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Appropriate Assessment Screening & Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for a Proposed Gas Networks Ireland (GNI) Edenderry Gas Pipeline Development near Edenderry, Co. Offaly.

1st May 2026

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On behalf of: Gas Networks Ireland.

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Document Control Sheet			
Project	Appropriate Assessment Screening & Natura Impact Statement - Information for a Stage 1 (AA Screening) and Stage 2 (Natura Impact Statement) AA for a proposed Gas Networks Ireland (GNI) Edenderry Gas Pipeline development near Edenderry, Co. Offaly.		
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1 Introduction

The following Appropriate Assessment (AA) (Screening Stage) and Natura Impact Statement has been prepared by **Altemar Ltd.** at the request of Gas Networks Ireland (GNI). The project relates to a Proposed Development, which comprises the construction, commissioning, and operation of the c. 23.65-kilometre (km) GNI 143 Ballykilleen Pipeline and all ancillary and associated temporary works. The proposed GNI 143 Ballykilleen Pipeline is designed to connect the existing BGE77 pipeline (also known as Pipeline to the West (PTTW)) to the Edenderry Renewable Energy Complex. The purpose of this project is to supply the proposed new gas-fired power station.

An Appropriate Assessment is an assessment of the potential effects of a proposed project or plan, on its own, or in combination with other plans or projects, on one or more NATURA 2000 (hereafter referred to as European sites)[1] Natura 2000 sites are those sites designated as Special Areas of Conservation (SAC) or Special Protection Areas (SPA).

This AA Screening and Natura Impact Statement examines whether the plan or project, either alone, or in combination with other plans and projects, in the view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European sites.

1.1 Altemar Ltd.

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include residential, infrastructural, renewable, oil & gas, private industry, local authorities, EC projects and State/semi-State Departments. Bryan Deegan is the managing director of Altemar. Bryan is an environmental scientist and marine biologist with 31 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture). This report has also been prepared by ecologist, Jeff Boyle, BSc. (Hons) Environmental Management. Jeff has worked with multi-disciplinary teams including planners, architects and engineers in the preparation of numerous statutory environmental reports. These include Appropriate Assessment Screenings & Natura Impact Statements (NIS), Ecological Impact Assessments (EcIA), Preliminary Ecological Appraisals (PEA), Biodiversity chapters of Environmental Impact Assessment Reports (EIAR) and Bat/Mammal/Flora/Invasive Species reports.

[1] The Natura 2000 network is a European network of important ecological sites, as defined under Article 3 of the Habitats Directive 92/43/EEC, which comprises both special areas of conservation and special protection areas. Special conservation areas are sites hosting the natural habitat types listed in Annex I, and habitats of the species listed in Annex II, of the Habitats Directive, and are established under the Habitats Directive itself. Special protection areas are established under Article 4 of the Birds Directive 2009/147/EC for the protection of endangered species of wild birds. The aim of the network is to aid the long-term survival of Europe's most valuable and threatened species and habitats.
In Ireland these sites are designed as European sites - defined under the Planning Acts and/or the Birds and Habitats Regulations as (a) a candidate site of Community importance, (b) a site of Community importance, (c) a candidate special area of conservation, (d) a special area of conservation, (e) a candidate special protection area, or (f) a special protection area. They are commonly referred to in Ireland as Special Areas of Conservation (SACs) and Special Protection Areas (SPAs).

2 Methodology

2.1 Guidance

This Appropriate Assessment Screening Report has been prepared with regard to the following guidance documents, as relevant:

2.1.1 European Commission Guidance

- Assessment of Plans and Projects in Relation to Natura 2000 sites: Methodological Guidance on Article 6(3) and (4) of the Habitats Directive 92/43/EEC (European Commission, 2021);
- Managing Natura 2000 Sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC (European Commission, 2019);
- 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 Interest, Compensatory Measures, Overall Coherence. Opinion of the European Commission (European Commission January 2007, updated 2012);
- Communication from the Commission on the Precautionary Principle (European Commission 2000)[2];
- Nature and Biodiversity Cases – Ruling of the European Court of Justice (European Commission 2006); and
- Article 6 of the Habitats Directive – Rulings of the European Court of Justice (European Commission Final Draft September 2014).
- 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 interest, compensatory measures, overall coherence, opinion of the commission;

2.1.2 Irish Guidance

- OPR Practice Note PN01. Appropriate Assessment Screening for Development Management (Office of the Planning Regulator, 2021);
- Applications for Approval for Local Authority Developments made to An Bord Pleanála under 177AE of the Planning and Development Act, 2000, as amended (Appropriate Assessment) – Guidelines for Local Authorities (An Bord Pleanála, 2013);
- Appropriate Assessment of Plans and Projects in Ireland – Guidance for Planning Authorities (Department of Environment, Heritage and Local Government 2010 revision); and
- Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities. Circular NPW 1/10 & PSSP 2/10 (NPWS, 2010).

2.1.3 UK Guidance

- Sustainability and Environmental Appraisal LA 115 Habitats Regulations assessment (formerly HD 44/09) (Design Manual for Roads and Bridges, UK Highways Agency September 2019); and
- Habitat Regulations Assessment Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects Version 8 (The Planning Inspectorate, November 2017).

2.1.4 Other International Guidance

- Methodological Guideline for Impact Assessment of Transportation Infrastructure Significantly Affecting Natura 2000 Sites – Guidance on the provisions of Article 6(3, 4) of the Habitats Directive (Federal Ministry of Transport, Building and Housing of the Federal Republic of Germany 2004).

[2] The precautionary principle is a guiding principle that derives from Article 191 of the Treaty on the Functioning of the European Union and has been developed in the case law of the European Court of Justice (e.g. ECJ case C-127/02 – Waddenzee, Netherlands).
This guidance document notes that the precautionary principle "covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection".
Applying the precautionary principle in the context of screening for appropriate assessment requires that where there is uncertainty or doubt about the risk of significant effects on a European site(s), it should be assumed that significant effects are likely, and AA must be carried out.

In addition, the following guidance has informed the approach to characterising impacts, including determining magnitude and significance of impacts, as relevant in the application to Appropriate Assessment and European sites:

- Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Assessment, 2018);
- Guidelines on the Information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Environmental Guidelines Series for Planning and Construction of National Roads (National Roads Authority, 2005-2009); and
- A guide to the assessment of air quality impacts on designated nature conservation sites (Institute of Air Quality management, 2020)

2.2 Background to the Appropriate Assessment

The Habitats Directive 92/43/EEC (together with the Birds Directive (2009/147/EC)) forms the cornerstone of Europe's nature conservation policy. The Directive protects over 1000 animals and plant species and over 200 "habitat types" which are of European importance. In the Habitats Directive, Articles 3 to 9 provide the legislative means to protect habitats and species of European Community interest through the establishment and conservation of an EU-wide network of conservation sites (NATURA, 2000). These are Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) designated under the Birds Directive), Article 6(3) and 6(4) of the Habitats Directive set out the decision-making tests for plans and projects likely to affect European sites (Annex 1.1). Article 6(3) establishes the requirement for Appropriate Assessment:

"Any plan or project not directly connected with or necessary to the management of the [NATURA 2000] site but likely to have a significant effect thereon, either individually or in combination with other plans and projects, shall be subjected to appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment of the implication for the site and subject to the provisions of paragraph 4, the component national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

As outlined in "Managing European sites, The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC" (European Commission, 21 November 2018) *"The purpose of the appropriate assessment is to assess the implications of the plan or project in respect of the site's conservation objectives, either individually or in combination with other plans or projects. The conclusions should enable the competent authorities to ascertain whether the plan or project will adversely affect the integrity of the site concerned. The focus of the appropriate assessment is therefore specifically on the species and/or the habitats for which the European site is designated."*

As outlined in the EC guidance document on Article 6(4) (January 2007)[3]:

"Appropriate assessments of the implications of the plan or project for the site concerned must precede its approval and take into account the cumulative effects which result from the combination of that plan or project with other plans or projects in view of the site's conservation objectives. This implies that all aspects of the plan or project which can, either individually or in combination with other plans or projects, affect those objectives must be identified in the light of the best scientific knowledge in the field.

Assessment procedures of plans or projects likely to affect European sites should guarantee full consideration of all elements contributing to the site integrity and to the overall coherence of the network, both in the definition of the baseline conditions and in the stages leading to identification of potential impacts, mitigation measures and residual impacts. These determine what has to be compensated, both in quality and quantity. Regardless of whether the provisions of Article 6(3) are delivered following existing environmental impact assessment procedures or other specific methods, it must be ensured that:

- *Article 6(3) assessment results allow full traceability of the decisions eventually made, including the selection of alternatives and any imperative reasons of overriding public interest.*

[3] 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 interest, compensatory measures, overall coherence, opinion of the commission;

- *The assessment should include all elements contributing to the site's integrity and to the overall coherence of the network as defined in the site's conservation objectives and Standard Data Form, and be based on best available scientific knowledge in the field. The information required should be updated and could include the following issues:*
    - *Structure and function, and the respective role of the site's ecological assets;*
    - *Area, representativity and conservation status of the priority and nonpriority habitats in the site;*
    - *Population size, degree of isolation, ecotype, genetic pool, age class structure, and conservation status of species under Annex II of the Habitats Directive or Annex I of the Birds Directive present in the site;*
    - *Role of the site within the biographical region and in the coherence of the European network; and,*
    - *Any other ecological assets and functions identified in the site.*
- *It should include a comprehensive identification of all the potential impacts of the plan or project likely to be significant on the site, taking into account cumulative impacts and other impacts likely to arise as a result of the combined action of the plan or project under assessment and other plans or projects.*
- *The assessment under Article 6(3) applies the best available techniques and methods, to estimate the extent of the effects of the plan or project on the biological integrity of the site(s) likely to be damaged.*
- *The assessment provides for the incorporation of the most effective mitigation measures into the plan or project concerned, in order to avoid, reduce or even cancel the negative impacts on the site.*
- *The characterisation of the biological integrity and the impact assessment should be based on the best possible indicators specific to the European assets which must also be useful to monitor the plan or project implementation."*

2.3 Assessment Methodology

The above referenced guidance sets out a staged process for carrying out Appropriate Assessment. To determine if an Appropriate Assessment is required, documented screening is required. Screening identifies the potential for effects on the conservation objectives of European sites, if any, which would arise from a proposed plan or project, either alone or in combination with other plans and projects (i.e. likely significant effects).

Significant effects on a European site are those that would undermine the conservation objectives supporting the favourable conservation condition of the Qualifying Interest (QI) habitats and/or the QI/Special Conservation Interest (SCI) species of a European site(s). In order to comply with the above Guidelines and legislation, the Appropriate Assessment process must be structured as follows:

1) Screening stage:
    - Description of plan or project, and local site or plan area characteristics;
    - Identification of relevant European sites, and compilation of information on their qualifying interests and conservation objectives
    - Identification and description of individual in combination effects likely to result from the proposed project;
    - Assessment of the likely significance of the effects identified above. Exclusion of sites where it can be objectively concluded that there will be no likely significant effects; and,

      Conclusions
2) Appropriate Assessment (Natura Impact Statement):
    - Description of the European sites that will be considered further;
    - Identification and description of potential adverse impacts on the conservation objectives of these sites likely to occur from the project or plan; and,
    - Mitigation Measures that will be implemented to avoid, reduce or remedy any such potential adverse impacts
    - Assessment as to whether, following the implementation of the proposed mitigation measures, it can be concluded, beyond all reasonable scientific doubt, that there will be no adverse impact on the integrity of the relevant European Site in light of its conservation objectives"
    - Conclusions.

If it can be demonstrated during the AA screening phase (Stage 1), that the proposed project will not have a significant effect, whether alone or in combination with other plans or projects, on the conservation objectives of a Natura 2000 site, then no further AA (Stage 2) will be required. In addition, Article 6(3) of the Habitats Directive should be interpreted to mean that, when deciding at the screening stage whether a full Appropriate Assessment (AA) is required for a plan or project, measures intended to avoid or reduce harmful effects on the site must not be considered.

In establishing which European sites are potentially at risk (in the absence of mitigation) from the proposed Project, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its QI(s) or SCI(s)[4]), and a pathway between the source and the receptor (e.g. pathway by air for airborne pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.

The identification of source-pathway-receptor connection(s) between the proposed Project and European sites essentially is the process of identifying which European sites are within the Zone of Influence (ZoI) of the proposed Project, and therefore potentially at risk of significant effects. The ZoI is the area over which the proposed Project

[4] The term qualifying interest is used when referring to the habitats or species for which an SAC is designated; the term special conservation interest is used when referring to the bird species (or wetland habitats) for which an SPA is designated.

could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives[5].

The identification of a source-pathway-receptor link does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g., extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for airborne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs).

The 'likely significant effects' test is based on the precautionary principle[6]. The precautionary principle means that, based on the most reliable available information, where there is uncertainty or doubt as to the absence of significant effects, the project cannot be screened out and an appropriate assessment must be carried out.

2.4 Desktop Data Review

The desktop data sources used to inform the assessment presented in this report are as follows:

- Online data available on European sites and protected habitats/species as held by the National Parks and Wildlife Service (NPWS) from www.npws.ie, including conservation objectives documents
- Online data available on protected species as held by the National Biodiversity Data Centre (NBDC) from www. biodiversityireland.ie
- Information on the surface water network and surface water quality in the area available from www.epa.ie
- Information on groundwater resources and groundwater quality in the area available from www.epa.ie and www.gsi.ie
- Ordnance Survey of Ireland mapping and aerial photography available from www.osi.ie
- Information on the location, nature and design of the proposed development supplied by the applicant's design team.

2.5 Baseline Ecological Surveys

2.5.1 Ecological Surveys

This section provides an outline of the various ecological survey methodologies used to collate baseline ecological information in the preparation of this report. A summary of the ecological surveys undertaken to inform the preparation of this AA Screening report are provided in Table 1 and include: habitat surveys; the assessment of the biological water quality status of watercourses within the proposed pipeline route; surveys for the presence or signs of terrestrial, mobile Annex II species (i.e. otter *Lutra lutra*); and, surveys for Special Conservation Interest bird species. Additional fisheries surveys (i.e. electro-fishing and habitat suitability assessments for salmonid and lamprey species) and macroinvertebrate surveys (e.g. white-clawed crayfish (*Austropotamobius pallipes*)) were undertaken at the proposed crossing points of the proposed Project.

The ecological surveys were designed based upon the characteristics of the Proposed Development and its likely significant impacts on the baseline environment during construction and/or operation.

[5] As defined in the Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2018)

[6] The precautionary principle is a guiding principle that derives from Article 191 of the Treaty on the Functioning of the European Union and has been developed in the case law of the European Court of Justice (e.g., ECJ case C-127/02 – Waddenzee, Netherlands).
The guidance document Communication from the Commission on the Precautionary Principle (European Commission, 2000) notes that the precautionary principle "covers those specific circumstances where scientific evidence is insufficient, inconclusive or uncertain and there are indications through preliminary objective scientific evaluation that there are reasonable grounds for concern that the potentially dangerous effects on the environment, human, animal or plant health may be inconsistent with the chosen level of protection".
Applying the precautionary principle in the context of screening for appropriate assessment requires that where there is uncertainty or doubt about the risk of significant effects on a European site(s), it should be assumed that significant effects are possible and AA must be carried out.

Table 1. Ecological Surveys and survey dates undertaken for the proposed project

Survey Type	Surveyors	Survey Dates
Habitat & Flora (including invasive species)	Altemar Ltd.	16th of April, 9th-12th of June, and the 21st of August 2025.
Mammal Survey	Altemar Ltd.	14th of October 2024, 9th, 17th of December 2024, the 20th,21st, 29thand 30th of January, the 4th,5th,10th, 14th and 18th of February and the 11th and 18th of March 2025, 13th – 15th & 20th – 22nd January 2026, 12th February 2026.
Bat Survey (Emergence & re-entry, Identification of potential tree roosts)	Altemar Ltd.	9th/17th December 2024, 20th/21st/28th/29th January 2025, 4th/5th/10th/14th/18th February 2025 & 21st to 25th July 2025, 13th – 15th & 20th – 22nd January 2026.
Baseline Fisheries Assessment	Triturus Environmental Ltd.	22nd & 23rd of July, 5th of August 2025
Aquatic Baseline Report	Triturus Environmental Ltd.	22nd & 23rd of July, 5th of August 2025
Ornithological Surveys (Breeding bird)	Altemar Ltd	9th-12th of June 2025

2.5.2 Study Area

While the main focus of biodiversity was on the Proposed Development site within the EIAR boundary (which forms the overall site outline for this AA Screening as indicated by red outline in Figure 1), the surrounding environment up to 150m from the EIAR boundary (as recommended in the Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes, TII , 2006) was taken into account, in addition to potential biological and hydrological connectivity in relation to European sites in a Zone of Influence (ZoI) which is detailed further in Section 4 below.

2.5.2.1 Habitat and Flora Surveys

Coverage included the area within and immediately adjacent (up to 150m) to the Proposed Development site (Figure 1) where sensitive habitats could be directly or indirectly affected during construction/operation. The study area of this assessment included the Proposed Development and extended linear searches along field boundaries (e.g. hedgerows, treelines, ditches, watercourses etc.) and up to 150m outside the EIAR boundary (area inclusive of Proposed Development area along pipeline route considered by EIAR) for potential ecological constraints.

Rare and protected flora were included in the surveys.

2.5.2.2 Fauna Surveys

Various habitats of high non-volant mammal potential were present within and adjacent to the Proposed Development's EIAR boundary and surrounding area. These habitats include scrub, drainage ditches, grassland hedgerows, woodland and treelines throughout the survey area. Therefore, mammal surveys were commissioned to determine the potential impact of the Proposed Development on mammals.

Survey coverage included all areas within, immediately adjacent to, and up to 150m from the Proposed Development EIAR boundary where fauna species could be directly or indirectly affected during construction/operation.

2.5.2.3 Ornithological Surveys – Breeding Birds

A desk and ground level breeding habitat assessment identified multiple habitats that could provide breeding habitat. Areas of high breeding bird potential included hedgerows, treelines, mature trees, scrub, riparian/drainage ditch vegetation and grassland present throughout and adjacent to the proposed development EIAR boundary.

Due to the scale of the ZoI of the Proposed Development (Figure 1), breeding bird surveys were carried out covering the area within and immediately adjacent, and up to 150m from the Proposed Development footprint where nesting bird species, and their associated breeding habitat, could be directly or indirectly affected during construction/operation.

All wild birds, and their nests and eggs, are protected under the Wildlife Acts. Some bird species are also listed on Annex I of the Birds Directive, and / or as SCIs within designated European sites.

2.5.2.4 Bat Surveys

Desk based studies identified multiple habitats of potential value for bat species foraging, roosting and/or commuting bats (e.g. bridges, hedgerows, treelines, woodland, watercourses) within the ZoI. Surveys were conducted covering all areas within, immediately adjacent, and up to 150m to the Proposed development Boundary to identify and grade features of bat roost potential which may be directly or indirectly affected during construction/operation. Surveys were carried out to determine the status of features of bat roosting potential.

2.5.2.5 Baseline Fisheries Assessment Assessment of Biological Water quality status

A catchment-wide electro-fishing survey across 33 no. riverine sites was undertaken by Triturus Environmental Ltd. for the proposed project. A fisheries appraisal of 1 no. site on the Grand Canal was also undertaken. Electro-fishing helped to identify the importance of the watercourses as nurseries and habitats for salmonids, lamprey (*Lampetra* sp.) and European eel (*Anguilla anguilla*). Other species of lower conservation value were also recorded.

Table 2. Location of 34 no. electro-fishing & fisheries appraisal survey sites in the vicinity of the proposed pipeline

Site no.	Watercourse	EPA code	Location	X (ITM)	Y (ITM)
RVX1	Kinnegad River	07K01	Kilwarden	662944	745904
RVX1b	Kinnegad River	07K01	Clonard Bridge	665683	744913
WCX1	Unmapped channel	n/a	Ardnamullan	662692	745327
WCX2	Aghnahillagh River	07A05	Ardnamullan	662496	744077
WCX3	Unmapped channel	n/a	Park	662356	742512
WCX4	Knockerasally or Colehill River	07K12	Ballyboggan	662183	741037
WCX5	Park River	07P04	Ballyboggan	661931	740409
WCX6	Ballynakill Stream	07B25	Ballynakill	661911	740211
WCX7	Unmapped channel	n/a	Harristown	661852	739718
WCX8	Unmapped channel	n/a	Harristown	661435	739182
WCX9	Unmapped channel	n/a	Harristown	660994	739040
WCX10	Unmapped channel	n/a	Harristown	660782	738831
WCX11	Castlejordan River	07C33	Harristown	660784	738406
WCX12	Rahin Stream	07R12	Clongall	660820	738325
RVX2b*	River Boyne	07B04	Ballyboggan Bridge	663829	740254
WCX13	Unmapped channel	n/a	Clonmore	660291	736027
WCX14	Unmapped stream	n/a	Clonmore	660345	735827
WCX15	Unmapped channel	n/a	Roosk	660392	735585
WCX16	Roosk River	07R53	Mountwilson	660014	734618
WCX17	Unmapped channel	n/a	Mountwilson	660054	733962
WCX17b	Mountwilson Stream	07M07	Mountwilson	660156	733679
WCX18	Unmapped channel	n/a	Thornwell	660109	733477
WCX19	Kinnafad River	07K31	Thornwell	660169	733178
WCX20	Unmapped stream	n/a	Monasteroris	660378	732910
WCX21	Unmapped channel	n/a	Monasteroris	660483	732769
WCX22	Unmapped channel	n/a	Monasteroris	660500	732461
CAX1*	Grand Canal	n/a	Rathmore	660809	731699
WCX23	Ballyleakin River	14B42	Ballykilleen	661206	729650
WCX24	Unmapped channel	n/a	Ballykilleen	661121	729520
WCX25	Unmapped channel	n/a	Ballykilleen	660821	729332
WCX26	Unmapped channel	n/a	Ballykilleen	660906	728164

Site no.	Watercourse	EPA code	Location	X (ITM)	Y (ITM)
WCX27	Unmapped channel	n/a	Ballykilleen	661003	728040
WCX28	Ballykilleen Stream	14B25	Ballykilleen	661091	727953
WCX29	Ballykilleen Stream	14B25	Shean	661258	727643

*fisheries appraisal only

Triturus: "*Survey effort focused on both instream and riparian habitats at each aquatic sampling location and included a fisheries assessment (electro-fishing and or fisheries habitat appraisal), white-clawed crayfish survey, macrophyte and aquatic bryophyte survey and biological water quality sampling (Q-sampling). This holistic approach informed the overall aquatic ecological evaluation of each site/watercourse in context of the proposed development and ensured that any habitats and species of high conservation value would be detected to best inform mitigation*."

