed development; this represents a high diversity of species. The Annex II listed Lesser Horseshoe Bat was not recorded, and the proposed development is outside their current range despite the presence of suitable landscape. The full results of passive bat monitoring are presented in **Tables 3.3** and **3.4** below.

Autumn 2023

A total of seven of the nine known resident Irish bat species were recorded during the autumn 2024 survey season. The Annex II listed Lesser Horseshoe Bat was not recorded, and the proposed development is outside their current range despite the presence of suitable landscape. A total of 196 registrations were recorded across all two passive monitoring stations. The majority of these registrations were recorded at Bat_01 (65.8%), with Bat_02 making up the final 34.2% of registrations. Activity levels appear relatively inconsistent throughout the survey period with some nights showing no registrations (see **Figure 3.2**). It should be noted that this passive monitoring period took place at the end of the active bat season and likely included some poor weather nights.

The results of autumn 2023 passive bat monitoring are presented in **Table 3.3**. The majority of registrations comprised common and widespread species as would be expected in an Irish context such as Soprano Pipistrelle and Common Pipistrelle. Soprano Pipistrelle was the most commonly recorded species, accounting for 32.7% of all registrations. The majority of Soprano Pipistrelle registrations were recorded at Bat_01 (55.2%) followed by Bat_02 (44.8%). Common Pipistrelle was the next most recorded species (29.6%), with registrations approximately evenly spread between both monitoring stations. Leisler's Bat (15.3%), Daubenton's Bat (9.7%) and Natterer's Bat (8.7%) comprise the remaining majority of registrations and were mostly recorded at Bat_01. Brown Long-eared Bat and Whiskered Bat make up the final minority of registrations, accounting for 3.1% and 1% of registrations respectively.

Analysis of echolocation data did not provide any evidence of significant bat roosting proximal to the detector locations. In addition to echolocation calls, large numbers of 'feeding buzzes' were noted (indicating successful foraging) and social calls were encountered frequently throughout echolocation data analysis.

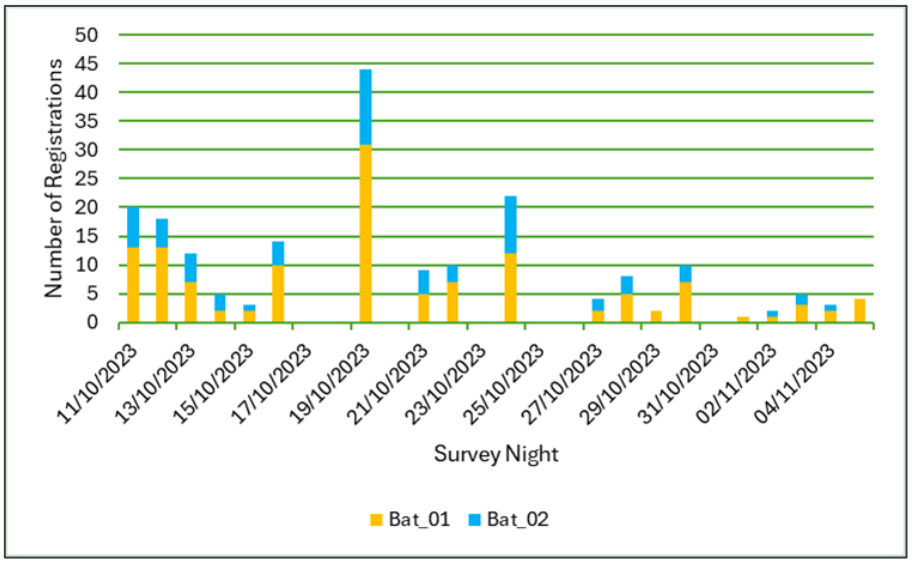

Figure 3.2 – Total number of registrations of all bat species per survey night across all two passive monitoring stations during the autumn 2023 survey season.

Summer 2024

A total of seven of the nine known resident Irish bat species were recorded during the summer 2024 survey season. The Annex II listed Lesser Horseshoe Bat was not recorded, and the proposed development is outside their current range despite the presence of suitable landscape. A total of 20,565 registrations were recorded across all four passive monitoring stations. The majority of these registrations were recorded at Bat_03 (46.9%), followed by Bat_06 (39.2%), Bat_04 (8.6%) with Bat_05 (5.4%) comprising the minority of registrations. Activity levels appear relatively inconsistent throughout the survey period (see **Figure 3.2**). It should be noted that Bat_04 only recorded for a period of three survey nights due a technical malfunction.