2.5.2.6 Aquatic Baseline Report

Baseline aquatic surveys were conducted by Triturus Environmental Ltd. to inform the proposed development. All freshwater watercourses which could be affected directly or indirectly by the proposed development were considered as part of the assessment. This included those crossed by the proposed pipeline in addition a low number of downstream control sites. Thus, a total of *n*=34 sites were selected for detailed aquatic assessment (see **Table 2).** The courses and nomenclature for the riverine watercourses surveyed followed Environmental Protection Agency (EPA) mapping.

Riverine survey sites were present on the Kinnegad River (EPA code: 07K01), Aghnahillagh River (07A05), Knockerasally or Colehill River (07K12), Park River (07P04), Ballynakill Stream (07B25), Castlejordan River (07C33), Rahin Stream (07R12), Roosk River (07R53), Mountwilson Stream (07M07), Kinnafad River (07K31), Ballyleakin River (14B52), Ballykilleen Stream (14B25) and a number of unnamed and unmapped channels (**Table 2.1**). The Grand Canal was also surveyed at a proposed pipeline crossing. The survey sites were located within the Boyne_SC_010 , Boyne_SC_030 and Figile_SC_010 river sub-catchments. None of the survey sites were located within a European site. The Grand Canal is designated as the Grand Canal pNHA (002104).

It is noted that a proposed crossing of the Yellow River (07Y02) (site RVX2) was not accessible at the time of survey and thus no aquatic surveys were undertaken at this location.

Survey effort focused on both instream and riparian habitats at each aquatic sampling location and included a fisheries assessment (electro-fishing and or fisheries habitat appraisal), white-clawed crayfish survey, macrophyte and aquatic bryophyte survey and biological water quality sampling (Q-sampling). This holistic approach informed the overall aquatic ecological evaluation of each site/watercourse in context of the proposed development and ensured that any habitats and species of high conservation value would be detected to best inform mitigation.

2.5.3 Survey Methodology

2.5.3.1 Habitat Surveys

The habitat and species assessments were carried out in two stages. The first stage comprised desktop research utilising National Parks and Wildlife Services (NPWS) metadata website, google satellite imagery, Geohive hub online map viewer and the National Biodiversity Data Centre (NBDC) database to determine existing records in relation to habitats and species present in the study area as defined by the area of the Proposed Development EIAR boundary and Zones of Influence. This area referred to by the standard ecological impact assessment guidance[7] is adequate to include and address potential effects on mobile species such as otters or badgers, if present.

The second stage involves an evaluation of the site to establish the existing environment in the footprint of the Proposed Development area. Habitat types were identified during fieldwork on 16th of April, 9th-12th of June, and the 21st of August 2025.

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

[7] Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);Guidelines for Ecological Impact Assessment in the UK and Ireland (CIEEM, 2019).

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). Habitat mapping was carried out using QGIS 3.4 and displayed on Bing satellite imagery or street mapping. Any rare or protected species or habitats were noted. As part of the fieldwork an invasive species assessment was carried out. The site survey was supplemented by a review of the National Biodiversity Data Centre data base. The Heritage Council's A Guide to Habitats in Ireland (Fossitt, 2000) is the standard habitat classification system used in Ireland and can be found at: https://www.npws.ie/sites/default/files/publications/pdf/A%20Guide%20to%20Habitats%20in%20Ireland%20-%20Fossitt.pdf.

2.5.3.2 Mammals (Excluding Bats)

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. Mammal surveys were carried out on the dates listed in Table 1. In relation to otters, 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 150m either side of the pipeline route searching for signs of usage e.g. holts, couches, resting places or slides.

2.5.3.3 Bats

The site survey was supplemented by a review of Bat Conservation Ireland's (BCIreland) National Bat Records Database. During the mammal surveys, trees onsite within and immediately adjacent to the Proposed Development's footprint were assessed with reference to bat roost potential. Bat detector, emergent and re-entry surveys survey were carried out on the dates listed in Table 1. Trees of bat roosting potential were re-evaluated during mammal surveys in 2026.

2.5.3.4 Ornithological Surveys – Breeding Birds

Breeding Birds were surveyed using standard walked transects and signs were recorded where encountered during the field walkover survey. A desk study was carried out to identify any potential suitable inland feeding and / or roosting sites for winter birds located within or directly adjacent to the Proposed Development areas. Breeding bird surveys were carried from the dates listed in Table 1.

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 improved agricultural grassland or arable land and/or subject to relatively high levels of grazing disturbance. As such it was not deemed necessary to carry out detailed wintering bird surveys in these areas. The results of the desk-based study have informed the assessment of potential impacts on wintering bird species arising from the Proposed Development.

2.5.4 Hydrological Assessment

AWN Consulting Ltd. undertook desk-based hydrological assessments to inform an EIAR Hydrology & Hydrogeology chapter for the proposed project, which also informs this report. AWN Consulting's hydrological study consisted of desk-based surveys and included a review of published hydrological literature, aerial photography, and topographical and hydrometric information related to waterbodies within the zone of influence of the proposed project. The hydrological assessment is directly relevant to this report as the proposed pipeline route spans across 3 crosses catchments/sub-catchments that drain to European sites. These catchments/sub-catchments include:

- The northern (section 1-2), central (Section 3-5), and linepipe storage compound 2 portions of the site lie within the Boyne_SC_030 subcatchment and Boyne_SC_010 subcatchment, respectively, which ultimately lead to sections of the River Boyne comprising River Boyne and Blackwater SAC & SPA.
- The southern (section 6) and linepipe storage compound 3 portions of the site lie within the Figile_SC_010 subcatchment, which ultimately follows hydrological routes towards the River Nore and River Barrow SAC.

Additionally, the Baseline Fisheries Assessment and Aquatic Baseline Report by Triturus Environmental Ltd as noted above in 2.5.5.1 and 2.5.1.6 informed the hydrological assessment by AWN and this Appropriate Assessment Screening.

The full hydrological assessment methodology used to inform the findings of this AA Screening is included in Chapter 6 (Hydrology & Hydrogeology) of the accompanying EIAR.

2.5.5 Hydrogeological Assessment

AWN Consulting Ltd. undertook desk-based hydrogeological assessments to inform an EIAR Hydrology & Hydrogeology chapter for the proposed project, which also informs this report. The hydrogeological assessment is directly relevant to this report as the proposed pipeline route spans across a bedrock aquifer that has a negligible-low risk of impacting on the Mount Hevey Bog SAC.

The full hydrogeological methodology used to gather hydrogeological data for the proposed development is included in Chapter 6 (Hydrology & Hydrogeology) of the accompanying EIAR.

In addition, Minerex Environmental Limited has prepared a Hydrogeological Impact Assessment of the Proposed Development site and focuses in particular on the northern section of the pipeline alignment which lies in proximity to the Mount Hevey Bog SAC.

2.5.6 Air Quality Assessment

AWN Consulting Ltd. completed an air quality assessment of the proposed project in Chapter 8 (Air Quality) of the EIAR for the proposed Project, which informs this report. The air quality is potentially directly relevant to this report as air emissions such as NOx, SOx and dust from particulate matter emissions (PM10 and PM2.5) can affect vegetation, depending on the sensitivity of the ecological receptor, the concentration of emissions, and the existing background air quality.

The full air quality assessment methodology for the proposed Project is provided in Chapter 8 (Air Quality) of the EIAR accompanying the application for the proposed Project.

2.5.7 Land, Soil & Geology

AWN Consulting Ltd. completed a land, soil and geology assessment of the proposed development site in Chapter 5 of the EIAR for the proposed project. This assessment informs this report, in particular relation to potential impacts on the Mount Hevey Bog SAC given its proximity to the northern section of the pipeline route. The methodology used involves desktop studies from a range of online sources, in addition to site-specific data obtained from numerous site assessments undertaken for the proposed project, including site investigations, the construction methodologies and the construction environment management plan.

Further baseline information is outlined in Section 4.6. The full Land, Soil and Geology assessment methodology is provided in Chapter 5 (Land, Soil and Geology) of the EIAR accompanying the application for the proposed project.

3 Stage 1 Provision of Information for Screening Assessment

3.1 Conservation Management of a Natura 2000 Site

The plan or project is not directly connected with, or necessary for the management of NATURA 2000 sites.

3.2 Description of Proposed Development

The Proposed Development, consisting of the construction, commissioning, and operation of a c. 23.65 kilometre (km), 300 millimetre (mm) nominal bore (NB) underground steel gas transmission pipeline with a maximum operating pressure of 85 barg (the GNI 143 Ballykilleen Pipeline). The Proposed Development also includes associated ancillary fibre ducting, new offtake installation comprising a hot tap tie in location (the Kilwarden Offtake Installation) located in the townland of Kilwarden, Co. Meath, and new Above Ground Installation (the Ballykilleen AGI) located in the Edenderry Renewable Energy Complex located in Kilcumber, Co. Offaly. These elements collectively constitute the Proposed Development that is the subject of this Appropriate Assessment Screening.

The Proposed Development site comprises a linear pipeline route approximately 243.4 hectares (ha) (including associated construction works compounds) that traverses counties Meath and Offaly and the following townlands: Aghnagillagh, Ardnamullan, Ballyboggan, Ballynakill, Castlejordan, Clongall, Harristown, Kilwarden, Park, and Ticroghan (Co. Meath); and Ballycolgan, Ballykilleen, Clonmore, Drumcooly, Esker More, Lenamarran, Monasteroris, Mountwilson, Rathgreedan, Rathmore, Roosk, Shean, and Thornwell (Co. Offaly) (hereinafter referred to as the 'Site' or 'Proposed Development Site'). The location of the Proposed Development is shown in Figure 1.

The purpose of the proposed GNI 143 Ballykilleen Pipeline to connect from the existing 750mm NB BGE77 pipeline (also known as Pipeline to the West (PTTW)) to the Edenderry Renewable Energy Complex. The Proposed Development is intended to facilitate the conversion of the existing Cushaling Peaker Plants within the Edenderry Renewable Energy Complex from their current single fuel operation (liquid fuel, primarily hydrotreated vegetable oil (HVO)) to dual fuel operation, with natural gas as the primary fuel and HVO retained as backup. The Edenderry Power Station is required to operate in accordance with its Industrial Emissions (IE) Licence, reference P0482 04.

The proposed development comprises a steel gas transmission pipeline (300 mm NB) extending south from the proposed offtake installation at Kilwarden. The pipeline continues south/southwest through Meath, enters County Offaly and proceeds southwards. The pipeline stays west of the River Boyne and the settlement of Edenderry. The proposed development terminates at the AGI at Ballykilleen.

To the south of the proposed offtake, Pipe Storage Compound No. 1 is located at Ardnamullan. Pipe Storage Compound No. 2 is located within the townlands of Monasteroris, positioned to the east of the pipeline corridor. Pipe Storage Compound No. 3 is located to the west of the pipeline terminus within the townland of Esker More. The compounds include the following; site offices, crane and truck parking, pipe storage, secure lock up containers, car parking, material laydown areas, welfare facilities and material storage areas.

The proposed AGI compound is to be located on lands at Ballykilleen and will include of a PRS Kiosk (c. 49 sq.m. with a parapet height of 3.15m and vent terminations are 5.4m in height.), a PBU Kiosk (c. 23.4 sq.m. with a parapet height of 3.7m and boiler flues extend to 5.67m in height), a Gas Analyser Kiosk (c. 7 sq.m with a parapet height of c. 2.9m.and vent terminations extend to 3.5m in height) and a E&I Kiosk (c. 15.75 sq.m. with a parapet height of c. 3m.). Solar panels are provided on the roof of the PBU Kiosk.

The proposed Kilwarden offtake compound is c. 0.220 ha. and is accessed off a laneway adjoining the existing R161. The compound provides for a concrete roadway, temporary pig trap base and 3 no. car parking spaces and is enclosed by a 1.2m high timber post and wire stock proof fencing. A 2.4m high palisade security fence surrounds the offtake installation. The development includes connections to the AGI compound and Kilwarden offtake site, surface treatments, construction laydown areas, services, parking spaces within the substation compound, all associated construction works, and all ancillary works.

Given the linear nature of the development, the pipeline has been divided into six sections solely for the purposes of describing the Proposed Development. These sections have been defined on a practical basis, using intervals and identifiable landmark features or crossings along the route. The segmentation does not reflect any environmental or construction rationale, it provides a structure for presenting information of the Proposed Development. Where relevant, this framework also assists in focusing the environmental assessment on specific localised elements of the route. The six sections, defined by key crossing points and chainages along the proposed alignment, are outlined in Tables 3-9.

In addition to the linear pipeline route, the Proposed Development includes a range of temporary construction infrastructure within the overall red line boundary. This comprises five Temporary Construction Compounds, a series of temporary laydown areas (Type A and Type B), temporary construction access points, and a temporary construction haul road or 'running track' extending along the pipeline route. Temporary Construction Compounds 01, 02 and 05 are located on or directly adjoining the linear pipeline route. Temporary Construction Compound 03, located near Edenderry town, and Temporary Construction Compound 04, located in the townland of Esker More, Co. Offaly, are located off the linear route but remain within the red line boundary of the Proposed Development. These temporary works facilitate the delivery, storage, and management of materials during construction and will be removed following completion of the works.

Table 3. Structured Sections to describe the Proposed Development

Pipeline Section	Start Point (m)	End Point (m)	Length (m)
Pipeline Section 1: Kilwarden Offtake Installation to the L40181 Road (RDX05)	0	3,931	3,931
Pipeline Section 2: L40181 Road (RDX05) to the L4091 (RDX09)	3,931	7,441	3,510
Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)	7,441	11,669	4,228
Pipeline Section 4: Yellow River (RVX02) to the R441 (RDX12)	11,669	15,348	3,679
Pipeline Section 5: R441 (RDX12) to the L5003 (RDX15)	15,348	19,494	4,146
Pipeline Section 6: L5003 (RDX15) to the Ballykilleen AGI	19,494	23,650	4,156
GNI 143 Ballykilleen Pipeline	0	23,650	23,650

Figure 1. Proposed development site

3.2.1 Characteristics of the Proposed Development

3.2.1.1 Proposed Underground Gas Transmission Pipeline ('GNI 143 Ballykilleen Pipeline')

The GNI 143 Ballykilleen Pipeline comprises the establishment of a new underground gas transmission pipeline to supply natural gas to the Bord na Móna (BnM) Cushaling Peaker Plant. Once constructed, the underground transmission pipeline will be owned and operated by Gas Networks Ireland (GNI).

The pipeline will commence at a hot-tap tie-in with the existing 750 mm NB BGE77 Pipeline to the West (PTTW), where a live 'hot tap' connection will be established. From this point, the pipeline will extend southwards (underground) before terminating at the proposed Ballykilleen AGI located within the Edenderry Renewable Energy Complex.

The proposed pipeline consists of 300 mm nominal bore (NB) steel pipe, designed and constructed in accordance with ISO 3183 and GIS/DAT-6:2019. It will be installed at a nominal minimum depth of 1.2 m below ground level and surrounded on all sides by approved CL.503 bedding and surround material. The trench will then be reinstated using selected backfill and restored to existing ground condition. At locations where the pipeline crosses rivers, watercourses, roads, or existing services, the pipe will be installed at greater depth as required to ensure adequate clearance beneath the riverbed, roadway, or service duct.

The Proposed Development site extends to a maximum width of up to 100 m in limited locations. During the construction phase, the physical footprint required for the Proposed Development is substantially smaller, comprising a temporary working width of approximately 30 m along linear sections of the pipeline, increasing to approximately 40 m × 45 m at road and watercourse crossings. As a result, a substantial proportion of the lands within the Proposed Development Site will remain unaffected by construction works.

In parallel with the pipeline installation, ancillary ducting system (2 no. 32/24mm fibre ducts) will be laid within the same trench alongside the gas pipeline to facilitate future telecommunications and fibre-optic services within the same application route corridor.

A detailed description of the pipeline alignment, including specific locations and distances referenced by chainage, is provided in Sections 3.2.1.2 to 3.2.1.7 below.

3.2.1.2 Pipeline Section 1: Kilwarden Offtake Installation to L40181 Road (RDX05)

Pipeline Section 1 is located between the Kilwarden Offtake Installation (0 m) and L40181 road crossing (RDX05); and is c. 3.931 km in length. The route section and ancillary works is summarised in Table 4, and shown in **Error! Reference source not found.**. Pipeline Section 1 is located within the townlands of Kilwarden, Aghnagilla, Ardnamullen and Ticrohan, County Meath.

Table 4 Pipeline Section 1: Route Description

Approximate Chainage	Description of Location	Pipeline length (m)
Chainage 000 Tie-in point to existing BGE77	The proposed GNI 143 Ballykilleen Pipeline will connect to the designated tie-in point of the BGE77 within the townland of Kilwarden, County Meath. A Temporary Working Area is to be located at the Kilwarden Offtake Installation to facilitate construction.	N/A
Chainage 000 to 842	The pipeline will be routed west, then south-west across agricultural lands crossing existing hedgerows/treelines.	c. 842 m
Chainage 842 to 858 R161 Road Crossing (RDX01)	The pipeline will cross south across the R161 regional road.	c. 16 m
Chainage 858 to 1094	The pipeline will be routed south across agricultural lands crossing three hedgerows/treelines.	c. 236 m
Chainage 1094 to 1366 Kilwarden River Crossing (RVX01)	The pipeline will cross south across the Kilwarden River. The pipeline will be installed using trenchless crossing methods. The Kilwarden River marks the townland boundary between Kilwarden and Aghnagilla.	c. 272 m
Chainage 1366 to 1899	The pipeline will be routed south, southwest, then south following existing parallel to existing field boundaries.	c. 533 m
Chainage 1899 to 1902	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 3 m

Unnamed watercourse crossing (WCX01)		
Chainage 1902 to 2456	The pipeline will be routed south across agricultural lands crossing existing hedgerows/treelines.	c. 554 m
Chainage 2456 to 2521 R148 Road Crossing (RDX02) and L80217 Road Crossing (RDX03)	The pipeline crosses south perpendicular to the R148 and L80217 Roads. This crossing stretch passes the townland boundary between Aghnagilla and Ardnamullen. This is expected to be a single combined trenchless crossing of both roads. In addition to the pipeline, at this location the route includes an access point to the Temporary Construction Compound 2 via the L80217 (Ardnamullen Road).	c. 65 m
Chainage 2521 to 2919	The pipeline will be routed south across agricultural lands crossing existing hedgerows/treelines.	c. 398 m
Chainage 2919 to 3269 M4 Motorway Crossing (RDX04) and Aghnahillagh Stream crossing (WCX02)	The pipeline will be routed south under the entire M4 Motorway, this crossing is expected to include the Aghnahillagh Stream as a combined crossing. The pipeline is expected to be installed using open cut methods. In addition to the pipeline, at this location a temporary haulage road along the pipeline route will be established to the west of the M4 motorway crossing location utilising an existing overpass bridge.	c. 350 m
Chainage 3269 to 3919	The pipeline will be routed south across agricultural lands crossing existing hedgerows/treelines. This crossing stretch passes to townland boundary between Ardnamullen and Ticrohan.	c. 650 m
Chainage 3919 to 3931 L40181 Road Crossing (RDX05)	The pipeline will be routed south across the Ticrohan Road (L40181). The pipeline is expected to be installed using open cut methods.	c. 12 m

3.2.1.3 Pipeline Section 2: L40181 Road (RDX05) to the L4091 Road (RDX09)

Pipeline Section 2 of the pipeline is located between the L40181 road crossing (RDX05) and the L4091 road crossing (RDX09); and is c. 3.51 km in length. The route section and ancillary works is summarised in Table 5, and shown in **Error! Reference source not found.**. Section 2 is located within the townlands of Ticroghan, Park, Ballyboggan, and Ballynakill, County Meath.

Table 5 Pipeline Section 2: Route Description

Approximate Chainage	Description of Location	Pipeline length (m)
Chainage 3931 to 4892	The pipeline is routed south through agricultural lands crossing existing hedgerows and treelines. This pipeline stretch passes the townland boundary between Ticroghan and Park.	c. 961 m
Chainage 4892 to 4895 Unnamed watercourse crossing (WCX03)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 3 m
Chainage 4895 to 5143	The pipeline is routed south through agricultural lands crossing existing hedgerows and treelines.	c. 248 m
Chainage 5143 to 5158 L8022 Road Crossing (RDX06)	The pipeline is routed south across the Park Road (L8022). The pipeline is expected to be installed using open cut methods.. The pipeline crosses underneath an existing overhead telecom cable.	c. 15 m
Chainage 5158 to 6473	The pipeline is routed south parallel to Park Road (L8022) through agricultural lands crossing existing hedgerows and treelines.	c. 1,315 m
Chainage 6473 to 6497 R401 Road Crossing (RDX07)	The pipeline is routed south across the R401 road. The pipeline crosses underneath an underground telecom cable. The pipeline is expected to be installed using open cut methods.	c. 24 m
Chainage 6497 to 6663	The pipeline is routed southwest through agricultural lands. The pipeline crosses underneath an overhead electricity cable.	c. 166 m
Chainage 6663 to 6670 Unnamed Stream Crossing (WCX04)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 7 m

Chainage 6670 to 7132	The pipeline is routed south, crosses underneath and then runs parallel to an existing overhead electricity cable, through agricultural lands crossing existing hedgerows and treelines. This crossing stretch passes the townland boundary between Park and Ballyboggan.	c. 462 m
Chainage 7132 to 7148 L80241 Ballyboggan Road Crossing (RDX08)	The pipeline is routed south across the L80241 (Ballyboggan Road). The pipeline is expected to be installed using open cut methods.	c. 16 m
Chainage 7148 to 7300	The pipeline is routed south across an agricultural field.	c. 152m
Chainage 7300 to 7306 Unnamed Stream Crossing (WCX05)	Unnamed watercourse crossing. This crossing passes the townland boundary between Ballyboggan and Ballynakill. The pipeline is expected to be installed using open cut methods.	c. 6m
Chainage 7306 to 7421	The pipeline is routed south across an agricultural field crossing existing hedgerows and treelines.	c. 115m
Chainage 7421 to 7441 L4091 Road Crossing (RDX09)	The pipeline is routed south across the L4091 (Ballynakill Road). The pipeline crosses underneath an overhead telecom cable. The pipeline is expected to be installed using open cut methods.	c. 20m

3.2.1.4 Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)

Pipeline Section 3 of the pipeline is located between the L4091 road crossing (RDX09) and the Yellow River crossing (RVX02); and is 4.228 km in length. The route section and ancillary works is summarised in Table , and shown in **Error! Reference source not found.**. Section 3 is located within the townlands of Ballynakill, Harristown, Castlejordan, and Clongall, County Meath.

Table 6 Pipeline Section 3: Route Description

Approximate Chainage	Description of Location	Pipeline length (m)
Chainage 7441 to 7486	The pipeline is routed south across an agricultural field.	c. 45 m
Chainage 7486 to 7506 Unnamed Stream Crossing (WCX06)	Unnamed watercourse crossing.. This crossing passes the townland boundary between Ballynakill and Harristown. The pipeline is expected to be installed using open cut methods.	c. 20 m
Chainage 7506 to 8028	The pipeline is routed south across agricultural fields crossing existing hedgerows and treelines. The pipeline crosses underneath an overhead electricity cable.	c. 522 m
Chainage 8028 to 8033 Unnamed Stream Crossing (WCX07)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 5 m
Chainage 8033 to 8813	The pipeline is routed southwest and south across agricultural fields, crossing existing hedgerows and treelines. The pipeline crosses underneath an overhead electricity cable.	c. 780 m
Chainage 8813 to 8818 Unnamed Stream Crossing (WCX08)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. The Proposed Development site boundary is at a distance of c. 350 m to the southeast of the River Boyne (County Meath-County Kildare border).	c. 5 m
Chainage 8818 to 9275	The pipeline is routed southwest across agricultural fields, crossing existing hedgerows and treelines.	c. 457 m
Chainage 9275 to 9281 Unnamed Stream Crossing (WCX09)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 6 m
Chainage 9281 to 9600	The pipeline is routed southwest across agricultural fields, crossing existing hedgerows and treelines.	c. 319 m
Chainage 9600 to 9607 Unnamed Stream Crossing (WCX10)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 7 m
Chainage 9607 to 10033	The pipeline is routed south across an agricultural field.	c. 457 m
Chainage 10033 to 10039 Unnamed Stream Crossing (WCX11)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. This crossing passes the townland boundary between Harristown and Castlejordan.	c. 6 m
Chainage 10039 to 10122	The pipeline is routed south across an agricultural field.	c. 83 m

Chainage 10122 to 10128 Unnamed Stream Crossing (WCX12)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. This crossing passes the townland boundary between Castlejordan and Clongall. 10,075	c. 6 m
Chainage 10128 to 11160	The pipeline is routed south across agricultural fields, crossing existing hedgerows and treelines. This crossing passes within c. 150 m of the River Boyne (County Meath-County Kildare border).	c. 1032 m
Chainage 11160 to 11669 Yellow River Crossing (RVX02)	The pipeline is routed south across the Yellow River. The pipeline will be installed using trenchless crossing methods. The Yellow River marks the townland boundary between Clongall and Clonmore, and the county boundary between County Meath and County Offaly. The pipeline crosses beneath overhead electrical cables.	c. 509 m

3.2.1.5 Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)

Pipeline Section 3 of the pipeline is located between the L4091 road crossing (RDX09) and the Yellow River crossing (RVX02); and is 4.228 km in length. The route section and ancillary works is summarised in Table 7, and shown in Figure 5. Section 3 is located within the townlands of Ballynakill, Harristown, Castlejordan, and Clongall, County Meath.

Table 7 Pipeline Section 3: Route Description

Approximate Chainage	Description of Location	Pipeline length (m)
Chainage 7441 to 7486	The pipeline is routed south across an agricultural field.	c. 45 m
Chainage 7486 to 7506 Unnamed Stream Crossing (WCX06)	Unnamed watercourse crossing.. This crossing passes the townland boundary between Ballynakill and Harristown. The pipeline is expected to be installed using open cut methods.	c. 20 m
Chainage 7506 to 8028	The pipeline is routed south across agricultural fields crossing existing hedgerows and treelines. The pipeline crosses underneath an overhead electricity cable.	c. 522 m
Chainage 8028 to 8033 Unnamed Stream Crossing (WCX07)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 5 m
Chainage 8033 to 8813	The pipeline is routed southwest and south across agricultural fields, crossing existing hedgerows and treelines. The pipeline crosses underneath an overhead electricity cable.	c. 780 m
Chainage 8813 to 8818 Unnamed Stream Crossing (WCX08)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. The Proposed Development site boundary is at a distance of c. 350 m to the southeast of the River Boyne (County Meath-County Kildare border).	c. 5 m
Chainage 8818 to 9275	The pipeline is routed southwest across agricultural fields, crossing existing hedgerows and treelines.	c. 457 m
Chainage 9275 to 9281 Unnamed Stream Crossing (WCX09)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 6 m
Chainage 9281 to 9600	The pipeline is routed southwest across agricultural fields, crossing existing hedgerows and treelines.	c. 319 m
Chainage 9600 to 9607 Unnamed Stream Crossing (WCX10)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 7 m
Chainage 9607 to 10033	The pipeline is routed south across an agricultural field.	c. 457 m
Chainage 10033 to 10039 Unnamed Stream Crossing (WCX11)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. This crossing passes the townland boundary between Harristown and Castlejordan.	c. 6 m
Chainage 10039 to 10122	The pipeline is routed south across an agricultural field.	c. 83 m
Chainage 10122 to 10128 Unnamed Stream Crossing (WCX12)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. This crossing passes the townland boundary between Castlejordan and Clongall. 10,075	c. 6 m

Chainage 10128 to 11160	The pipeline is routed south across agricultural fields, crossing existing hedgerows and treelines. This crossing passes within c. 150 m of the River Boyne (County Meath-County Kildare border).	c. 1032 m
Chainage 11160 to 11669 Yellow River Crossing (RVX02)	The pipeline is routed south across the Yellow River. The pipeline will be installed using trenchless crossing methods. The Yellow River marks the townland boundary between Clongall and Clonmore, and the county boundary between County Meath and County Offaly. The pipeline crosses beneath overhead electrical cables.	c. 509 m

3.2.1.6 Pipeline Section 5: R441 Road (RDX12) to the L5003 Road (RDX15)

Pipeline Section 5 of the pipeline is located between the R441 road crossing (RDX12) and L5003 road crossing (RDX15); and is 4.146 km in length. The route section and ancillary works is summarised in Table , and shown in **Error! Reference source not found.**. Section 5 is located within the townlands of Mountwilson, Thornwell, Monasteroris, Rathmore, and Drumcooly, County Offaly. It also runs along the boundary of the townland of Ballycolgan, Co. Offaly.

Table 8 Pipeline Section 5: Route Description

Approximate Chainage	Description of Location	Pipeline length (m)
Chainage 15348 to 15540	The pipeline is routed southwest across an agricultural field. The pipeline crosses under overhead electricity cables.	c. 192 m
Chainage 15540 to 15546 Unnamed Stream Crossing (WCX17)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 6 m
Chainage 15546 to 16053	The pipeline is routed south across agricultural fields, crossing existing hedgerows and treelines. The pipeline crosses under overhead electricity cables. This crossing stretch passes the townland boundary between Mountwilson and Thornwell.	c. 507 m
Chainage 16053 to 16056 Unnamed Stream Crossing (WCX18)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 3 m
Chainage 16056 to 16363	The pipeline is routed south across an agricultural field.	c. 307 m
Chainage 16363 to 16370 Unnamed Stream Crossing (WCX19)	Unnamed watercourse crossing. The pipeline will be installed using open cut methods. This crossing passes the townland boundary between Thornwell and Monasteroris.	c. 7 m
Chainage 16370 to 16702	The pipeline is routed southeast across an agricultural field.	c. 332 m
Chainage 16702 to 16711 Unnamed Stream Crossing (WCX20)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 9 m
Chainage 16711 to 16790	The pipeline is routed south across an agricultural field.	c. 79 m
Chainage 16790 to 16810 L5007 (Monasteroris Road) Crossing (RDX13)	The pipeline is routed south across the L5007 (Monasteroris) Road. The pipeline is expected to be installed using open cut methods. The pipeline crosses underneath an overhead telecom cable and crosses an underground watermain.	c. 20 m
Chainage 16810 to 16880	The pipeline is routed south across an agricultural field.	c. 70 m
Chainage 16880 to 16885 Unnamed Stream Crossing (WCX21)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 5 m
Chainage 16885 to 17201	The pipeline is routed south across agricultural fields, crossing existing hedgerows and treelines. This stretch is c. 2.6 km west of Edenderry town centre at its nearest point.	c. 316 m
Chainage 17201 to 17207 Unnamed Stream Crossing (WCX22)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 6 m

Chainage 17207 to 17994	The pipeline is routed south across agricultural fields, crossing existing hedgerows and treelines. This crossing stretch is c. 2.5 km west of Edenderry town centre at its nearest point.	c. 787 m
Chainage 17994 to 18186 Grand Canal Crossing (WCX23)	The pipeline is routed south across the Grand Canal. The pipeline will be installed using trenchless methods. This crossing passes the townland boundary between Monasteroris and Rathmore, and passes through the Grand Canal pNHA.	c. 192 m
Chainage 18186 to 18730	The pipeline is routed south across agricultural fields, crossing existing hedgerows and treelines.	c. 544 m
Chainage 18730 to 18756 R402 Road Crossing (RDX14)	The pipeline is routed south across the R402 Road. The pipeline is expected to be installed using open cut methods. The pipeline crosses underneath an overhead telecom cable. This crossing passes the townland boundary between Rathmore and Drumcooly.	c. 26 m
Chainage 18756 to 19485	The pipeline is routed south across agricultural fields, crossing existing hedgerows.	c. 729 m
Chainage 19485 to 19494 L5003 (Drumcooly) Road Crossing (RDX15)	The pipeline is routed south across the L5003 Road. The pipeline is expected to be installed using open cut methods. The pipeline crosses underneath overhead electricity cables.	c. 9 m

3.2.1.7 Pipeline Section 6: L5003 Road (RDX15) to the Ballykilleen AGI

Pipeline Section 6 of the pipeline is located between the L5003 road crossing (RDX15) and the Ballykilleen AGI; and is c. 4.156 km in length. The route section and ancillary works is summarised in Table , and shown in **Error! Reference source not found.**. Section 6 is located within the townlands of Drumcooly, Rathgreedan, Ballykilleen, and Shean, County Offaly.

Table 9 Pipeline Section 6: Route Description

Approximate Chainage	Description of Location	Pipeline length (m)
Chainage 19494 to 20520	The pipeline is routed south then southwest across agricultural fields, crossing existing hedgerows and treelines. This crossing stretch passes the townland boundary between Drumcooly and Rathgreedan.	c. 1026 m
Chainage 20520 to 20524 Unnamed Stream Crossing (WCX24)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods. This crossing stretch passes the townland boundary between Rathgreedan and Ballykilleen.	c. 4 m
Chainage 20524 to 20676	The pipeline is routed south across an agricultural field.	c. 152 m
Chainage 20676 to 20682 Unnamed Stream Crossing (WCX25)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 6 m
Chainage 20682 to 21032	The pipeline is routed southwest across an agricultural field.	c. 350 m
Chainage 21032 to 21037 Unnamed Stream Crossing (WCX26)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 5 m
Chainage 21037 to 22085	The pipeline is routed southwest and south across agricultural fields, crossing existing treelines and hedgerows. The pipeline crosses underneath an overhead telecom cable.	c. 1048 m
Chainage 22085 to 22095 Private Lane Crossing (RDX16)	The pipeline is routed south across a private laneway. The pipeline is expected to be installed using open cut methods.	c. 10 m
Chainage 22095 to 22457	The pipeline is routed south across an agricultural field. The pipeline crosses underneath an overhead electricity cable.	c. 362 m
Chainage 22457 to 24462 Unnamed Stream Crossing (WCX27)	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 5 m
Chainage 22462 to 22615	The pipeline is routed south across an agricultural field.	c. 153 m
Chainage 22615 to 22620	Unnamed watercourse crossing. The pipeline is expected to be installed using open cut methods.	c. 5 m

Unnamed Stream Crossing (WCX28)		
Chainage 22620 to 22695	The pipeline is routed southeast across an agricultural field, crossing existing treelines and hedgerows.	c. 75 m
Chainage 22695 to 22815 Unnamed Stream (WCX29) and R401 Road Crossing (RDX17)	The pipeline is routed across an unnamed watercourse and the R41 Road. This is expected to be a single combined trenchless crossing of the watercourse and road. The pipeline crosses underneath overhead electricity and telecom cables. This crossing passes the townland boundary between Ballykileen and Shean.	c. 120 m
Chainage 22815 to 23149	The pipeline is routed southeast across an agricultural field. The pipeline crosses underneath overhead electricity cables.	c. 334 m
Chainage 23154 to 23154 Unnamed Watercourse Crossing (WCX30)	Unnamed watercourse crossing. The pipeline will be installed using open cut methods.	c. 5 m
Chainage 23154 to 23650	The pipeline is routed southwest into the Edenderry Renewable Energy Complex site. This crossing stretch passes the townland boundary between Shean and Ballykillen.	c. 496 m
Chainage 23650 (Ballykilleen AGI)	The pipeline will terminate at the proposed Ballykilleen AGI installation.	N/A

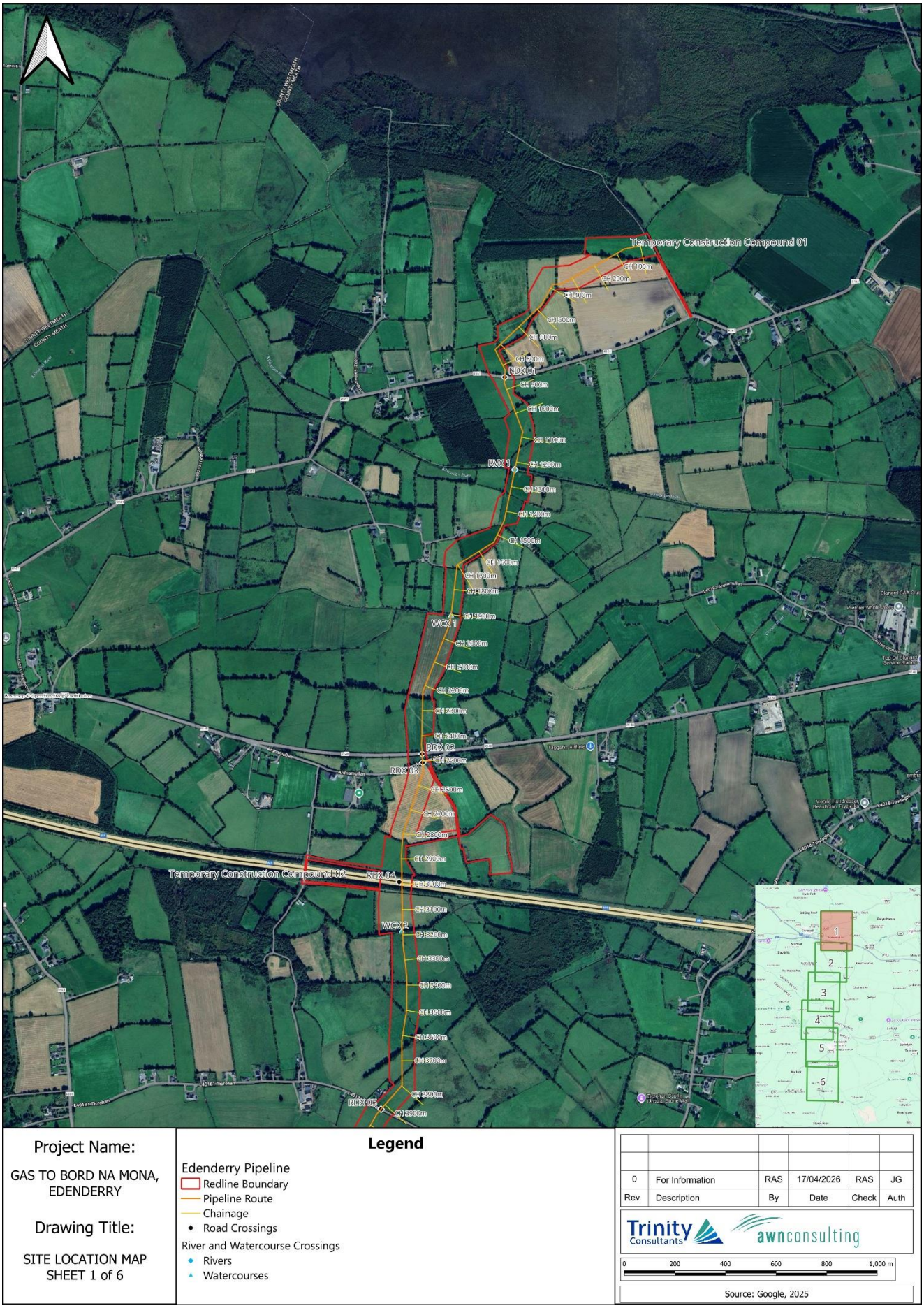

Figure 2. Pipeline section 1 and associated chainage (AWN Consulting Ltd, 2026)

Figure 3. Pipeline section 2 and associated chainage (AWN Consulting Ltd, 2026)

Figure 4. Pipeline section 3 and associated chainage (AWN Consulting Ltd, 2026)

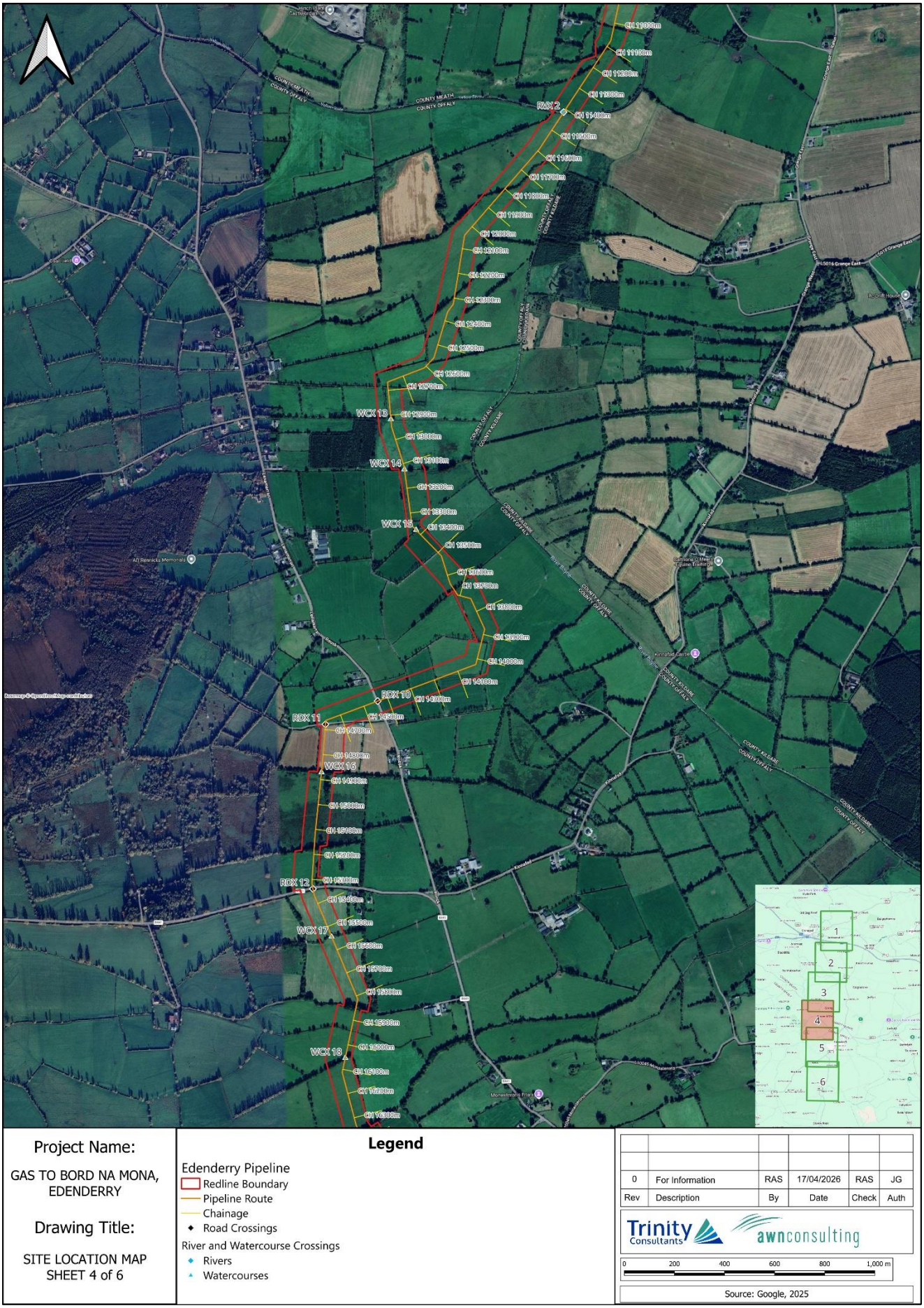

Figure 5. Pipeline section 4 and associated chainage (AWN Consulting Ltd, 2026)