The results of passive bat monitoring are presented in **Table 3.4**. The majority of registrations comprised common and widespread species as would be expected in an Irish context such as Common Pipistrelle and Soprano Pipistrelle. Common Pipistrelle was the most commonly recorded species, accounting for 54% of all registrations. The majority of Common Pipistrelle registrations were recorded at Bat_03 (53.6%) followed by Bat_06 (31.9%). Soprano Pipistrelle was the next most recorded species (36.7%), with the majority of registrations occurring at Bat_06 (48.9%) followed by Bat_03 (40.6%). Leisler's Bat comprised the remaining majority of registrations (8.5%), and was largely evenly distributed between Bat_03, Bat_04 and Bat_06, with Bat_05 recording only a minority of registrations of this species. The remaining species of Brown Long-eared Bat, Daubenton's Bat, Natterer's Bat and Whiskered Bat all comprised less than 1% of the remaining registrations respectively and were largely recorded at Bat_03 and Bat_06.

When considering the average number of registrations per night across all species, bat activity was largely evenly distributed between Bat_03, Bat_04 and Bat_06, with Bat_05 consistently recording the lowest average number of registrations across all species.

The average sunset and sunrise times during the summer 2024 season were 21:48 and 05:28 respectively. Analysis of echolocation data did not provide any evidence of significant bat roosting proximal to the detector locations although a small proportion of registrations attributed to Leisler's Bat, Common Pipistrelle and Soprano Pipistrelle were recorded proximal to sunset.

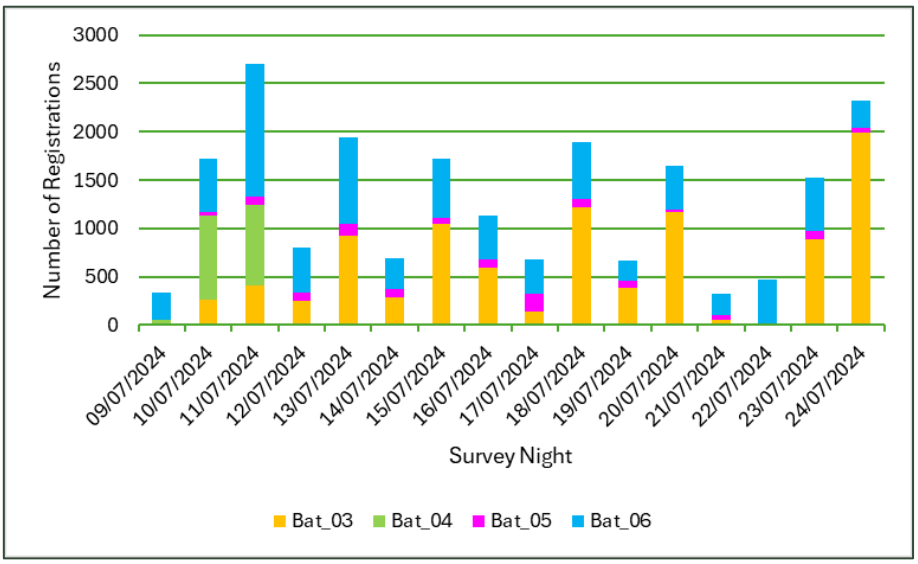

Figure 3.2 – Total number of registrations of all bat species per survey night across all four passive monitoring stations during the summer 2024 survey season.
Note: Bat_04 only recorded for three survey nights.

Considering the scale of the proposed site, the nature of the habitats contained within, the species recorded and distribution of those recordings during the survey indicate that the site is of high value for foraging and commuting bats.

Table 3.3. Autumn 2023 passive bat survey summary showing number of registrations* of each species.