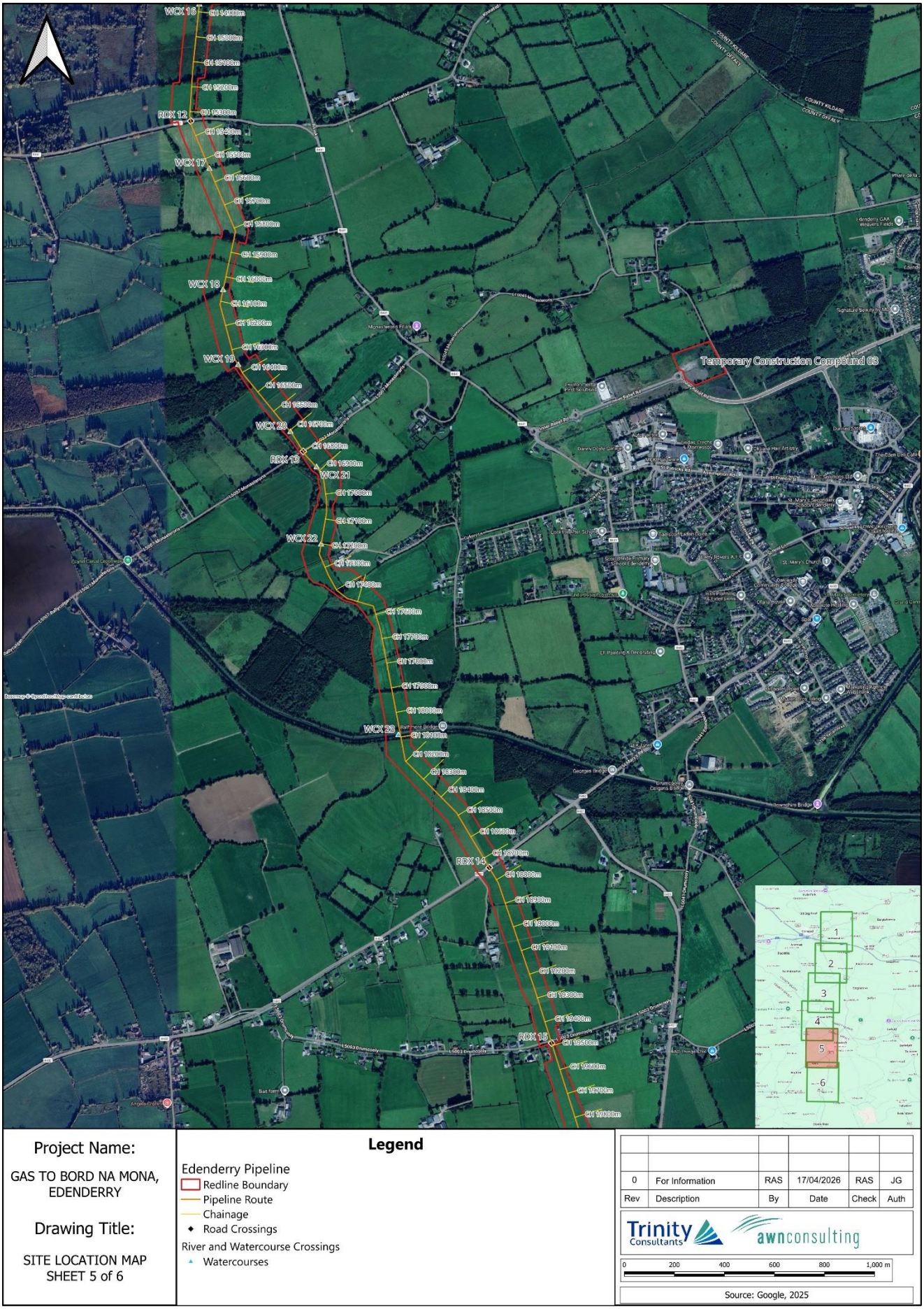

Figure 6. Pipeline section 5 and associated chainage (AWN Consulting Ltd, 2026)

Figure 7. Pipeline section 6 and associated chainage (AWN Consulting Ltd, 2026)

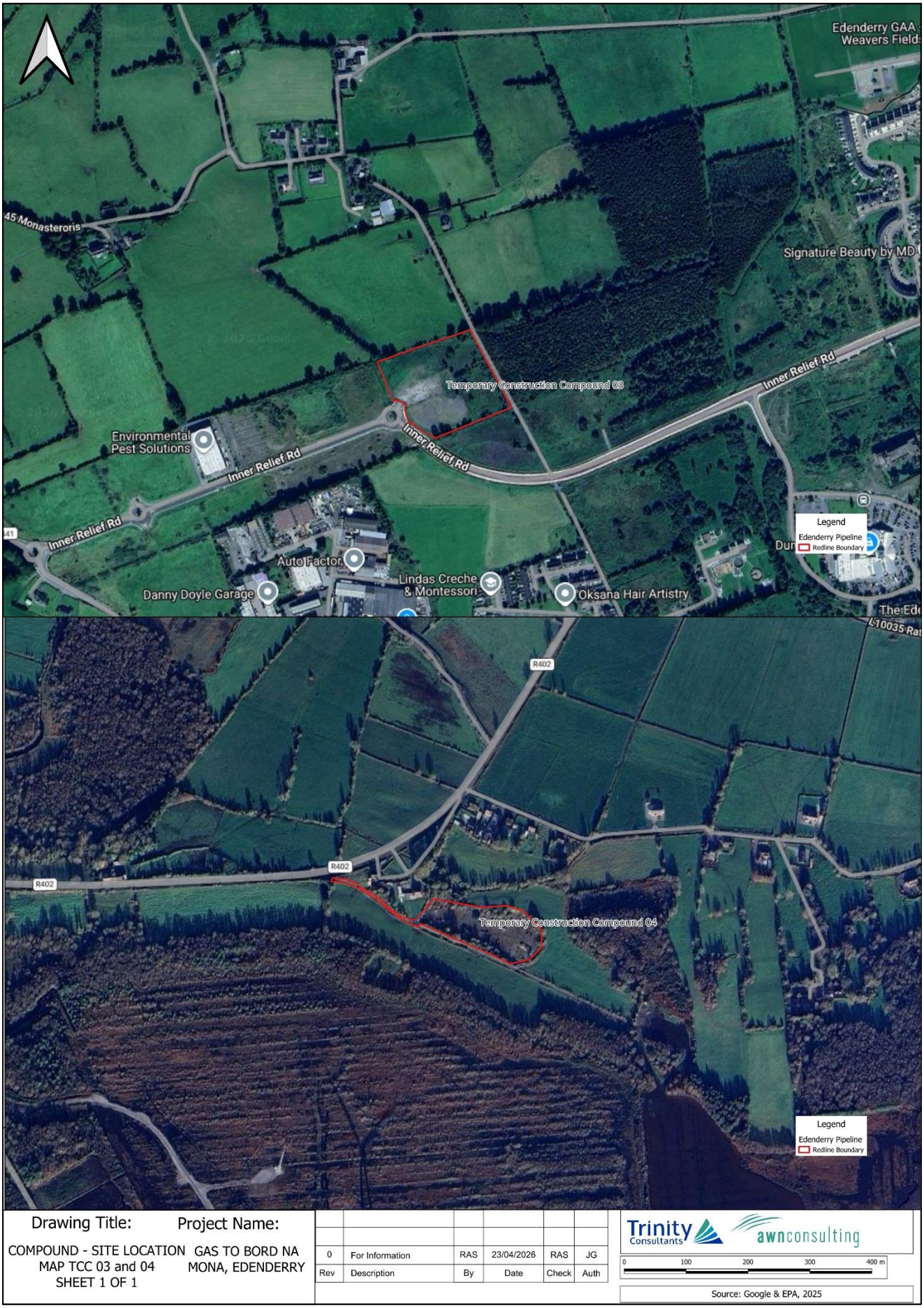

Figure 8. Temporary Construction Compound 03 and 04 (AWN Consulting Ltd, 2026)

3.2.2 Proposed Kilwarden Offtake Installation

The proposed Kilwarden Offtake Installation forms the northernmost above-ground element of the GNI 143 Ballykilleen Pipeline and will accommodate the hot-tap tie-in to the existing 750 mm NB PTTW pipeline, enabling the new 300 mm NB transmission pipeline to be connected without interruption to the existing network. The installation will include a below-ground isolation valve located within an access pit, above-ground pipework and connection points for a temporary PIG (pipeline inspection gauging) trap to facilitate future inspection and maintenance of the GNI 143 Pipeline, and all associated mechanical and civil works required to support operation. No permanent power supply or utility supply is required (the installation operates as a "dead site"), the Installation incorporates all provisions for GNI access and pipeline maintenance activities.

The footprint of the installation will be enclosed by a 2.4 m high palisade security fence, with a 1.2 m stock-proof fence installed along the external boundary to maintain agricultural land separation.

The Kilwarden Offtake Installation will be accessed by a dedicated permanent access road will be developed from the existing laneway off the R161, including localised widening, surface upgrades, and installation of a culvert over the existing drainage ditch along the laneway, all to accommodate construction vehicles and long-term GNI operational access. Three designated parking spaces will be provided adjacent to the entrance gates, with additional parking available within the compound when required for maintenance operations.

The Kilwarden Offtake Installation will include proposed landscaping were possible, aimed to first protect and conserve as much of the existing vegetation and complement this with native planting after construction works have been completed.

An onsite drainage system will allow for removal of surface water from areas of hardstand. A 7.2 m × 3.25 m × 1.6 m soakaway pit will be constructed in the southeastern corner of the compound to facilitate infiltration and manage surface water runoff, this soakaway overflows to an existing drainage ditch along the laneway used to access the site.

3.2.3 Proposed Ballykilleen Above Ground Installation

The proposed Ballykilleen AGI forms the southernmost above-ground element of the GNI 143 Ballykilleen Pipeline and is the termination point of the GNI asset, enabling the regulation, metering and monitoring of natural gas prior to onward delivery to the Cushaling Peaker Plant.

The AGI will comprise a series of aboveground units and supporting infrastructure designed in accordance with Gas Networks Ireland (GNI) standards. Core components will include a Pressure Reduction System (PRS) kiosk containing gas filtering, metering and preheating equipment; a Packaged Boiler Unit (PBU) kiosk to maintain required gas temperatures; an Electrical and Instrumentation (E&I) kiosk; and a Gas Analyser kiosk for gas quality monitoring. The PBU includes 4 no. gas boilers (c. 0.13 MWth input each) with flues c. 5.670m above ground level, a 1 no. gas fired backup generator (c. 0.0375 MWth) , and solar panels at roof level. The Medium Combustion Plant Regulations do not apply to the proposed combustion plant, as each unit has a rated thermal input of less than 1 MWth.

Provision is also made for a temporary PIG (pipeline inspection gauging) trap to facilitate future pigging and inspection of the pipeline. All above-ground plant will be enclosed within a 2.4 m high palisade security fence with a 1.2 m weld-mesh inner boundary, ensuring controlled access, operational safety and security including associated lighting / CCTV columns (c. 8m).

The Ballykilleen AGI will be accessed via the existing entrance to the Edenderry Renewable Energy Complex entrance and internal roadway network. This ensures that all construction and operational traffic will utilise established industrial access routes designed to accommodate heavy vehicles. Three designated parking spaces will be provided adjacent to the AGI entrance gates for inspection and maintenance personnel.

The Ballykilleen AGI will include proposed landscaping were possible after construction works have been completed.

The proposed Ballykilleen AGI will include a concrete standing area, internal access routes, and a site drainage system connected to the existing Edenderry Renewable Energy Complex stormwater drainage network, in line

with agreement between GNI and Bord na Móna. This system will drain stormwater through the existing stormwater drainage network and discharge to the Figile River.

ESB power connection is required to support operation of the associated kiosks, a gas fired backup generator is also provided.

A 20 kV ESB Networks overhead line currently traverses the area required to accommodate the proposed Ballykilleen AGI. These powerlines form part of the public ESB medium-voltage distribution network. A diversion of this existing 20 kV overhead line will be required. As per ESB Networks procedures, engagement on diversion design, routing options, and associated constraints can only commence once planning permission for the Proposed Development has been obtained. Following the granting of planning permission, BnM will submit a formal diversion application to ESB Networks, who will assess feasible rerouting options. These may include:

- Removal of existing poles and installation of new overhead structures to divert the line around the AGI boundary; or
- Undergrounding the line along an ESB-approved route, subject to technical and land-use constraints.

The chosen solution will be determined by ESB Networks based on network requirements, safety clearances, and agreement with Bord na Móna. Any works associated with the diversion will be subject to ESB Networks' statutory powers and separate approval processes. The diversion does not form part of the AGI construction works but is required in advance of AGI development.

3.2.4 Proposed Access, Roads and Parking

There will be no permanent access or trackway to the GNI 143 Ballykilleen Pipeline. Access to the Proposed Development during contraction will be provided via a combination of newly established construction entranceways and existing road infrastructure. Temporary access points and stoned haul routes will be developed along the pipeline alignment to facilitate safe movement of construction vehicles, plant, and personnel. Existing agricultural field gates will be used wherever possible, with widening or localised upgrading undertaken as required to accommodate machinery and delivery vehicles. Temporary laydown areas will be established at road crossings to provide parking, welfare facilities, and material storage.

Access to the Kilwarden Offtake Installation will be via an upgraded entrance off the private laneway from the R161. Three designated parking spaces will be provided adjacent to the compound entrance, with additional temporary parking available inside the compound during construction.

Access to the Ballykilleen AGI will be provided entirely via the existing Edenderry Renewable Energy Complex entrance and internal road network. Three designated operational parking spaces will be located at the AGI entrance gates, with internal space available for temporary construction parking and laydown activities.

3.2.5 Proposed Utilities Connections: Gas, Electricity, Potable Water, Foul Water and Telecommunications

The Proposed Development does not require extensive permanent utility connections, as the pipeline and associated compounds are designed to operate with minimal services. The proposed GNI 143 Ballykilleen Pipeline does not require an operational electrical supply, potable water supply, foul wastewater demand or telecommunications connection. There will be no stormwater management required during operation of the pipeline.

At the Kilwarden Offtake Installation, the facility will operate as a "dead site" and will not require electrical, potable water, foul water or telecommunications connections. The installation will incorporate a below-ground isolation valve and hot-tap pipework, together with a temporary pigging connection, none of which require permanent utility services. Surface water drainage will be managed on-site via a dedicated soakaway system to ground.

The drainage system serving the AGI will connect to the existing Edenderry Renewable Energy Complex drainage infrastructure, in line with agreement between GNI and Bord na Móna. This system will drain stormwater through the existing stormwater drainage network and discharge to the Figile River. No potable water or foul

water connections are required, as the AGI will not be staffed and includes no welfare facilities. The proposed Ballykilleen AGI will require electrical and telecommunications connections (ESB and Eir). Engagement with the relevant utility providers for these operational connections will begin once planning permission has been granted. Existing utilities in the area are expected to be utilised to facilitate these connections.

The proposed underground transmission gas pipeline in itself does not consume gas but will connect to the existing gas transmission line BGE77 in order to transport gas to the Bord na Móna Cushaling Peaker Plant.

3.3 Description of Construction Methods

The proposed works will primarily involve the installation of long sections of underground pipeline, generally laid within open-cut trenches at a nominal minimum depth of 1.2 metres. Excavation, backfilling, and reinstatement requirements will vary depending on whether works are undertaken within greenfield areas or within public roadways.

The underground pipeline construction methods anticipated for the Proposed Development include:

- Open Cut – Greenfield Areas
- Open Cut - Service Crossings
- Open Cut - Watercourse Crossings
- Open Cut - Road Crossings
- Trenchless - River/Watercourse/Road Crossings

In addition to the main pipeline works, the construction phase will also include the installation of the Kilwarden Offtake and the Ballykilleen Above Ground Installation (AGI).

Temporary construction compounds will be established along the proposed pipeline corridor to facilitate construction activities. There are three distinct categories of temporary construction compounds which serve different purposes – these are Temporary Construction Compounds, Laydown Areas (Type A) and Laydown Areas (Type B). Temporary compounds associated with the construction of the GNI 143 Ballykilleen pipeline will be located at selected points along the route, within the overall proposed development site.

3.3.1 Kilwarden Offtake Installation

The Kilwarden Offtake Installation involves construction of a hot-tap connection to the existing 750 NB BGE77 transmission pipeline within an agricultural field south of the R161. Summary of works is provided in

Table .

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. The valve arrangement detailed below will allow for safe welding of the new transmission gas pipeline to the existing gas pipeline by controlling gas flow during installation.

A Temporary Working Area will be established at the Kilwarden Offtake Installation to facilitate construction. See Section **Error! Reference source not found.** below for further details on these temporary construction works.

Table 10 Kilwarden Offtake Installation Construction Works Summary

Construction Element	Summary of Works
Site Establishment	Establish Temporary Working Area with perimeter fencing, welfare facilities, car parking and laydown area. Strip topsoil to a depth of 300 mm. The topsoil shall be stored separately to the subsoil for future reinstatement. Topsoil will be kept free from disturbance for the duration of construction to reduce risk of physical damage and compaction. Upgraded entrance off the private laneway from the R161 works will be completed.
Excavation Works	A trench will required to expose existing 750 NB BGE77 pipeline (depth ~1.63 m). The depth of pit excavation to allow for pit base and welding space is c. 3.4 m deep c. 10m x 5m wide. To ensure excavation stability for the Kilwarden Offtake Installation, a battered excavation method will be used. In the event that a battered excavation is deemed unsuitable due to site constraints sheet piling may be considered as an alternative option to support the excavation for the hot tap, however this must be agreed with GNI prior to conducting works.
Civil Works	A temporary concrete working platform will be constructed to facilitate welding operations within the hot tap excavation. Upon completion of drilling and welding works, the concrete slab will be broken out from site. Concrete pipe supports will also be installed beneath the existing pipeline either side of the proposed hot tap tie in point to prevent overstressing the existing pipe. A concrete plinth will be constructed for the baseplate of the hot tap valve. Following the installation and backfilling of the hot tap and associated pipework, the site will be brought up to the agreed formation level. Concrete will be poured and levelled for the civil support base of the temporary pig trap and the concrete roadway within the site. Site drainage will also be installed. Install permanent fencing (2.4 m palisade + 1.2 m stock-proof fence). Construction of permant laneway access.
Mechanical works	All welded fittings shall be installed onto the pipeline in accordance with AD/SP/004 and supervised by a welding inspector. All high-pressure welds shall be subject to 100% non-destructive testing as per AD/SP/002 Clause 8.3. All above ground pipework shall be painted in accordance with AD/SP/009 while all below ground pipework shall be coated in accordance with AD/SP/008. Where a pipe is in contact with a mechanical jack or ring type support, the pipe will be coated in MCL (Refer to AD/SP/008), at 100 mm either side of the contact area.
Backfilling & Reinstatement	Backfill with approved CL503 material. Reinstate site to agreed formation levels. Restore topsoil and complete compound surfacing with stone chip. Landscaping undertaken where required.

3.3.2 Pipeline Construction

General Construction Methodology

The proposed works primarily involve the installation of long sections of conventional pipeline, laid in open-cut trenches, with the pipeline installed at a minimum depth of cover of 1.2 metres, traversing multiple agricultural fields (greenfield lands). This approach will be used for the majority of the GNI 143 Ballykilleen Pipeline, which traverses predominantly agricultural greenfield lands.

This open-cut greenfield methodology represents the principal construction technique for the Proposed Development.

Special Crossings – Anticipated Construction Methodologies

Where the pipeline intersects with roads, rivers and watercourses, construction techniques other than the standard open-cut greenfield approach are required. These locations are referred to as special crossings.

A limited number of crossings have been confirmed through design to require trenchless construction These crossings and the expected construction design and are described in detail in Table 11.

- Kilwarden River (RVX01);
- Yellow River (RVX02);
- M4 Motorway (RDX04); and
- Grand Canal (WCX23).

For all other special crossings, the anticipated construction methodology at EIAR stage has been identified based on the current design and available ground information. The proposed approach for each crossing is summarised in Tables 2-11 to 2-13, which together provide the single point of reference for crossing methodologies assessed within this project:

- Table 11 summarizes road crossings;
- Table 12 summarizes river crossings; and
- Table 13 summarizes watercourse crossings.

Except where trenchless construction is confirmed by design, the methodologies identified in these tables represent the anticipated approach only. The appointed contractor may, during detailed design and construction planning, elect to use trenchless techniques at certain locations where this is considered more appropriate having regard to site-specific ground conditions, constructability, health and safety considerations, or environmental sensitivities. In some cases, trenchless installation may be less intrusive than open-cut construction.

Table 11 GNI143 Ballykilleen Pipeline Road Crossing Methodology

Road Crossing Reference	Road No.	Pipeline Chainage (m)[a]	Approximate Crossing Span / Length (m)	Anticipated Crossing Methodology
RDX01	R161	850	16	Open Cut
RDX02	R148	2472	65	Trenchless[b]
RDX03	L80217	2505		Trenchless[b]
RDX04	M4	3000	350	Trenchless[c]
RDX05	L40181	3925	12	Open Cut
RDX06	L8022	5150	15	Open Cut
RDX07	R401	6485	24	Trenchless[b]
RDX08	L80241	7140	16	Open Cut
RDX09	L4091	7431	20	Open Cut
RDX10	L1004	14441	13	Open Cut
RDX11	Private Lane	14679	8	Open Cut
RDX12	R441	15338	19	Trenchless[b]
RDX13	L5007	16800	20	Open Cut
RDX14	R402	18743	26	Trenchless[b]
RDX15	L5003	19489	9	Open Cut
RDX16	Private Lane	22090	10	Open Cut
RDX17	R401	22757	120	Trenchless

a. Pipeline Chainage (m) indicates the approximate location of the crossing along the pipeline.
b. The crossing is currently anticipated to be undertaken using trenchless construction techniques. Refer to Section 2.4.2.1 for further detail.
c. The M4 (RDX04) crossing has been confirmed to be installed using trenchless construction methods. See Section **Error! Reference source not found.**.

Table 12 GNI143 Ballykilleen Pipeline River Crossing Methodology

RVX No.	River	Pipeline Chainage (m)	Approximate Crossing Span / Length (m)	Crossing Construction Technique
RVX01	Kilwarden River	1230	272	Trenchless[a]
RVX02	Yellow River	11414	509	Trenchless[a]

a. The Kilwarden River (RVX01) and Yellow River (RVX02) crossing has been confirmed to be installed using trenchless construction methods. See Section **Error! Reference source not found.**.

Table 13 GNI143 Ballykilleen Pipeline Watercourse Crossing Methodology

Water Crossing	Stream	Pipeline Chainage[a]	Approximate Crossing Span / Length (m)	Anticipated Crossing Technique
WCX01	Unmapped channel	1900	3	Open Cut
WCX02	Aghnagillagh Stream	3187	6	Trenchless[b]
WCX03	Unmapped channel	4893	3	Open Cut
WCX04	Knockerasally or Colehill River	6666	7	Open Cut
WCX05	Park River	7303	6	Open Cut
WCX06	Ballynakill Stream	7496	20	Open Cut
WCX07	Unmapped channel	8030	5	Open Cut
WCX08	Unmapped channel	8815	5	Open Cut
WCX09	Unmapped channel	9278	6	Open Cut
WCX10	Unmapped channel	9603	7	Open Cut
WCX11	Castlejordan River	10036	6	Open Cut
WCX12	Rahin Stream	10125	6	Open Cut
WCX13	Unmapped channel	12916	6	Open Cut
WCX14	Unmapped stream	13124	8	Open Cut
WCX15	Unmapped channel	13376	5	Open Cut
WCX16	Roosk River	14871	10	Open Cut
WCX17	Unmapped channel	15543	6	Open Cut

WCX18	Unmapped channel	16054	3	Open Cut
WCX19	Kinnafad River	16366	7	Open Cut
WCX20	Unmapped stream	16706	9	Open Cut
WCX21	Unmapped channel	16882	5	Open Cut
WCX22	Unmapped channel	17204	6	Open Cut
WCX23	Grand Canal	18090	192	Trenchless[(c)]
WCX24	Ballyleakin River	20522	4	Open Cut
WCX25	Unmapped channel	20679	6	Open Cut
WCX26	Unmapped channel	21034	5	Open Cut
WCX27	Unmapped channel	22459	5	Open Cut
WCX28	Unmapped channel	22617	5	Open Cut
WCX29	Ballykilleen Stream	22753	4	Trenchless[(b)]
WCX30	Ballykilleen Stream	23151	5	Open Cut

b. Pipeline Chainage (m) indicates the approximate location of the crossing along the pipeline.
c. The crossing is currently anticipated to be undertaken using trenchless construction techniques. Refer to Section 2.4.2.1 for further detail.
d. The Grand Canal (WCX23) crossing has been confirmed to be installed using trenchless construction methods. See Section **Error! Reference source not found.**.

3.3.3 Ballykilleen Above Ground Installation

The Ballykilleen AGI will be constructed within the Edenderry Renewable Energy Complex, an established industrial setting that already accommodates energy-related infrastructure. Construction activities involve the development of a secure compound, installation of below-ground and above-ground gas infrastructure, and provision of all supporting civil, mechanical and electrical systems required for the safe operation of the installation.

Table 14 Ballykilleen AGI Construction Works Summary

Construction Element	Summary of Works
Site Establishment	Establish temporary construction compound within the Edenderry Renewable Energy Complex. Set up site offices, welfare facilities, parking and plant storage. Strip and store topsoil separately for reinstatement. Excavation of unsuitable peat and wet soils identified during site investigation. Replacement with suitable granular fill (e.g., 6F2 or T1) and installation of geotextile membrane to provide stable bearing capacity Formation of site to required levels.
Below-Ground Installation	Excavation of pipe trenches for inlet, outlet, fuel gas, pipework and electrical/communications ducting. Installation of all below-ground pipework and ducting, including protective coatings. Backfilling and compaction using approved materials. Completion of welding for high-pressure and low-pressure pipework. 100% non-destructive testing of high-pressure welds. plication of protective coatings and painting in accordance with GNI specifications.
Above-Ground Installation	Construction of foundations for AGI components (PRS kiosk, PBU kiosk, E&I kiosk, Gas Analyser kiosk, temporary pig trap). Installation of internal concrete roadway, footpaths, and parking areas. Installation of site drainage system, connecting to existing stormwater infrastructure within the Renewable Energy Complex. Erection of security fencing (2.4 m palisade + 1.2 m mesh). Delivery and placement of prefabricated kiosks (PRS, PBU, E&I, Gas Analyser). Installation of mechanical pipework between all units. Installation of lighting and CCTV columns (~8 m height) and all associated cabling.
Reinstatement	Placement of stone chip surface across the compound. Landscaping and final finishing within the site boundary. Removal of temporary works and reinstatement of any disturbed ground.

3.3.4 Temporary Construction Works

3.3.4.1 Temporary Construction - Haul Road / Running Track

A temporary haul road or 'running track' will be established along the entire pipeline route within greenfield lands to allow safe movement of machinery, pipe, and personnel along the pipeline route. Construction personnel will access the pipeline haul road or 'working spread' at each of the designated road crossings. For the majority of the pipeline route there will be a seamless haul road established withing the Proposed Development site to facilitate construction of the pipeline and transportation of personnel and materials along the route. The construction working spread along the pipeline will be interrupted at certain locations requiring construction traffic diversions on private and public road network, including:

- M4 crossing (RDX04): To access the work area located on the opposite side of the M4 crossing (RDX04), construction personnel must use the private agricultural access roads running parallel to the M4, and existing M4 overbridge.
- Yellow River (RVX02): Access to the northern section of RVX02 will be provided via RDX09, while the southern section will be accessed via RDX10.
- Grand Canal (WCX23):Access to the northern section of WCX23 will be provided via RDX13, while the southern section will be accessed via RDX14.

The running track and temporary haulage road will:

- Be c. 8m wide and formed using compacted stone placed over geotextile membrane where ground conditions require additional support;
- Ensure all-weather access for construction vehicles;
- Be located fully within the designated working width to avoid unnecessary land disturbance;
- Include bog mats in soft ground areas or flood zones (e.g., at the Yellow River floodplain) to prevent rutting and protect topsoil.

The running track is temporary works and will be fully removed following pipeline installation. The underlying ground will be regraded and reinstated using stored topsoil to restore agricultural land to pre-construction condition.

3.3.4.2 Temporary Construction – Temporary Culverts and Bridge Structures

Temporary bridges or temporary culverts with a running track crossover will be required to cross watercourses including the Kilwarden River. On this basis, the Proposed Development falls within the scope of works requiring consent under Section 50 of the Arterial Drainage Acts as per the OPW guidance set out in publication Construction, Replacement or Alteration of Bridges and Culverts: A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945. Rev. 201905-3.

These watercourse crossings structures are required to allow for an uninterrupted running track for the duration of the construction works and removed once reinstatement of the working area is completed. No watercourse crossings structures will be established over

A temporary bridge structure will be installed over the Kilwarden River (RVX01). A temporary bridge structure will not be installed over the Grand Canal (WCX23) or the Yellow River (RVX02).

A culvert will not be constructed across the Grand Canal (WCX23), the Kilwarden River (RVX01) or the Yellow River (RVX02).

3.3.4.2.1 Temporary Culverts with Running Track Crossover

A temporary culvert crossing will include:

- Pre-cast concrete or steel culvert pipes installed within the channel;
- Surrounding sandbags or stone to seal culvert placement;
- Graded approaches constructed from stone to allow vehicles to cross;
- Flume pipes if water must be diverted to maintain flow during trench excavation.

Temporary culverts will be sized to maintain natural flow conditions and minimise the risk of upstream backing or downstream scour. Sediment control measures such as silt fencing, straw bales, or settlement controls will be installed downstream.

All temporary culverts will be removed once pipeline installation is complete, and the watercourse banks will be reinstated to their original profile.

3.3.4.2.2 Temporary Bridge Structures

A temporary bridge structure will be installed over the Kilwarden River (RVX01) and may also be utilised over other watercourse crossings to facilitate an uninterrupted running track and construction access.

It is anticipated that the prefabricated bridge structure will rest on timber bogmats placed on each side to serve as temporary abutments. The typical temporary bridge installation and dismantling process is outlined in Table 15 for reference. The temporary bridge will remain operational for the duration of the construction works, with installation and dismantling phases expected to take approximately 4 weeks. During operations, regular maintenance and monitoring will be undertaken under the guidance of an Environmental Clerk of Works (ECoW) to ensure the crossing functions effectively and that any potential issues are promptly addressed.

Table 15 Temporary Bridge Installation and Dismantling

Stage	Description
Site Preparation	Define and demarcate working areas, maintaining a minimum 10m clearance from the riverbank except for approach roads/ramps. Verify that working areas align with land acquisition and working width drawings. Conduct clearing works, including topsoil stripping and stockpiling for later reinstatement. Measures will be implemented to manage runoff and prevent sedimentation of nearby watercourses. All temporary works areas related to the crossing shall be designed to drain runoff away from the watercourse banks to prevent contamination of the watercourse.
Crane and Bridge Preparation	A stoned pad will be constructed adjacent to the river for a suitable crane. The pad will use compacted stone, avoiding the use of concrete. A crane will be positioned to facilitate efficient and safe lifting operations. Load-bearing checks will be carried out to confirm the stability of the crane pad and lifting equipment. The prefabricated bridge structure designed by the contractor, will feature safety elements such as guardrails, raised curbs, and safety rails.
Abutment Installation	Install a bogmat abutment on one side of the river. Abutments will be placed at least 2m back from the top of the riverbank. The crane will lift and place the bogmat abutment on the other side of the river.
Bridge Installation	The crane will lift the prefabricated bridge structure and position it on the abutment across the river. Construct approach ramps on both sides using stone materials. The ramps will be graded to match the bridge elevation and will be stabilised to prevent erosion.
Construction Activities	Transport materials and equipment across the bridge. Complete the haul road and establish a stoned working area on both sides. Fence off the working areas to maintain minimum 10m clearance from the riverbank. Conduct pipeline installation as per sec 3.3 below.
Dismantling and Removal	Once construction activities are completed, materials and equipment will be transported back across the bridge. Stone and other materials will be removed, using the bridge for transport. Use the crane to lift out the bridge and abutments.
Site Reinstatement	Both sides of the watercourse will be restored to their original condition. This includes re-grading the land to match pre-construction levels and re-grassing to replicate pre-existing vegetation. Stockpiled topsoil will be redistributed. All temporary structures, including fencing, will be removed. Post-reinstatement monitoring will be conducted to ensure the site has fully returned to its pre-construction state, with corrective actions taken if necessary. This includes confirming stabilisation of the riverbanks and absence of erosion or sedimentation.

3.3.4.3 Temporary Construction Access

5 no. Temporary Construction Compounds and Laydown Areas (Type A) (see Section 3.3.4.7 below) will act as primary access points for all construction traffic and access points for HGV and Plant Machinery, including access for linepipe deliveries at these locations.

Laydown Areas (Type B) (see Section 3.3.4.7 below) will act as secondary access points. Light goods vehicles and construction plant can access the site at these locations. HGVs and Linepipe deliveries will not access the site at these locations.

In addition, during construction, temporary access points to the construction working width for the transmission gas pipeline route will be created at each of the designated road crossing, with the exception of the M4 crossing (RDX04).

Temporary access gates will be installed on both sides of the road crossing, with the selected entry point depending on the location of active works. Inside each access point, a temporary laydown area will be established to provide car parking, material storage, and welfare facilities.

To establish the temporary construction access existing agricultural gates will be repurposed where possible as the temporary access points, provided they align with the pipeline route. In some cases, these gates may require widening to accommodate heavy machinery or to facilitate movement across the road between work zones.

3.3.4.4 Temporary Construction - Haul Road / Running Track

A temporary haul road or 'running track' will be established along the entire pipeline route within greenfield lands to allow safe movement of machinery, pipe, and personnel along the pipeline route. Construction personnel will access the pipeline haul road or 'working spread' at each of the designated road crossings. For the majority of the pipeline route there will be a seamless haul road established withing the Proposed Development site to facilitate construction of the pipeline and transportation of personnel and materials along the route. The construction working spread along the pipeline will be interrupted at certain locations requiring construction traffic diversions on private and public road network, including:

- M4 crossing (RDX04): To access the work area located on the opposite side of the M4 crossing (RDX04), construction personnel must use the private agricultural access roads running parallel to the M4, and existing M4 overbridge.
- Yellow River (RVX02): Access to the northern section of RVX02 will be provided via RDX09, while the southern section will be accessed via RDX10.
- Grand Canal (WCX23):Access to the northern section of WCX23 will be provided via RDX13, while the southern section will be accessed via RDX14.

The running track and temporary haulage road will:

- Be c. 8m wide and formed using compacted stone placed over geotextile membrane where ground conditions require additional support;
- Ensure all-weather access for construction vehicles;
- Be located fully within the designated working width to avoid unnecessary land disturbance;
- Include bog mats in soft ground areas or flood zones (e.g., at the Yellow River floodplain) to prevent rutting and protect topsoil.

The running track is temporary works and will be fully removed following pipeline installation. The underlying ground will be regraded and reinstated using stored topsoil to restore agricultural land to pre-construction condition.

3.3.4.5 Temporary Construction – Temporary Culverts and Bridge Structures

Temporary bridges or temporary culverts with a running track crossover will be required to cross watercourses including the Kilwarden River. On this basis, the Proposed Development falls within the scope of works requiring consent under Section 50 of the Arterial Drainage Acts as per the OPW guidance set out in publication Construction, Replacement or Alteration of Bridges and Culverts: A Guide to Applying for Consent under Section 50 of the Arterial Drainage Act, 1945. Rev. 201905-3.

These watercourse crossings structures are required to allow for an uninterrupted running track for the duration of the construction works, and removed once reinstatement of the working area is completed. No watercourse crossings structures will be established over

A temporary bridge structure will be installed over the Kilwarden River (RVX01). A temporary bridge structure will not be installed over the Grand Canal (WCX23) or the Yellow River (RVX02).

A culvert will not be constructed across the Grand Canal (WCX23), the Kilwarden River (RVX01) or the Yellow River (RVX02).

3.3.4.5.1 Temporary Culverts with Running Track Crossover

A temporary culvert crossings will include:

- Pre-cast concrete or steel culvert pipes installed within the channel;
- Surrounding sandbags or stone to seal culvert placement;
- Graded approaches constructed from stone to allow vehicles to cross;
- Flume pipes if water must be diverted to maintain flow during trench excavation.

Temporary culverts will be sized to maintain natural flow conditions and minimise the risk of upstream backing or downstream scour. Sediment control measures such as silt fencing, straw bales, or settlement controls will be installed downstream.

All temporary culverts will be removed once pipeline installation is complete, and the watercourse banks will be reinstated to their original profile.

3.3.4.5.2 Temporary Bridge Structures

A temporary bridge structure will be installed over the Kilwarden River (RVX01) and may also be utilised over other watercourse crossings to facilitate an uninterrupted running track and construction access.

It is anticipated that the prefabricated bridge structure will rest on timber bogmats placed on each side to serve as temporary abutments. The typical temporary bridge installation and dismantling process is outlined in Table 16 for reference. The temporary bridge will remain operational for the duration of the construction works, with installation and dismantling phases expected to take approximately 4 weeks. During operations, regular maintenance and monitoring will be undertaken under the guidance of an Environmental Clerk of Works (ECoW) to ensure the crossing functions effectively and that any potential issues are promptly addressed.

Table 16 Temporary Bridge Installation and Dismantling

Stage	Description
Site Preparation	Define and demarcate working areas, maintaining a minimum 10m clearance from the riverbank except for approach roads/ramps. Verify that working areas align with land acquisition and working width drawings. Conduct clearing works, including topsoil stripping and stockpiling for later reinstatement. Measures will be implemented to manage runoff and prevent sedimentation of nearby watercourses. All temporary works areas related to the crossing shall be designed to drain runoff away from the watercourse banks to prevent contamination of the watercourse.
Crane and Bridge Preparation	A stoned pad will be constructed adjacent to the river for a suitable crane. The pad will use compacted stone, avoiding the use of concrete. A crane will be positioned to facilitate efficient and safe lifting operations. Load-bearing checks will be carried out to confirm the stability of the crane pad and lifting equipment. The prefabricated bridge structure designed by the contractor, will feature safety elements such as guardrails, raised curbs, and safety rails.
Abutment Installation	Install a bogmat abutment on one side of the river. Abutments will be placed at least 2m back from the top of the riverbank. The crane will lift and place the bogmat abutment on the other side of the river.
Bridge Installation	The crane will lift the prefabricated bridge structure and position it on the abutment across the river. Construct approach ramps on both sides using stone materials. The ramps will be graded to match the bridge elevation and will be stabilised to prevent erosion.

Construction Activities	Transport materials and equipment across the bridge. Complete the haul road and establish a stoned working area on both sides. Fence off the working areas to maintain minimum 10m clearance from the riverbank. Conduct pipeline installation as per sec 3.3 below.
Dismantling and Removal	Once construction activities are completed, materials and equipment will be transported back across the bridge. Stone and other materials will be removed, using the bridge for transport. Use the crane to lift out the bridge and abutments.
Site Reinstatement	Both sides of the watercourse will be restored to their original condition. This includes re-grading the land to match pre-construction levels and re-grassing to replicate pre-existing vegetation. Stockpiled topsoil will be redistributed. All temporary structures, including fencing, will be removed. Post-reinstatement monitoring will be conducted to ensure the site has fully returned to its pre-construction state, with corrective actions taken if necessary. This includes confirming stabilisation of the riverbanks and absence of erosion or sedimentation.

3.3.4.6 Temporary Construction Access

5 no. Temporary Construction Compounds and Laydown Areas (Type A) will act as primary access points for all construction traffic and access points for HGV and Plant Machinery, including access for linepipe deliveries at these locations.

Laydown Areas (Type B) will act as secondary access points. Light goods vehicles and construction plant can access the site at these locations. HGVs and Linepipe deliveries will not access the site at these locations.

In addition, during construction, temporary access points to the construction working width for the transmission gas pipeline route will be created at each of the designated road crossing, with the exception of the M4 crossing (RDX04).

Temporary access gates will be installed on both sides of the road crossing, with the selected entry point depending on the location of active works. Inside each access point, a temporary laydown area will be established to provide car parking, material storage, and welfare facilities.

To establish the temporary construction access existing agricultural gates will be repurposed where possible as the temporary access points, provided they align with the pipeline route. In some cases, these gates may require widening to accommodate heavy machinery or to facilitate movement across the road between work zones.

3.3.4.7 Temporary Construction Compounds

Temporary construction compounds will act as primary construction access points and will facilitate key construction activities including site management, welfare provision, plant and machinery storage, material storage and car parking. Temporary Construction Compounds will have capacity to accommodate storage of the full project line-pipe quantity.

Table 17 Temporary Construction Compounds

Temporary Construction Compound	Location Description	Approx. Area (ha)	Access
Temporary Construction Compound 01	Kilwarden Offtake Installation	2.2621	widening of existing agricultural entrance from the R161.
Temporary Construction Compound 02	Near RDX04	3.0110	access via private lane off the R148.
Temporary Construction Compound 03	Near Edenderry Town	2.2507	access via the Inner Relief Road off the R441.
Temporary Construction Compound 04	Near Killeenmore Townland	0.9140	access via private lane off the R402.
Temporary Construction Compound 05	Ballykilleen AGI	0.4958	access via the existing Edenderry Power Station entrance off the R041.

3.3.4.7.1 Laydown Areas (Type A)

Laydown Areas (Type A) will act as primary access points along the pipeline route and will facilitate the movement of heavy plant, delivery vehicles (including line-pipe deliveries) and construction traffic associated with the main pipeline working spread.

Seven Type A laydown areas will be established at the following locations: RDX01; RDX02 & RDX03 (combined); RDX07; RDX10; RDX12; RDX14; and RDX17. Typical size of these areas: 75m x 45m.

3.3.4.7.2 Laydown Areas (Type B)

Laydown Areas (Type B) will act as secondary construction access points, facilitating movement of construction vehicles and plant across roads to maintain continuity of the pipeline working spread.

Eight Laydown Areas (Type B) will be established at RDX05; RDX06; RDX08; RDX09; RDX11; RDX13; RDX15; and RDX16. Typical size of these areas 45m x 30m.

Further detail in relation to construction methods can be found in the accompanying EIAR by AWN Consulting Limited 2026.

4 Overview of the Receiving Environment

4.1 European sites

The proposed project does not overlap with any European sites. As outlined in OPR Practice Note PN01; Appropriate Assessment Screening for Development Management' by the Office of the Planning Regulator (2021) "*The zone of influence 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. This should be established on a case-by-case basis using the Source- Pathway-Receptor framework and not by arbitrary distances (such as 15 km)*."

Initially, all European sites within 15km were considered. Following this, all relevant European sites within the Zone of Influence (ZoI) of the proposed project were identified using the 'source-pathway receptor' model and were considered in the screening assessment (Section 5.1). European sites within the ZoI can include sites beyond 15km with a hydrological or hydrogeological connection to the proposed development site, or European sites designated for SCI species with foraging ranges greater than 15km. There are 7 European sites within the initial 15km vicinity of the proposed development, as identified in the following section. The northernmost section of the proposed pipeline route is directly adjacent (c.20m) to the Mount Hevey Bog SAC.

European sites (Special Areas of Conservation and Special Protection Areas) are shown in Figures 9 & 10 below.