Survey Night	Common Pipistrelle	Soprano Pipistrelle	Leisler's Bat	Brown Long-eared Bat	Natterer's Bat	Daubenton's Bat	Whiskered Bat
Bat_01							
11 October 2023	3	2	4	0	2	2	0
12 October 2023	4	4	4	0	0	1	0
13 October 2023	0	4	0	1	0	2	0
14 October 2023	0	1	0	0	0	1	0
15 October 2023	0	0	0	0	0	2	0
16 October 2023	0	4	1	0	1	4	0
17 October 2023	0	0	0	0	0	0	0
18 October 2023	0	0	0	0	0	0	0
19 October 2023	9	11	11	0	0	0	0
20 October 2023	0	0	0	0	0	0	0
21 October 2023	0	2	0	0	0	3	0
22 October 2023	2	2	0	0	2	1	0
23 October 2023	0	0	0	0	0	0	0
24 October 2023	2	4	2	0	3	1	0
25 October 2023	0	0	0	0	0	0	0
26 October 2023	0	0	0	0	0	0	0
27 October 2023	1	0	0	0	1	0	0
28 October 2023	3	2	0	0	0	0	0
29 October 2023	0	0	0	0	2	0	0
30 October 2023	1	2	1	0	3	0	0
01 November 2023	1	0	0	0	0	0	0
02 November 2023	1	0	0	0	0	0	0
03 November 2023	2	1	0	0	0	0	0
04 November 2023	1	0	0	0	1	0	0
05 November 2023	2	1	0	0	1	0	0

Bat_02							
11 October 2023	1	2	4	0	0	0	0
12 October 2023	3	2	0	0	0	0	0
13 October 2023	0	3	0	1	0	1	0
14 October 2023	0	1	1	1	0	0	0
15 October 2023	0	0	0	1	0	0	0
16 October 2023	1	1	0	0	0	1	1
17 October 2023	0	0	0	0	0	0	0
18 October 2023	0	0	0	0	0	0	0
19 October 2023	7	4	2	0	0	0	0
20 October 2023	0	0	0	0	0	0	0
21 October 2023	0	2	0	1	0	0	1
22 October 2023	2	1	0	0	0	0	0
23 October 2023	0	0	0	0	0	0	0
24 October 2023	3	6	0	1	0	0	0
25 October 2023	0	0	0	0	0	0	0
26 October 2023	0	0	0	0	0	0	0
27 October 2023	2	0	0	0	0	0	0
28 October 2023	3	0	0	0	0	0	0
29 October 2023	0	0	0	0	0	0	0
30 October 2023	2	0	0	0	1	0	0
01 November 2023	0	0	0	0	0	0	0
02 November 2023	0	1	0	0	0	0	0
03 November 2023	1	1	0	0	0	0	0
04 November 2023	1	0	0	0	0	0	0
05 November 2023	0	0	0	0	0	0	0

*Note: *Registration is defined as the presence of a bat species within a recording of up to 15 seconds.*

Table 3.4. Summer 2024 passive bat survey summary showing number of registrations* of each species.

Survey Night	Common Pipistrelle	Soprano Pipistrelle	Leisler's Bat	Brown Long-eared Bat	Natterer's Bat	Daubenton's Bat	Whiskered Bat
Bat_03							
10 July 2024	209	*43*	5	0	0	0	0
11 July 2024	316	*79*	19	0	0	0	0
12 July 2024	149	*81*	21	1	0	0	0
13 July 2024	471	*288*	168	1	0	1	1
14 July 2024	108	*101*	77	0	0	0	0
15 July 2024	720	*227*	98	1	1	1	0
16 July 2024	465	*116*	14	0	0	0	1
17 July 2024	29	*101*	6	1	0	0	0
18 July 2024	480	*691*	34	2	0	5	3
19 July 2024	237	*139*	14	0	0	0	0
20 July 2024	1014	*146*	3	0	0	2	0
21 July 2024	26	*27*	5	0	0	0	0
22 July 2024	1	*0*	8	0	0	0	0
23 July 2024	588	*195*	97	0	0	0	2
24 July 2024	1134	*832*	24	0	0	3	2
Bat_04							
09 July 2024	41	12	2	0	1	1	0
10 July 2024	525	319	5	2	22	0	0
11 July 2024	620	180	17	3	13	0	0
Bat_05							
10 July 2024	23	9	5	2	1	0	0
11 July 2024	36	20	31	0	0	0	0
12 July 2024	23	10	46	2	0	0	0
13 July 2024	22	30	60	4	0	0	0
14 July 2024	33	15	32	0	6	0	0
15 July 2024	17	14	26	0	0	0	0