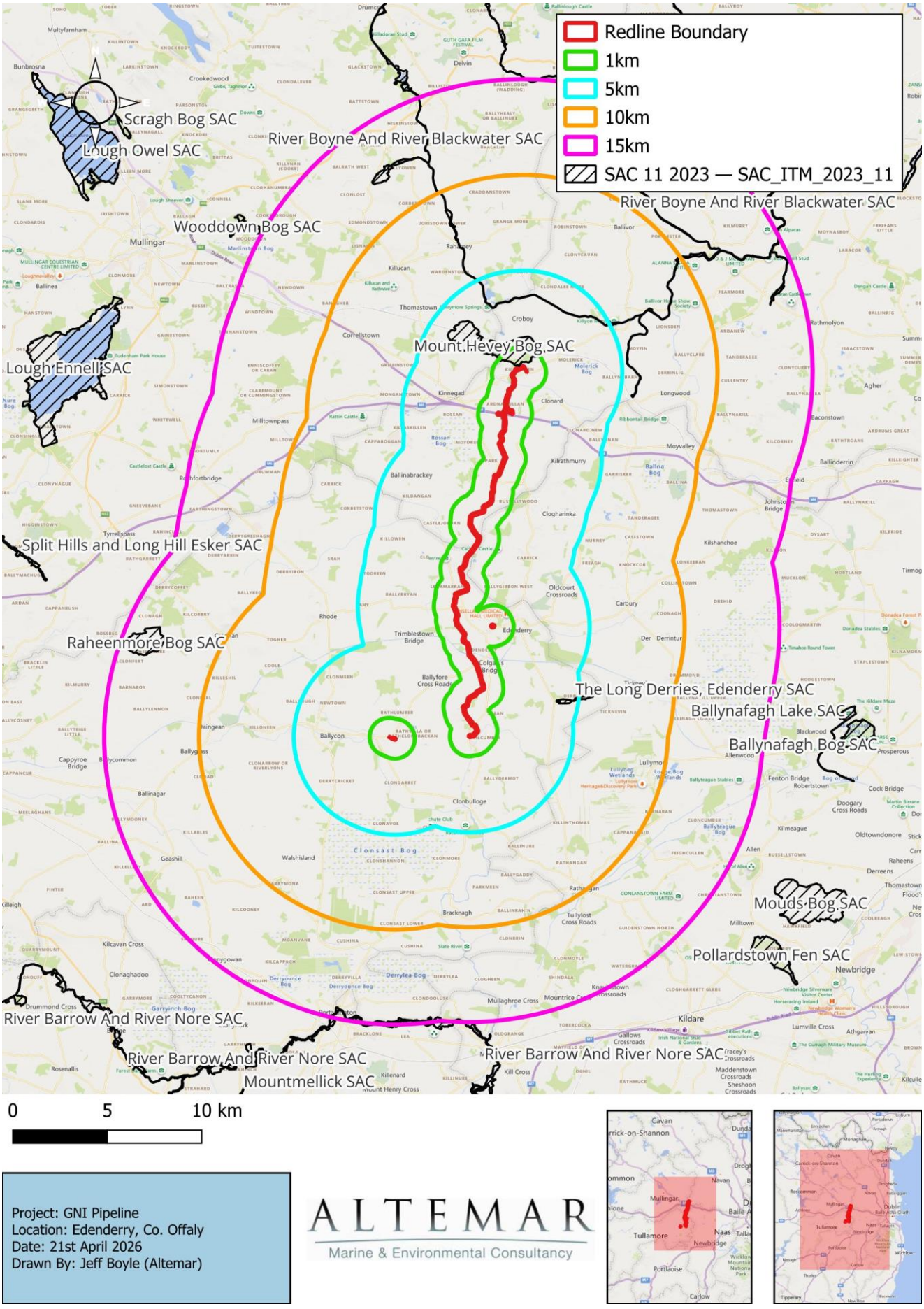

Figure 9. SACs within 15km of the proposed pipeline route

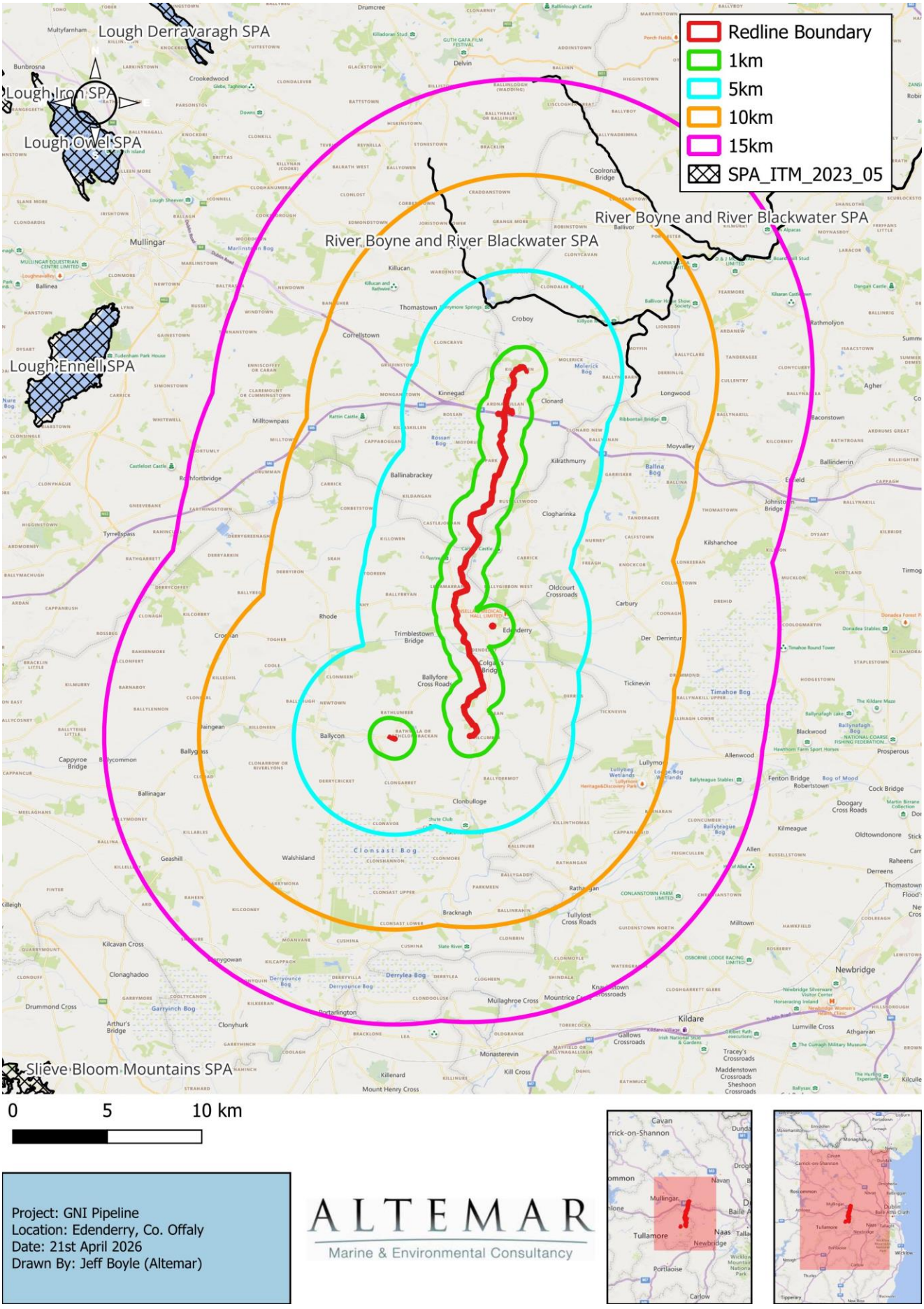

Figure 10. SPAs within 15km of the proposed pipeline route

4.2 Habitats

The site predominantly comprises portions of multiple fields with some internal and boundary hedgerows, treelines and scrub. There is no artificial drainage infrastructure within the site boundary, except for surface water run-off at the Edenderry Renewable Energy Complex (under license). The site is characterized predominantly as greenfield grassland and hedgerow, therefore at present drainage is predominantly via overland flow to drainage ditches, streams and river watercourses which traverse / flow through / adjacent to the site boundary, coupled with drainage to ground whereby surface water and rainfall, is generally percolated to ground through the site via infiltration to grass and soil under the influence of gravity. Drainage along road crossings within the site typically involves overland flow to roadside ditches or gulleys.

The habitat types of the Heritage Council classification system (Fossitt, 2000) present within the study area of the proposed Project within assessment zones AZ1, AZ2, AZ3 and AZ4 are presented in Table 17.

Table 17. Habitats noted during survey according to Fossitt (2000) and outlined according to EIAR sections

Section	Chainage	Habitats	Details
1	0-3925	**WL1 –** Hedgerow **WL2 -** Treeline **BL3 –** Built land and artificial surfaces **GA1 -**Agricultural grassland **FW4/WL2 –** Drainage ditch/Treeline **BC1 –** Arable crop fields **WS1 –** Scrub **ED2 –** Spoil and bare ground **GS2-** Dry meadow and grassy verges **WD2 –** Mixed broadleaf/conifer woodland.	• There are orchids between chainage 800m & 900m. • River crossings; RVX01 • Watercourse crossings; WCX01, WCX02.
2	3925 - 7384	**BL3 –** Built land and artificial surfaces **WL1 –** Hedgerow **WL2 -** Treeline **GA1 -**Agricultural grassland **FW2 –** Depositing/lowland rivers **ED2 –** Spoil and bare ground **BC1 –** Arable crop fields **FW4 –** Drainage ditch	• Watercourse crossings; WCX03, WCX04 & WCX05.
3	7384 - 11360	**WL1 –** Hedgerow **WL2 –** Treeline **GA1 -**Agricultural grassland **BL3 –** Built land and artificial surfaces **WD2 –** Mixed broadleaf/conifer woodland.	• **Watercourse crossing;** WCX06, WCX07, WCX08, WCX09, WCX10, WCX11 & WCX12.

Section	Chainage	Habitats	Details
		ED1 – Exposed sand, gravel or till **FW4 –** Drainage ditch **FW2 –** Depositing/lowland rivers **GS2-** Dry meadow and grassy verges	
4	11360 - 15272	**WL1 –** Hedgerow **WL2 –** Treeline **GA1** -Agricultural grassland **BL3 –** Built land and artificial surfaces **FW2 –** Depositing/lowland rivers **FW4 –** Drainage ditch **GS2-** Dry meadow and grassy verges **GS4 –** Wet grassland **ED1 –** Exposed sand, gravel or till	• River crossings; RVX02, • Watercourse crossing; WCX13, WCX14, WCX15 & WCX16.
5	15272 - 19420	**WL1 –** Hedgerow **WL2 –** Treeline **GA1** - Agricultural grassland **BL3 –** Built land and artificial surfaces **WD1 –** Mixed broadleaf woodland **WS1 –** Scrub **FW2 –** Depositing/lowland rivers **FW3** - Canal **FW4 –** Drainage ditch **FW4/WL1 –** Drainage ditch/Hedgerow **ED1 –** Exposed sand, gravel or till **ED3 –** Recolonising bare ground	• Watercourse crossing; WCX17, WCX18, WCX19, WCX20, WCX21, WCX22 & WCX23 Grand Canal.
6	19420 - 23555	**WL1 –** Hedgerow **WL2 –** Treeline **WS1 –** Scrub **GA1** - Agricultural grassland **GA2 –** Amenity grassland **BL3 –** Built land and artificial surface **FW4 –** Drainage ditch **ED1 –** Exposed sand, gravel or till **GS2** - Dry meadow and grassy verges	• Watercourse crossing; WCX24, WCX25, WCX26, WCX27, WCX28, WCX29 and WCX30. • Development boundary is 64 meters away from invasive Japanese knotweed. • Blue fleabane (endangered but not protected) at southwest of the site.

Section	Chainage	Habitats	Details
		ED3 – Recolonising bare ground	

4.2.1 Invasive Species

There were no records of any invasive species listed in the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations, 2011 within the Proposed Development site. However, it should be noted that Japanese knotweed (*Fallopia japonica*) (invasive species listed in the First Schedule of regulation 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2024) was noted during the invasive species surveys, approximately 64m east outside of the proposed development route between chainage 23100m and 23200m. Some medium[8] & high[9]-impact invasive species as per the 2013 Prioritisation Risk Assessment conducted by Invasive Species Ireland noted on within the proposed development area and included buddleia (*Buddleja davidii*) and cherry laurel (*Laurocerasus officinalis*). Buddleia and cherry laurel are not listed under the First schedule invasive species list. An Invasive Species Management Plan is included alongside the application for the Proposed Development.

The Invasive Species Management Plan is included within Appendix I.

4.2.2 Uncommon Species

A coterie of Common orchids (*Dactylorhiza fuchsii*) was recorded chainage 846 and blue fleabane (*Erigeron acer)* within the Edenderry Renewable Energy Complex. Blue fleabane is listed as "Endangered" on the Red Data List of Irish Plants. Neither of these are protected under the Flora Protection Order 2022, however, as outlined in the associated Biodiversity Chapter 7 of the EIAR, it is advisable to conserve these species as they are uncommon and in decline in Ireland. Methods of their transplanting/seed collection will be outlined in the pre-construction mitigation.

4.3 Fauna Species

4.3.1 Breeding Birds

A total of 35 species were recorded within and adjacent (up to 150m from the proposed development site) to the overall assessment area. 22 species were recorded breeding or displaying behaviour indicative of breeding. 16 green-listed bird species of conservation concern and five amber-listed bird species of conservation concern were recorded breeding: goldcrest, house martin, mallard, starling and swallow. One red-listed bird species of conservation concern was recorded breeding; yellowhammer. No species listed as Qualifying Interests of European Sites within the ZoI (see Section 5 for ZOI definition) of the Proposed Development were recorded.

As outlined in Chapter 7 Biodiversity of the accompanying EIAR in relation to birds:

'Breeding Birds were surveyed using standard walked transects and signs were recorded where encountered during the field walkover survey. A desk study was carried out to identify any potential suitable inland feeding and / or roosting sites for winter birds located within or directly adjacent to the Proposed Development areas. Breeding bird surveys were carried from the 9th to the 12th of June 2025.

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 improved agricultural grassland or arable land and/or subject to relatively high levels of grazing disturbance. As such it was not deemed necessary to carry out detailed wintering bird surveys in these areas. The results of the desk-based study have informed the assessment of potential impacts on wintering bird species arising from the Proposed Development.'

A full Breeding Bird report is included within Appendix II.

[8] https://invasives.ie/app/uploads/2022/01/Invasives_taggedMediumImpact_2013RA-2.pdf
[9] https://invasives.ie/app/uploads/2022/01/Invasives_taggedlist_HighImpact_2013RA-1.pdf

4.3.2 Otter (*Lutra Lutra*)

No observation of individual otters was recorded during mammal surveys by Altemar Ltd. One footprint was recorded at watercourse WCX04.

Evidence of otters was sought by Triturus Environmental Ltd. during aquatic surveys. Evidence of otters (spraint) was observed at 2 no. sites: site RVX1b, Kinnegad River and site RVX2b, River Boyne. Camera traps were deployed along the watercourses, but no otter activity was captured. It is likely that otters utilise watercourses through which the proposed development crosses, or waterbodies downstream of waterbody crossings.

4.3.3 Badgers (*Meles meles*)

Survey coverage in 2025 covered a wide area encompassing the Proposed Development EIAR boundary and surrounding areas. 2026 coverage was more focused covering the EIAR boundary, 50 m either side of the EIAR boundary throughout, and 150 m either side of the EIAR boundary at waterbody crossings.

With regards to badgers, 31 active setts were noted within the 2025 survey area coverage inclusive of 16 breeding/likely breeding setts. In 2026, an additional ten active breeding setts were recorded within the survey area inclusive of two breeding/likely breeding setts. Of the 41 overall active setts, 15 of these are either within, or in close enough proximity, to the proposed working width and compound areas, and will require protective exclusion zones (50 m for breeding setts during breeding season (December to June inclusive) and 30 m for other active setts) to protect them from potential impacts arising from the construction phase of the Proposed Development. A preconstruction activity assessment is required to determine sett activity in the O'Grady's Option 2 compound area. Other evidence of badger activity (rooting, prints, trails, latrines etc.) were observed throughout the assessed areas but concentrated in areas adjacent to badger setts.

A full Mammal Impact Assessment Report is included within Appendix III.

4.3.4 Bats

In summary, 51 trees of bat roosting potential (BRP) were noted (41 of low and 10 of moderate/medium BRP) within the survey area.

The results of the emergent/re-entry surveys taken from the associated Bat Report (found within EIAR Biodiversity Chapter Appendices) are as follows;

'Emergent/re-entry surveys.

Bats were observed emerging from 12 trees during the emergent/re-entry surveys. This included a potential Leisler maternity roost within a fissure of an ash tree south of chainage 15,100 m, where a minimum of 13 Leisler individuals were recorded re-entering. This was re-validated on a second re-entry survey where up to 51 Leisler individuals were recorded re-entering, however repeated entries/exits may have resulted in a proportion of double counts. Overall Leisler, Common pipistrelle and Soprano pipistrelle were recorded roosting in trees within the influence of the Proposed Development. A total of five bat species were recorded during emergence/re-entry surveys: common pipistrelle, soprano pipistrelle, leisler, Daubenton, and Brown long-eared.'

The report concludes;

The assessment area for the Proposed Development is not of particular significant value to bat species based on historical records in the context of the surrounding area in general, although a significant Leisler roost which would be considered of significance locally was recorded. Only one additional species has previously been recorded in the surrounding areas not detected during surveys in 2025. The potential for collision risk and impact on flight paths in relation to bats is considered not applicable due to the buried nature of the proposed pipeline. Following implementation of the proposed mitigation measures and arboricultural plans, bat foraging is predicted to persist at current levels in the medium/long-term due to minimal treeline/hedgerow removal and re-planting of removed/damaged hedgerow sections following construction.'

For the purposes of this AA Screening, impacts on Bats will not be considered further as they are not designated as Qualifying Interest Species for any European Site deemed to be within the precautionary Zone of Influence (as defined in Section 4).

4.4 Hydrological Baseline

The subject lands span across 3 subcatchments: The northern (section 1-2), central (Section 3-5) and southern portions (section 6) of the site lie within the Boyne_SC_030 subcatchment, Boyne_SC_010 subcatchment and Figile_SC_010 subcatchment, respectively. The proposed linepipe storage compound is located to the southeast of the pipeline route within the Figile_SC_020 subcatchment.

4.4.1 Conceptual Site Model

AWN have developed a conceptual site model (CSM) as part of 'Chapter 6 Hydrology and Hydrogeology' of the EIAR for this project, to identify any likely hydrological & hydrogeological Source-Pathway-Receptor linkages relating to the site and the Proposed Development. The findings are as follows:

*'The site has no **hydrological** pathway linkage / connection to the Mount Hevey Bog SAC, as this natura 2000 conservation site is located **hydrologically upgradient / upstream** of the proposed development site.*

The site currently has a direct hydrological linkage / connection to the downstream / downgradient River Boyne & River Blackwater SPA and River Nore & River Barrow SAC, albeit the pathway to these receptors involves a significant pathway distance allowing for significant attenuation and a large dilution factor downstream in the catchment.

*Currently, the site has no potential for a **hydrogeological (groundwater)** connection to River Boyne & River Blackwater SPA or the River Nore & River Barrow SPA/SAC located downstream from the proposed development.*

The potential for impact on the Mount Hevey Bog SAC located upstream of the proposed development is considered low, via hydrogeological connectivity.'

Based on the hydrological assessment by AWN & an analysis of potential source-pathway-receptors within the proposed pipeline route, Hydrological Source-Pathway-Receptor Linkages to European Sites have been identified as follows:

River Boyne & River Blackwater SAC/SPA via the following river waterbodies:

- Boyne_040 (Kinnegad 07 Stream & AGHNAGILLAGH Stream).
- Boyne_030 (KNOCKERSALLY or COLEHILL Stream / PARK 07 Stream / BALLYNAKIL 07 Stream / CASTLEJORDAN 07 Stream / RAHIN Stream / ROOSK 07 Stream).
- YELLOW (CASTLEJORDAN)_030 (Yellow [Castlejordan] Stream).
- Boyne_020 (MOUNTWILSON Stream & Kinnafad Stream).

River Nore & River Barrow SAC via the following river waterbodies:

- BALLYLEAKEN Stream (FIGILE_030).
- BALLYKILLEEN Stream (FIGILE_030).

The Hydrogeological Source-Pathway-Receptor Linkages to European Sites have been identified as follows:

Mount Hevey Bog SAC via:

- uncontrolled surface water runoff during construction phase which could transport sediments or contaminants into nearby drainage features and surface waters if not appropriately managed.

4.4.2 AGI

River Barrow and River Nore SAC via:

- With regard to the AGI located at the southern end of the site, the stormwater drainage will connect to an attenuation pond located within the BnM facility. This pond subsequently discharges at a controlled rate into the Figile River post treatment and attenuation at a controlled rate. This represents an indirect hydrological Source-Pathway-Receptor linkage to **River Barrow & River Nore SAC**, albeit via a lengthy pathway distance allowing for significant attenuation and significant level of dilution within the attenuation (drainage design) and downstream in the catchment of the Figile River.

AWN Consulting's hydrological study consisted of desk-based surveys and included a review of published hydrological literature, aerial photography, and topographical and hydrometric information related to waterbodies within the zone of influence of the proposed project.

4.4.3 Baseline Fisheries Assessment and Aquatic Baseline

Field surveys and analytical testing undertaken by Triturus Environmental Ltd. (2025) involved stream and river surveys and water quality analysis for a suite of physio-chemical parameters, which along with the data collected during the desktop review, was used to inform the hydrological assessment of the proposed project.

The following is outlined in the Aquatic Baseline Report which is of relevance to the River Barrow and River Nore SAC & River Boyne and River Barrow SAC QI Species' Atlantic Salmon (*Salmo salar*) and lamprey species (*Lampetra sp*):

'The watercourses surveyed in the vicinity of the proposed Edenderry Gas Pipeline development were typically heavily modified lowland channels and drainage ditches of low aquatic value. Widespread historical straightening and deepening as part of land drainage works had resulted in watercourses with poor hydromorphology and often poor summer flows. A total of 6 no. sites on the Ballynakill Stream, Mountwilson Stream, Ballyleakin River and three unmapped channels were dry at the time of survey. Bordering and adjoining land uses had also exacerbated significant siltation and eutrophication impacts. Such pressures evidently influenced biological water quality with all sampling sites failing to achieve good status in July-August 2025.

*However, a low number of high conservation value aquatic species were recorded during the surveys including Annex II Atlantic salmon (2 no. sites), lamprey (3 no. sites) and otter (2 no. sites) in addition to Red-listed European eel (2 no. sites) and the Red-listed whirligig beetle Gyrinus urinator (1 no. site). The presence of one or more of these species resulted in these sites being evaluated as **local importance (higher value)** in terms of their aquatic ecology, with the majority of sites being of **local importance (lower value)**. Given its location within the Grand Canal pNHA (002104), watercourse crossing CAX1 on the Grand Canal was of **national importance**. This site also supported Red-listed duck mussel (Anodonta anatina). Whilst surveyed as a downstream control site (not a pipeline crossing), site RVX2b on the River Boyne was of **county importance** in terms of its aquatic ecology given its high value as an ecological corridor.*

No examples of Annex I aquatic habitats, no rare or protected macrophytes/aquatic bryophytes and no white-clawed crayfish were recorded during the surveys. No breeding or resting places of otter, protected under the Wildlife Act 1976-2023, were recorded within 150m of the survey sites.

Fisheries

A typical diversity of fish for the survey catchments was recorded during the survey, with Atlantic salmon, brown trout, lamprey (Lampetra sp.), European eel, minnow, gudgeon, stone loach, three-spined stickleback and ten-spined stickleback captured via electro-fishing in July and August 2025. Fish were recorded from a total of 19 no. sites, with 13 no. of these supporting only stickleback species.

Salmonid populations were very restricted in the survey area, with brown trout recorded from 5 no. sites on the on the Kinnegad River (RVX1 & RVX1b), Knockerasally River (WCX4), an unmapped Boyne tributary (WCX14) and the Kinnafad River (WCX19). Low numbers of Atlantic salmon were recorded from sites RVX1 and RVX1b on the Kinnegad River. This limited distribution reflected the widespread hydromorphological and water quality pressures in the survey area .

The distribution of lamprey was also highly limited with Lampetra sp. ammocoetes recorded from 2 no. sites on the Kinnegad River (RVX1 & RVX1b) and an unmapped Kinnafad River tributary (WXC20). Lamprey habitat was generally poor across the survey area and the abundances and distribution of ammocoetes reflected the often low summer flows, the poor hydromorphology of most sites and paucity of suitable spawning and nursery areas.'

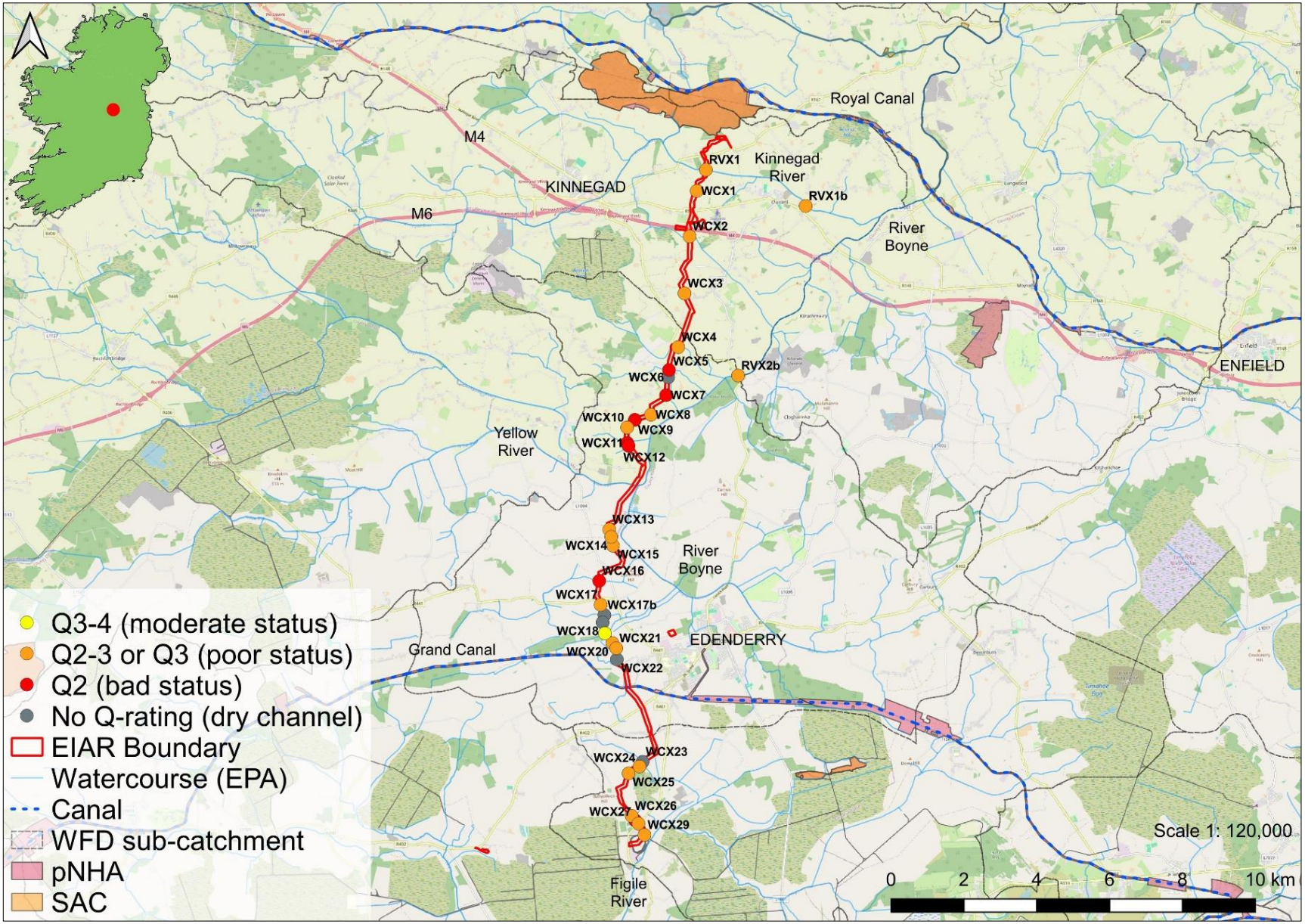

Figure 11. Overview of the biological water quality status in the vicinity of the proposed development, July-August 2025 (Triturus Environmental Ltd, 2025)

4.5 Hydrogeological Baseline

The proposed pipeline route traverses through 5 no. groundwater bodies:

4.5.1 Athboy Ground Water Body

- The Athboy GWB for which the site is located entirely within, has a WFD status of "*Good*" (WFD Period: 2019-2024) and a WFD risk score (3rd Cycle) of "*Not at Risk*" of not achieving good status. This status is driven by and attributed to the "Good" Quantitative Groundwater Body Status and "Good" Chemical Groundwater Body Status.

- As outlined in the Hydrogeoloical Assessment by AWN: '*These aquifer types are characterised by discrete local fracturing with little connectivity rather than large, connected fractures which are more indicative of Regional Aquifers. As such, flow paths are generally local to short distances. Therefore, given the local flow paths (<750m) and little connectivity, there is a potential for a hydrogeological connection/linkage to the Natura 2000/conservation/protection area located at the Mount hevey Bog SAC, located c. 20 m north of the site at the point of closest proximity (linear distance*).'

4.5.2 Kilrathmurry Gravels Groundwater Body

- The Kilrathmurry Gravels GWB for which the site is located entirely within, has a WFD status of "*Good*" (WFD Period: 2019-2024) and a WFD risk score (3rd Cycle) of "*Not at Risk*" of not achieving good status. This status is driven by and attributed to the "Good" Quantitative Groundwater Body Status and "Good" Chemical Groundwater Body Status.

4.5.3 Trim Groundwater Body

- The Trim GWB for which the site is located entirely within, has a WFD status of "*Good*" (WFD Period: 2019-2024) and a WFD risk score (3rd Cycle) of "*At Risk*" of not achieving good status. This current 'Good' status is driven by and attributed to the "Good" Quantitative Groundwater Body Status and "Good" Chemical Groundwater Body Status.

4.5.4 Rhode Groundwater Body

- The Rhode GWB for which the site is located entirely within, has a WFD status of "*Good*" (WFD Period: 2019-2024) and a WFD risk score (3rd Cycle) of "*Not at Risk*" of not achieving good status. This status is driven by and attributed to the "Good" Quantitative Groundwater Body Status and "Good" Chemical Groundwater Body Status.

4.5.5 Cushina Groundwater Body

- The Cushina GWB for which the site is located entirely within, has a WFD status of "*Good*" (WFD Period: 2019-2024) and a WFD risk score (3rd Cycle) of "*Not at Risk*" of not achieving good status. This status is driven by and attributed to the "Good" Quantitative Groundwater Body Status and "Good" Chemical Groundwater Body Status.

A full description of the hydrogeological baseline of the proposed Project is presented in Chapter 6 (Hydrogeology) of the EIAR accompanying this application.

4.5.6 Minerex Environmental Limited Hydrogeological Assessment

In relation to European Sites, the Hydrogeological Assessment undertaken by Minerex Environmental Limited (2025) focused within the 2km radius of the Mount Hevey Bog SAC and outlines that '*based on the established groundwater flow direction from northwest to southeast, provided by the GSI summary of initial characterisation which reflects the regional topographic gradient, and the absence of direct hydrological connectivity with surrounding streams due to flow directions, minimal hydrogeological connectivity is expected between the proposed works and Mount Hevey Bog SAC*'.

In relation to the River Boyne and Blackwater SAC located approximately 3.5km north of the focus area, it is outlined that '*Minimal hydrogeological connectivity is anticipated with this SAC due to the established groundwater flow pathways within the groundwater body and distance*'.

In conclusion, Minerex outlined that: '*Natura 2000 sites in the wider area include Mount Hevey Bog SAC, River Boyne and River Blackwater SAC, and The Long Derries, Edenderry SAC. No direct hydrological connectivity has been identified between the proposed works and these designated sites; however, a precautionary approach is recommended due to the sensitivity of the receiving environment. Mitigation measures, including controlled water management and treatment, attenuation of surface water runoff, bunded fuel storage, and silt control measures, will significantly reduce risks.*

With these measures in place, the proposed pipeline can proceed without expected significant adverse impact on groundwater, surface water, or designated ecological receptors.'

4.6 Land, Soils and Geology Baseline

The landscape within the Proposed Development Site is predominantly rural, comprising irregular agricultural fields used for grazing and cropping and bounded by traditional hedgerows characteristic of Counties Meath and Offaly. The lands are largely undeveloped, with no residential dwellings or permanent buildings located within site. Existing infrastructure intersected along the pipeline route includes regional and local roads, agricultural access tracks, drainage ditches, the M4 Motorway, and the Grand Canal. Residential dwellings occur in the wider area but primarily as dispersed one-off houses along local roads, with no urban centres directly adjoining the site.

As outlined by AWN Consulting Ltd. in the associated Land, Soils and Geology (Chapter 5) of the associated EIAR, the baseline features in relation to Land, Soil and Geology are as follows:

Table 18. Baseline Land, Soil and Geological Features within GNI143 Pipeline Sections

Pipeline Section	Receiving Environment
Pipeline Section 1: Kilwarden Offtake Installation to the L4181 Road (RDX05)	**Teagasc Soils:** BminDW- Deep well drained mineral (mainly basic), BminPD- Mineral poorly drained (mainly basic), BminPDPT- Peaty poorly drained mineral (mainly basic), BminSP- Shallow poorly drained mineral (mainly basic), BminSRPT- Shallow, rokcy, peaty/non-peatymineral complexes (mainly basic), BminSW- Shallow well drained mineral (mainly basic), Cut-Cutover/cutaway peat. Refer to Volume 4 (Teagasc Soils Sheet 1 of 6) for the Teagasc Soils mapping for this section. **Quaternary Sediments (Subsoils):** 'Alluvium' associated with stream/rivers which traverse the pipeline route, 'Cut over raised peat', 'Lacustrine Sediments', 'Gravels derived from Limestones' and 'Till derived from Limestone'. Refer to Volume 4 (Quaternary Sediments Sheet 1 of 6) for the Quaternary Sediments (Subsoils) mapping for this section. **Bedrock Geology:** The Majority of this section is underlain by the 'Waulsortian Limestones Formation'. The northernmost portion of this section is overlying the 'Edenderry Oolite Member Formation', while the southernmost portion of this section is overlying the 'Lucan Formation'. Refer to Volume 4 (Bedrock Geology Sheet 1 of 6) for the Bedrock Geology mapping for this section. **Aquifer / Groundwater Vulnerability:** The predominant aquifer vulnerability classification for this section is 'Moderate', while some areas of the central and northern portion of this section have been classified as 'High' and 'Extreme' vulnerability, respectively. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Sheet 1 of 6) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility:** The Landslide Susceptibility for this section ranges from 'Low to 'Inferred low' throughout this section. Refer to Volume 4 (Landslide Susceptibility Sheet 1 of 6) for the Landslide Susceptibility mapping for this section.

Pipeline Section	Receiving Environment
Pipeline Section 2: L4181 Road (RDX05) to the L4091 (RDX09)	**Teagasc Soils:** AlluvMIN- Alluvial (mineral), BminDW- Deep well drained mineral (mainly basic), BminPDPT- Peaty poorly drained mineral (mainly basic), BminSP- Shallow poorly drained mineral (mainly basic), BminSRPT- Shallow, rokcy, peaty/non-peatymineral complexes (mainly basic), BminSW- Shallow well drained mineral (mainly basic), Cut- Cutover/cutaway peat, Lac- Lacustrine type soils. Refer to Volume 4 (Teagasc Soils Sheet 2 of 6) for the Teagasc Soils mapping for this section. **Quaternary Sediments (Subsoils)-** *Primary*: 'Till derived from Limestone', *Secondary*: 'Lacustrine Sediments', 'Gravels derived from Limestones', 'Alluvium'. Refer to Volume 4 (Quaternary Sediments Sheet 2 of 6) for the Quaternary Sediments (Subsoils) mapping for this section. **Bedrock Geology**- The Majority of this section is underlain by the 'Lucan Formation'. The southernmost portion of this section is overlying 'Volcanics (in carboniferous)'. Refer to Volume 4 (Bedrock Geology Sheet 2 of 6) for the Bedrock Geology mapping for this section. **Aquifer / Groundwater Vulnerability**- The predominant aquifer vulnerability classification for this section is 'Moderate', while some localised areas of the northern and southern portion of this section have been classified as 'High' vulnerability. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Sheet 2 of 6) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility for this section ranges from 'Low'' to 'Inferred low' throughout this section. Refer to Volume 4 (Landslide Susceptibility Sheet 2 of 6) for the Landslide Susceptibility mapping for this section.
Pipeline Section 3: L4091 Road (RDX09) to the Yellow River (RVX02)	**Teagasc Soils:** AlluvMIN- Alluvial (mineral), BminDW- Deep well drained mineral (mainly basic), BminPDPT- Peaty poorly drained mineral (mainly basic), BminSP- Shallow poorly drained mineral (mainly basic), BminSRPT- Shallow, rokcy, peaty/non-peatymineral complexes (mainly basic), BminSW- Shallow well drained mineral (mainly basic), Cut- Cutover/cutaway peat, Lac- Lacustrine type soils. Refer to Volume 4 (Teagasc Soils Sheet 3 of 6) for the Teagasc Soils mapping for this section. **Quaternary Sediments (Subsoils)-** *Primary*: 'Till derived from Limestone' & 'Gravels derived from Limestones'. *Secondary*: 'Lacustrine Sediments', 'Alluvium'. Refer to Volume 4 (Quaternary Sediments Sheet 3 of 6) for the Quaternary Sediments (Subsoils) mapping for this section. **Bedrock Geology**- The Majority of this section is underlain by the 'Edenderry Oolite Member Formation'. The northernmost portion of this section is overlying the 'Lucan Formation' (and a very minor zone overlying Volcanics in carboniferous). Refer to Volume 4 (Bedrock Geology Sheet 3 of 6) for the Bedrock Geology mapping for this section. **Aquifer / Groundwater Vulnerability**- The predominant aquifer vulnerability classification for this section is 'Moderate', while some localised (less extensive) zones of the northern, central and southern portion of this section have been classified as 'High' vulnerability. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Sheet 3 of 6) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility for this section ranges from 'Low' to 'Inferred Low' throughout this section. Refer to Volume 4 (Landslide Susceptibility Sheet 3 of 6) for the Landslide Susceptibility mapping for this section.
Pipeline Section 4: Yellow River (RVX02) to the R441 (RDX12)	**Teagasc Soils:** AlluvMIN- Alluvial (mineral), BminDW- Deep well drained mineral (mainly basic), BminPDPT- Peaty poorly drained mineral (mainly basic), BminSP- Shallow poorly drained mineral (mainly basic), BminSRPT- Shallow, rokcy, peaty/non-peatymineral complexes (mainly basic), BminSW- Shallow well drained mineral (mainly basic), Cut- Cutover/cutaway peat, Lac- Lacustrine type soils. Refer to Volume 4 (Teagasc Soils Sheet 4 of 6) for the Teagasc Soils mapping for this section. **Quaternary Sediments (Subsoils)-** *Primary*: 'Till derived from Limestone'. *Secondary*: 'Lacustrine Sediments', 'Alluvium', 'Gravels derived from limestones' (northern part of this section) & 'Cut over raised peat' (southern part of this section). Refer to Volume 4 (Quaternary Sediments Sheet 4 of 6) for the Quaternary Sediments (Subsoils) mapping for this section. **Bedrock Geology**- This section is entirely underlain by the 'Edenderry Oolite Member formation'. Refer to Volume 4 (Bedrock Geology Sheet 4 of 6) for the Bedrock Geology mapping for this section.

Pipeline Section	Receiving Environment
	Aquifer / Groundwater Vulnerability- The predominant aquifer vulnerability classification for this section is 'Moderate', while some localised (less extensive) zones of the northern portion of this section has been classified as 'High' vulnerability. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Sheet 4 of 6) for the Bedrock Geology mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility for this section is primarily/predominantly classified as 'Low' to 'Inferred low' throughout this section, with the exception of a minor localised zone located at c. 11,400m along the pipeline which has been classified as 'Moderately Low'. Refer to Volume 4 (Landslide Susceptibility Sheet 4 of 6) for the Landslide Susceptibility mapping for this section.
Pipeline Section 5: R441 (RDX12) to the L5003 (RDX15)	**Teagasc Soils:** Made ground, BminDW- Deep well drained mineral (mainly basic), BminPDPT- Peaty poorly drained mineral (mainly basic), BminSP- Shallow poorly drained mineral (mainly basic), BminSRPT- Shallow, rokcy, peaty/non-peatymineral complexes (mainly basic), BminSW- Shallow well drained mineral (mainly basic), Cut- Cutover/cutaway peat, Lac- Lacustrine type soils. Refer to Volume 4 (Teagasc Soils Sheet 5 of 6) for the Teagasc Soils mapping for this section. **Quaternary Sediments (Subsoils)-** This section is overlying 2No. subsoil types. The Northern portion of this section is predominantly underlain by 'Cut over raised peat', while the southern portion is largely underlain by 'Till derived from Limestone'. Refer to Volume 4 (Quaternary Sediments Sheet 5 of 6) for the Quaternary Sediments (Subsoils) mapping for this section. **Bedrock Geology**- This section is entirely underlain by the 'Edenderry Oolite Member formation'. Refer to Volume 4 (Bedrock Geology Sheet 5 of 6) for the Bedrock Geology mapping for this section. **Aquifer / Groundwater Vulnerability**- The aquifer vulnerability classification for this entire section is 'Moderate'. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Sheet 5 of 6) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility for this section is primarily/predominantly classified as 'Low', with some less extensive localised areas indicated as 'Inferred Low' located in the northern portion of this section. Refer to Volume 4 (Landslide Susceptibility Sheet 5 of 6) for the Landslide Susceptibility mapping for this section.
Pipeline Section 6: L5003 (RDX15) to the Ballykilleen AGI	**Teagasc Soils:** AlluvMIN- Alluvial (mineral), BminDW- Deep well drained mineral (mainly basic), BminPDPT- Peaty poorly drained mineral (mainly basic), Cut- Cutover/cutaway peat, Lac- Lacustrine type soils. Refer to Volume 4 (Teagasc Soils Sheet 6 of 6) for the Teagasc Soils mapping for this section. **Quaternary Sediments (Subsoils)-** This section is overlying 2No. subsoil types alternating between deposits of 'Cut over raised peat' and 'Till derived from Limestone'. Refer to Volume 4 (Quaternary Sediments Sheet 6 of 6) for the Quaternary Sediments (Subsoils) mapping for this section. **Bedrock Geology**- The Majority of this section is underlain by the 'Lucan Formation', while the central and northernmost portions of this section are overlying the 'Edenderry Oolite Member Formation'. Refer to Volume 4 (Bedrock Geology Sheet 6 of 6) for the Bedrock Geology mapping for this section. **Aquifer / Groundwater Vulnerability**- The northern and southern parts of this section have been widely classified with 'Moderate' Vulnerability. The central portion of this section displays varied vulnerability, ranging / alternating between 'Low', 'Moderate', 'High' and 'Extreme' vulnerability. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Sheet 6 of 6) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility classification for this entire section is determined to be 'Low'. Refer to Volume 4 (Landslide Susceptibility Sheet 6 of 6) for the Landslide Susceptibility mapping for this section.