16 July 2024	39	26	15	1	0	0	0
17 July 2024	105	34	52	0	0	0	0
18 July 2024	34	23	28	1	7	0	0
19 July 2024	32	21	15	0	1	0	0
20 July 2024	10	14	2	0	0	0	0
21 July 2024	16	12	13	1	1	0	0
22 July 2024	0	0	2	0	0	0	0
23 July 2024	32	29	29	0	1	0	0
24 July 2024	9	21	17	2	0	0	0
Bat_06							
09 July 2024	65	190	14	4	0	1	0
10 July 2024	158	374	14	1	0	1	0
11 July 2024	758	526	79	0	1	5	0
12 July 2024	198	227	44	0	0	2	0
13 July 2024	454	323	117	2	1	0	0
14 July 2024	142	112	56	2	1	1	0
15 July 2024	194	350	69	5	0	3	0
16 July 2024	154	255	43	2	1	2	0
17 July 2024	85	212	49	4	0	1	0
18 July 2024	248	247	83	1	0	1	0
19 July 2024	56	124	24	3	0	3	2
20 July 2024	258	163	34	2	0	2	0
21 July 2024	109	81	25	2	0	1	0
22 July 2024	256	176	19	1	0	4	0
23 July 2024	284	209	54	3	0	1	0
24 July 2024	118	127	28	2	0	2	0

*Note: *Registration is defined as the presence of a bat species within a recording of up to 15 seconds.*

3.2 OTTER

The desk study revealed two relevant internationally designated sites with Otter listed as a qualifying interest: Lough Ree SAC (0440) located 2.64km northeast and River Shannon Callows SAC (0216) located 1.55km east of the proposed development. Both sites are connected hydrologically via the River Cross and it is considered likely that individuals associated with these designated sites utilise the area surrounding the proposed development at least occasionally.

No evidence of Otter holts was identified along the watercourses surveyed as part of the proposed development. The primary watercourse, the River Cross was largely characterised by steep banks comprised of rank grassland and dense vegetation extending right up to the riverside (see **Plate 3.9**). Additionally, the River Cross appears to periodically inundate the surrounding area during periods of inclement weather. Considering the riverbank structure and periodic high-water levels resulting in inundation of the riverbanks, the portion of the River Cross surveyed as part of the proposed development is considered generally unsuitable for the formation of Otter holts.

Multiple mammal tracks were identified along the mammal underpass associated with the M6 bridge and a drainage channel associated with the River Cross, of which a portion were attributed to Otter (see **Plate 3.11**). Scat in the form of Otter spraint was identified in two locations: along the mammal underpass and along the River Cross, both of which are located outside the development boundary (see **Plate 3.10**). For locations of tracks and scat associated with Otter, see **Figure 3.1**.

Despite the lack of evidence of underground dwellings attributed to Otter, the River Cross is considered to provide suitable foraging and commuting habitat for Otter and the species is likely to regularly occur here.

Plate 3.9 – View of the River Cross with the M6 bridge within the background showing dense vegetation extending right up to the riverbank.

Plate 3.10 – Otter spraint on banks of the M6 mammal underpass.

Plate 3.11 – Otter tracks located on the banks of the M6 mammal underpass.

3.3 OTHER TAXA

Incidental sightings of other taxa outside the scope of this report were noted where relevant. Abundant frogspawn was identified within a drainage ditch associated with the River Cross (see **Figure 3.1** for location; **Plate 3.12**).

Plate 3.12 – Frog Spawn noted in drainage ditch proximal to works area in February 2024 (see **Figure 3.1**).

4 Potential Impacts

Potential ecological impacts which could arise as a result of the proposed development are discussed below. Avoidance and mitigation measures in respect of identified potential impacts are discussed in Chapter 5 - Avoidance and Mitigation Measures. The predicted residual impact of identified potential impacts following application of avoidance and mitigation measures are discussed in Chapter 6 - Residual Impacts.

4.1 BATS

The construction phase will likely result in the loss of vegetation including linear features such as treelines and hedgerows. Additionally, lone-standing trees may need to be removed to facilitate excavation works. An ecological assessment of those trees which will likely be removed as a result of the proposed development was carried out, and no evidence was recorded of the use of the trees by bats. Four trees (No. T_49, T_50, UT_01, UT_02) were identified to have 'PRF-I' suitability for roosting bats and therefore may periodically support individual or small numbers of bats (see **Figure 3.1** and **Table 3.2**). All remaining trees surveyed were considered to show no features suitable for potential roosting opportunities.

Vegetation removal and illumination of retained vegetation will impact foraging and commuting bats that use hedgerows and other similar features. Hedgerows and treelines maintain landscape connectivity and provide commuting bats with waypoints and corridors through which they commute to and from roosts/foraging areas. The loss of these linear hedgerow features on site will cause a reduction in landscape connectivity in the immediate vicinity of the proposed site.

Inappropriate or excessive illumination of hedgerow areas at night can cause disturbance to roosting, commuting and foraging bats. Artificial lighting is thought to increase the chances of bats being predated upon by avian predators (e.g. owls), and therefore bats may modify their behaviour to avoid illuminated areas. The oCEMP (AWN, 2024) outlines hours of work and site lighting during the construction phase of the development. No night works are proposed. No construction lighting is proposed, except in the winter months when deemed necessary for safety.

The use of heavy machinery in the root zone of trees can cause damage to nearby treeline features and lone-standing trees (see **Figure 3.1**), resulting in increased tree morbidity and mortality. Equally, the use of machinery in proximity to trees can result in accidental damage to the trunk and branches of trees. In the medium and long terms this could result in the death of trees which provide bat roosting opportunities.

Relative to the construction stage, no additional habitat loss will occur during the operational phase. Additionally, no lighting is proposed for the operational phase of the proposed development.

The overall effect on bats as a result of the construction phase of the proposed development in the absence of mitigation is considered to be a **temporary, slight, negative effect** at the local level (following EPA, 2022). The overall effect on bats in the operation phase is considered to be **neutral**.

4.2 OTTERS

No evidence of Otter holts or other protected mammal dwellings were present within or proximal to the development boundary. Evidence of Otter usage in the surrounding area was identified, with two areas of prints and two areas of scat identified. It is likely that Otter utilise the area within and surrounding the proposed development at least periodically, especially in relation to the River Cross. Any loss of trees, hedgerow and earthen bank habitat, alongside artificial lighting will cause a reduction in the suitability of the site and its surroundings for foraging and commuting Otter.

Construction works and site clearance likely will cause some local displacement of Otter as a result of noise. Deep excavations can potentially entrap Otter and other mammals commuting across the site. During construction, should there be pooled water in any excavations there is potential for drowning. Inappropriate or excessive lighting during the construction phase can cause disturbance to mammals at night. The inappropriate disposal of food wastes during the construction phase can encourage scavenging by mammals (and birds) at the site.

Localised increases in noise and dust levels are likely to occur during the construction phase. In the absence of mitigation, these impacts could give rise to indirect negative impacts on Otter and associated watercourses present in the local environment. Noise will occur through the operation of machinery (excavation, pile driving, etc.). Dust may arise during construction works if dry soil or other material is allowed to become windborne.

The overall effect on Otter as a result of the construction phase of the proposed development in the absence of mitigation is considered to be a **temporary, slight, negative effect** at the local level (following EPA, 2022). The overall effect on bats in the operation phase is considered to be **neutral**.

5 Mitigation Measures

5.1 BATS

The majority of trees surveyed on the proposed development site displayed 'negligible' roosting potential for bats, except four trees (No. T_49, T_50, UT_01, UT_02) displaying 'PRF-I' suitability for roosting bats and therefore may periodically support individual or small numbers of bats (see **Figure 3.1** and **Table 3.2**). These trees 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.

Based on current information, no derogation license is required to facilitate the works. In the event that a bat roost is discovered during pre-construction surveys such that they may be disturbed by the proposed works, 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.

During construction, works will generally take place during daylight hours only. If some lighting is required for health, safety or security reasons, it shall be directed away from sensitive ecological features such as the River Cross and surrounding treelines and hedgerows. These measures are considered sufficient to minimise any adverse impacts on roosting, commuting and foraging bats in the construction phase.

5.2 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 on both sides. Basic housekeeping measures will be implemented including the proper use and daily emptying of bins.

Standard surface water control measures as outlined in CIRIA (2001) and the oCEMP (AWN, 2024) are considered are considered sufficient to avoid any indirect impacts on foraging and commuting Otter as a result of surface water contamination. The proposed development sought to mitigate-by-design where possible any potential impacts on surface water. Trenchless drilling will be utilised when crossing watercourses such as the River Cross with appropriate setback distances.

During construction, works will generally take place during daylight hours only. If some lighting is required for health, safety or security reasons, it shall be directed away from sensitive ecological features such as the River Cross and its riparian habitat. These measures are considered sufficient to minimise any adverse impacts on roosting, commuting and foraging bats in the construction phase. These measures are considered sufficient to minimise any adverse impacts on commuting and foraging Otter in the construction phase.

Due to the scale of the proposed site and the nature of the habitats contained within, the site is of moderate value for its non-volant mammal assemblage. However, a pre-construction survey will be carried out to ensure that the baseline conditions are presented in the current report remain valid. Following CIEEM guidance[2], mammal surveys have a validity period of 12 to 18 months

5.3 OTHER TAXA

Any ponding water, including drainage ditches associated with the River Cross, such as the area identified in **Figure 3.1** will be inspected regularly by the Environmental Manager for the presence of frogspawn during the relevant season. If frog spawn is found to be present and likely to be disturbed by the proposed works, a licence from NPWS will be sought prior to moving to a suitable location locally.

[2] https://cieem.net/wp-content/uploads/2019/04/Advice-Note.pdf

6 Residual Impacts

Considering the application of the proposed mitigation measures the overall residual effect of the proposed development on bats and Otter will be **slight negative** during the construction phase and considered to be **neutral** thereafter.

7 References

Bat Conservation Trust (2018). Bats and Artificial Lighting in the UK. Guidance note 08/18.

Bat Conservation Ireland (2010). Bats and Lighting. Guidance Notes for: Planners, engineers, architects and developers.

Boldogh, S., D. Dobrosi & P. Samu (2007). The effects of the illumination of buildings on house-dwelling bats and its conservation consequences. Acta Chiropterologica 9, 527–534.

BTHK (2018). Bat Roosts in Trees – A Guide to Identification and Assessment for Tree-Care and Ecology Professionals. Exeter: Pelagic Pblishing.

Collins J. (Ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). The Bat Conservation Trust, London.

Collins J. (Ed.) (2023). Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). The Bat Conservation Trust, London.

Downs, N.C., Beaton, V., Guest, J., Polanski, J., Robinson, S.L. and Racey, P.A., 2003. The effects of illuminating the roost entrance on the emergence behaviour of Pipistrellus pygmaeus. Biological Conservation, 111(2), pp.247-252.

Duvergé P.L., Jones G., Rydell J., Ransome R.D. (2000). Functional significance of emergence timing in bats. Ecography, 23: 32-40.

EPA (2022). Guidelines on the Information to be Contained in Environmental Impact Assessment Reports.

Jones, G., Rydell, J. (1994). Foraging strategy and predation risk as factors influencing emergence time in echolocating bats. Philos. T. R. Soc. B. 346, 445–455.

Kelleher, C. & Marnell, F. (2006). Bat Mitigation Guidelines for Ireland. Irish Wildlife Manual No. 25.

Lundy, M.G., Aughney, T., Montgomery, W.I. & Roche, N. (2011). Landscape Conservation for Irish Bats & Species-Specific Roosting Characteristics. Bat Conservation Ireland.

NRA, 2006a. Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes. Dublin: National Roads Authority.

NRA (National Roads Authority, now TII). (2009). Guidelines for Assessment of Ecological Impacts of National Roads Schemes. Revision 2, 1st June 2009. NRA, Dublin.

Waters, D., Jones, G., & Furlong, M. (1999). Foraging ecology of Leisler's bat (*Nyctalus leisleri*) at two sites in southern Britain. Journal of Zoology, 249(2), 173-180.

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