Pipeline Section	Receiving Environment
Linepipe Storage Compound 2 (Martin Mason)	**Teagasc Soils:** The eastern and central portion of this area is underlain by Cut- Cutover/cutaway peat. The western portion of the area is predominantly underlain by BminPD- Mineral poorly drained (mainly basic), and partially underlain by BminDW- Deep well drained mineral (mainly basic) in the southwest corner. Refer to Volume 4 (Teagasc Soils Linepipe Storage Compound 2) for the Teagasc Soils mapping for this localised area of the site. **Quaternary Sediments (Subsoils)-** This area of the site is overlying 2No. subsoil types. The central and eastern portions of the site are overlying 'Cut over raised peat', while the western portion of this area is underlain by 'Till derived from Limestone'. Refer to Volume 4 (Quaternary Sediments Linepipe Storage Compound 2) for the Quaternary Sediments (Subsoils) mapping for this area. **Bedrock Geology**- This area is entirely underlain by the 'Edenderry Oolite Member Formation'. Refer to Volume 4 (Bedrock Linepipe Storage Compound 2) for the Bedrock Geology mapping for this section. **Aquifer / Groundwater Vulnerability**- This area is classified as having 'Moderate' vulnerability. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Linepipe Storage Compound 2) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility classification for this entire section is determined to be 'Low'. Refer to Volume 4 (Landslide Susceptibility Linepipe Storage Compound 2) for the Landslide Susceptibility mapping for this section.
Linepipe Storage Compound 3 (O'Grady's Option 2)	**Teagasc Soils:** This entire area is entirely underlain by BminSW- Shallow well drained mineral (mainly basic). Refer to Volume 4 (Teagasc Soils Linepipe Storage Compound 3) for the Teagasc Soils mapping for this localised area of the site. **Quaternary Sediments (Subsoils)-** This section is entirely underlain by Eskers comprised of gravels of basic reaction. Refer to Volume 4 (Quaternary Sediments Linepipe Storage Compound 3) for the Quaternary Sediments (Subsoils) mapping for this area/section of the site. **Bedrock Geology**- This area is entirely underlain by the 'Edenderry Oolite Member Formation'. Refer to Volume 4 (Bedrock Linepipe Storage Compound 3) for the Bedrock Geology mapping for this section/area. **Aquifer / Groundwater Vulnerability**- This area is classified as having 'High' vulnerability. Refer to Chapter 6 (Hydrology & Hydrogeology) Section 6.3.8.1 for the indicative subsoil thickness based on the aquifer/groundwater vulnerability rating. Refer to Volume 4 (Aquifer/Groundwater Vulnerability Linepipe Storage Compound 3) for the Aquifer Vulnerability mapping for this section. **Landslide Susceptibility**- The Landslide Susceptibility classification for this entire section is determined to be 'Low'. Refer to Volume 4 (Landslide Susceptibility Linepipe Storage Compound 3) for the Landslide Susceptibility mapping for this section.

A full description of the baseline soil and geology of the footprint of the proposed Project is presented in Chapter 5 Land, Soils and Geology of the EIAR accompanying this application.

4.7 Air Quality Baseline

The air quality baseline is defined in Chapter 8 Air Quality of the accompanying EIAR as follows:

'Air quality monitoring programs have been undertaken in recent years by the EPA. The most recent annual report on air quality in Ireland is "Air Quality In Ireland 2024" (EPA, 2025). The EPA website details the range and scope of monitoring undertaken throughout Ireland and provides both monitoring data and the results of previous air quality assessments (EPA, 2025).

As part of the implementation of the Air Quality Standards Regulations 2022 (S.I. No. 739 of 2022) four air quality zones have been defined in Ireland for air quality management and assessment purposes (EPA, 2025). Dublin is defined as Zone A and Cork as Zone B. Zone C is composed of 23 towns with a population of greater than 15,000. The remainder of the country, which represents rural Ireland but also includes all towns with a population of less than 15,000, is defined as Zone D.

In terms of air monitoring and assessment, the Proposed Development site is within Zone D (EPA, 2025). The long-term monitoring data has been used to determine background concentrations for the key pollutants in the region of the Proposed Development. The background concentration accounts for all non-traffic derived emissions (e.g. natural sources, industry, home heating etc.).

Long-term NO_2 monitoring was carried out at the Zone D rural background locations of Emo Court and Kilkitt and the suburban background locations of Castlebar and Edenderry for the period 2020 – 2024 (EPA, 2025). Long term average concentrations are significantly below the annual average limit of 40 µg/m^3. Average results range from 2 – 10 µg/m^3 for the relevant background locations (Table). Edenderry is the most representative monitoring location. The maximum concentration recorded at Edenderry was 10 µg/m^3 in 2024. Based on this data, a conservative estimate of the current background NO_2 concentration for the region of the Proposed Development is 10 µg/m^3.'

Table 19. Trends In Zone D Air Quality - Nitrogen Dioxide (NO_2)

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Emo Court	Annual Mean NO_2 (µg/m^3)	3	4	3	2	3
	1-hr Mean NO_2 Values >200 µg/m^3	0	0	0	0	0
Kilkitt	Annual Mean NO_2 (µg/m^3)	2	2	2	2	2
	1-hr Mean NO_2 Values >200 µg/m^3	0	0	0	0	0
Castlebar	Annual Mean NO_2 (µg/m^3)	6	6	8	7	7
	1-hr Mean NO_2 Values >200 µg/m^3	0	0	0	0	0
Edenderry	Annual Mean NO_2 (µg/m^3)	-	9	7	9	10
	1-hr Mean NO_2 Values >200 µg/m^3	0	0	0	0	0

Continuous PM_{10} monitoring was carried out at twelve representative Zone D locations from 2020 - 2024: Kilkitt, Claremorris, Askeaton, Killarney, Malin Head, Castlebar, Cobh Carrignafoy, Enniscorthy, Macroom, Roscommon Town, Tipperary Town, Cavan and Edenderry (Table 20). *Levels range from 7 - 18 µg/m^3 over the five-year period with at most 10 exceedances (in Edenderry) of the 24-hour limit value of 50 µg/m^3 in 2022 (35 exceedances are permitted per year) (EPA, 2025). Based on the EPA data, a conservative estimate of the current background PM_{10} concentration in the region of the Proposed Development is 18 µg/m^3.*

Table 20 Trends in Zone D Quality - PM_{10}

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Kilkitt	Annual Mean PM_{10} (µg/m^3)	8	8	9	7	7
	24-hr Mean > 50 µg/m^3 (days)	0	-	0	0	0
Claremorris	Annual Mean PM_{10} (µg/m^3)	10	10	8	8	8
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	0	0
Askeaton	Annual Mean PM_{10} (µg/m^3)	7	9	9	-	8
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	-	0
Killarney	Annual Mean PM_{10} (µg/m^3)	-	-	9	9	11
	24-hr Mean > 50 µg/m^3 (days)	-	-	0	0	0
Malin Head	Annual Mean PM_{10} (µg/m^3)	-	-	-	13	13
	24-hr Mean > 50 µg/m^3 (days)	-	-	-	0	0
Castlebar	Annual Mean PM_{10} (µg/m^3)	14	10	11	10	10
	24-hr Mean > 50 µg/m^3 (days)	2	1	0	-	0
Cobh Carrignafoy	Annual Mean PM_{10} (µg/m^3)	13	12	13	12	12
	24-hr Mean > 50 µg/m^3 (days)	0	1	0	-	0
Enniscorthy	Annual Mean PM_{10} (µg/m^3)	15	14	15	13	14
	24-hr Mean > 50 µg/m^3 (days)	5	1	5	-	3
Macroom	Annual Mean PM_{10} (µg/m^3)	15	15	16	11	12
	24-hr Mean > 50 µg/m^3 (days)	6	2	7	-	0
Roscommon Town	Annual Mean PM_{10} (µg/m^3)	10	10	11	10	10
	24-hr Mean > 50 µg/m^3 (days)	0	0	0	-	1
Tipperary Town	Annual Mean PM_{10} (µg/m^3)	12	13	14	11	11
	24-hr Mean > 50 µg/m^3 (days)	1	3	3	-	0
Cavan	Annual Mean PM_{10} (µg/m^3)	9	11	11	10	11
	24-hr Mean > 50 µg/m^3 (days)	0	0	2	-	0
Edenderry	Annual Mean PM_{10} (µg/m^3)	-	18	18	16	16
	24-hr Mean > 50 µg/m^3 (days)	-	4	10	-	5

Table 21. Trends in Zone D Quality - $PM_{2.5}$

Station	Averaging Period	Year				
		2020	2021	2022	2023	2024
Claremorris	Annual Mean $PM_{2.5}$ (µg/m^3)	5	8	6	5	5
Shannon Estuary / Askeaton	Annual Mean $PM_{2.5}$ (µg/m^3)	4	6	5	5	5
Killarney	Annual Mean $PM_{2.5}$ (µg/m^3)	-	-	6	5	7
Malin Head	Annual Mean $PM_{2.5}$ (µg/m^3)	-	-	-	7	7
Cavan	Annual Mean $PM_{2.5}$ (µg/m^3)	6	7	7	6	7
Cobh Carrignafoy	Annual Mean $PM_{2.5}$ (µg/m^3)	8	7	8	7	7
Edenderry	Annual Mean $PM_{2.5}$ (µg/m^3)	-	18	13	12	12
Enniscorthy	Annual Mean $PM_{2.5}$ (µg/m^3)	12	10	10	9	9
Macroom	Annual Mean $PM_{2.5}$ (µg/m^3)	11	10	11	7	8
Mallow	Annual Mean $PM_{2.5}$ (µg/m^3)	10	8	7	6	6
Roscommon Town	Annual Mean $PM_{2.5}$ (µg/m^3)	7	7	8	6	7
Tipperary Town	Annual Mean $PM_{2.5}$ (µg/m^3)	8	9	9	7	7

…Based on the above information the air quality in the area is generally good, with concentrations of the key pollutants generally well below the relevant limit values.'

In relation to dust impacts sensitive ecological receptors, the following is outlined:

Dust from construction sites deposited on vegetation may create ecological stress within the local plant community. The guidance states that dust impacts to vegetation can occur up to 50 m from the site and 50 m from site access roads, up to 250 m for the site entrance. The following designated ecological sites are within this zone:

- *Grand Canal Proposed Natural Heritage Area (pNHA); and*
- *Mount Hevey Bog Special Area of Conservation (SAC) / pNHA.'*

Based on the IAQM criteria (2024), the worst-case sensitivity of the area to ecology is considered high.

A full description of the baseline air quality of the area encompassing the proposed Project is presented in Chapter 8 Soils and Geology of the EIAR accompanying this application.

4.8 Flood Risk Assessment

JBA Consulting (2026) has undertaken a Flood Risk Assessment for the proposed project. AWN Consulting Ltd. have incorporated the findings by JBA in Chapter 6 Hydrology and Hydrogeology which are outlined as follows:

'The site is located within Flood Zone A, B and C, signifying varying risk from fluvial flooding. Pluvial flood potential may arise from localised depressions in the ground at the site but is not considered a significant risk.

Flood Zone C is indicative of the lowest probability of flooding; less than 0.1% from both rivers and coastal/tidal. Flood Zone B indicates moderate probability of flooding; between 1% and 0.1% from rivers and between 0.5% and 0.1% from coastal/tidal, while Flood Zone A signifies where the probability of flooding is highest; greater than 1% (1 in 100) from river flooding or 0.5% (1 in 200) for coastal / tidal flooding.

The CFRAM predictive flood extent study indicates that majority of the Proposed Development is within Flood Zone C with the only section within Flood Zone A / B. This section will traverse the Yellow River and the Boyne tributary. A small area at risk of pluvial flooding has been identified to the south of the Yellow River.

The flood risk from the Kilwarden River, Kilgile River, River Boyne and a number of tributaries have been screened out based on review on CFRAM, NIFM and JBA models.

Regarding the Yellow River a 20m exclusion zone is provided during the construction phase. A trenchless crossing technique will be utilised to cross the river and no topsoil etc. will be stripped within this flood zone.

For both the Yellow River and the Boyne tributary, the flood risk during the construction will be managed by the mitigation measures outlined in Section 6.6.1.7 (of Chapter 6 Hydrology and Hydrogeology).

All remaining Flood Zone A & B areas that intercepts the pipeline are retained within the stream banks. All development located in Flood Zone B will be installed underground, and all associated construction works are located in Flood Zone C.

There will be no impact or change to the existing above ground environment that could result in a change to fluvial or surface water flood extents upon installation of the gas pipeline.

The Justification Test has been applied and passed as part of the FRA process. The type of development is classed as a 'Highly Vulnerable Development'. This type of development is deemed appropriate for this flood zonation.'

During the construction phase of the Proposed Development, temporary works, excavation activities have the potential to influence surface water flow paths and flood conveyance in proximity to watercourses and mapped floodplains.

Construction activities at the Ballykilleen AGI site will involve earthworks. If undertaken without appropriate design controls, these activities could increase susceptibility to flooding during rainfall events or result in surface water accumulation on site.

According to JBA (2026) there will be no impact or change to the existing above ground environment that could result in a change to fluvial or surface water flood extents upon installation of the gas pipeline. Mitigation measures have been proposed to manage the flood risk to the areas of the site located in Flood Zone A and B.

In relation to surface water flood risk, it is outlined that: '*The risk from fluvial flooding on the site is negligible. Following construction ground levels and conditions will be returned to their condition prior to construction. This will result in no change to flood extents and therefore flood risk will remain negligible*.'

In conclusion, JBA (2026) outlined that: '*Due to the location of the pipeline and the mitigation methods employed, the potential impacts from flooding to the pipeline are considered negligible. There will be no impact to groundwater flow as a result of the mitigation methods related to the pipe drilling and trench construction methods.'*

5 Identification of Relevant Natura 2000 Sites

5.1 Assessment of Likely Significant Effects on European sites

This section examines the potential significant impacts associated with the Proposed Development, on any European sites determined to be within the ZoI in Table 22.
In assessing the potential for the proposed development to result in a likely significant effect on any European sites, any measures intended to avoid or reduce the harmful effects of the project on European sites are not considered. Information sources from the National Parks & Wildlife Service Conservation Objective Series[10] available on European Sites identified to lie within the precautionary zone of influence (ZoI) of the Proposed Development were reviewed and assessed, to establish whether the construction and operational phases of the Proposed Development have the potential to have likely significant effects on any of the qualifying Interests and/or conservation objectives of said sites.

Based on the baseline and receiving ecological environment, and the nature and characteristics of the proposed project, the following potential impacts have been identified:

- Uncontrolled releases of silt, sediments and/or other pollutants (dust, NOx, SOx) to air due to earthworks.
- Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies.
- Increased noise, and/or vibrations as a result of construction activity
- Increased lighting in the vicinity as a result of construction activity.
- Introduction and/or spread of invasive species
- Flooding events at the Site of the Proposed Development.
- Increased human presence in the vicinity as a result of the Proposed Development.

The potential for likely significant effects resulting from the Proposed Development was determined based on a range of key indicators (as per EC, 2021):

- Habitat loss or alteration
- Habitat/species fragmentation
- Disturbance and/or displacement of species
- Changes in water quality and resource
- Indirect effects (invasive species, increased population density, additional developments)

5.2 Screening Assessment

The purpose of the screening assessment is to identify all European Sites which have the potential to be impacted by the Proposed Development. In establishing which European sites are potentially at risk (in the absence of mitigation) from the proposed Project, a source-pathway-receptor approach was applied. In order for an impact to occur, there must be a risk enabled by having a source (e.g. water abstraction or construction works), a receptor (e.g. a European site or its Qualifying Interest(s) (QIs) or Special Conservation Interest(s) (SCIs) species), and a pathway between the source and the receptor (e.g. pathway by air for air borne pollution, or a pathway by a watercourse for mobilisation of pollution). For an impact to occur, all three elements must exist; the absence or removal of one of the elements means there is no possibility for the impact to occur.

The identification of source-pathway-receptor connection(s) between the proposed Project and European sites essentially is the process of identifying which European sites are within the Zone of Influence (ZoI) of the proposed Project, and therefore potentially at risk of significant effects. The ZoI is defined as the area within which the proposed Project could affect the receiving environment such that it could potentially have significant effects on the QI habitats or QI/SCI species of a European site, or on the achievement of their conservation objectives (as defined in CIEEM, 2018).

[10] https://www.npws.ie/protected-sites/conservation-management-planning/conservation-objectives

The identification of a source-pathway-receptor risk does not automatically mean that significant effects will arise. The likelihood for significant effects will depend upon the characteristics of the source (e.g. extent and duration of construction works), the characteristics of the pathway (e.g. direction and strength of prevailing winds for air borne pollution) and the characteristics of the receptor (e.g. the sensitivities of the European site and its QIs/SCIs). However, identification of the risk does mean that there is a possibility of ecological or environmental damage occurring, with the significance of the effect depending upon the nature and exposure to the risk and the characteristics of the receptor. In this case, where uncertainty existed, the precautionary principle was applied.

As a starting point, all European Sites within 15km of the Proposed Project were considered as per Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (Department of Environment, Heritage and Local Government, 2010 revision). Following this, all European sites within the Zone of Influence of the Proposed Project, which was determined using the source-pathway-receptor model (as per OPR Practice Note PN01) were assessed. The Source-Pathway-Receptor method was then applied to screen out those sites where no impact pathway exists linking them to the site of the proposed development (Table 23). Where a potential impact pathway exists, European Sites will be assessed further and the recommendation on the need for full Stage 2 Appropriate Assessment will be made.

Additionally, in the interest of carrying out a thorough assessment in line with both the Habitats Directive and the precautionary principle, the area of assessment was expanded beyond the ZoI to include designated sites within 15km of the proposed development site, and sites beyond 15km with the potential for a hydrological connection. This was done in the interest of ensuring that any pathways, however indirect or remote, were considered. All Natura 2000 sites within 15km, and beyond 15km with the potential for a hydrological pathway are listed in Table 22. The qualifying interests, and the potential impact of the development on each European site and qualifying interest, are screened in/out in Table 23. SPA's and SAC's within 15km are seen in Figures 9 & 10. Watercourses, waterbodies, SACs and SPAs proximate to the subject site are demonstrated in Figures 12-19.

Table 22. European Sites within the Zone of Influence

Site Code	NATURA 2000 Site	Distance (from closest point of site boundary including compounds)
Special Areas of Conservation		
002342	Mount Hevey Bog SAC	20 m
002299	River Boyne and River Blackwater SAC	3.3 km
000925	The Long Derries, Edenderry SAC	3.8 km
002162	River Barrow and River Nore SAC	14.8 km
002205	Wooddown Bog SAC	15.1 km
000582	Raheenmore Bog SAC	16.1 km
Special Protection Areas		
004232	River Boyne and Blackwater SPA	3.3 km

Table 23. Initial screening of NATURA 2000 sites within 15km and NATURA 2000 sites with potential source-pathway receptor linkage to the proposed development – Screened IN (NIS Required) or OUT

NATURA Code	Name	Screened IN/OUT	Details/Reason
Special Areas of Conservation			
002342	Mount Hevey Bog SAC	**IN**	**Conservation Objectives** The restoration of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. **Qualifying Interests** Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150] **Potential Impact** The Mount Hevey Bog SAC is located c. 20m from the northernmost area of the overall redline boundary (Figure 17). Given this, in line with the precautionary principle, it is considered that there is a direct Ecological 'Source-Pathway-Receptor Linkage' between the proposed development and this SAC. Out of an abundance of caution, significant effects on this SAC cannot be ruled out, in the absence of mitigation, given the proximity of the SAC to the site boundary and the potential for construction phase impacts on the Qualifying Interests of this European site. The following potential impacts identified in Section 5.1 above can be ruled out, in the absence of mitigation, on the Mount Hevey Bog SAC: • Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies. **Reason:** The proposed development site has no hydrological linkage to the Mount Hevey Bog SAC, as this SAC is located hydrologically upgradient of the proposed development site. • Increased noise, and/or vibrations as a result of construction activity. **Reason:** There are no qualifying interests which could be impacted by increased noise and vibration levels. • Increased lighting in the vicinity as a result of construction activity. **Reason:** There are no qualifying interests which could be impacted by increased lighting levels. • Increased human presence in the vicinity as a result of the Proposed Development. **Reason:** There are no qualifying interests which could be impacted by increased human presence as no construction or operational activities will take place within the SAC. The following potential impacts identified in Section 5.1 above cannot be ruled out, in the absence of mitigation, on the Mount Hevey Bog SAC: • Uncontrolled releases of silt, sediments and/or other pollutants to air due to earthworks. • Introduction and/or spread of invasive species • Flooding events at the site of the proposed development

NATURA Code	Name	Screened IN/OUT	Details/Reason
			Mitigation measures are required to ensure that airborne dust will not significantly impact upon the qualifying interests of this SAC. There is also the potential for significant effects on this SAC during enabling works and groundworks via the spread introduction and/or spread of non-native invasive species. Additionally, based on the hydrological & hydrogeological assessments outlined in 4.4 and 4.5 above, there is a negligible to low risk of groundwater connectivity between the proposed development site and this SAC. Therefore, no impacts are foreseen via groundwater contamination. In a strict application of the precautionary principle, it has been concluded that there is the potential for significant effects on the Mount Hevey Bog SAC, in the absence of mitigation measures. For this reason, it is necessary to proceed to a NIS on the effects of the project on this site in view of its conservation objectives. **Likely significant effects cannot be ruled out - Natura Impact Statement Required**
002299	River Boyne and River Blackwater SAC	**IN**	**Conservation Objectives** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** Alkaline fens [7230] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0] *Lampetra fluviatilis* (River Lamprey) [1099] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355] **Potential Impact** The Proposed Development site is located 3.3 km from this SAC at its closest point. (Figure 19). There are direct hydrological pathways to this SAC via the following waterbodies which traverse the northern and central sections of the proposed development site and are primary/secondary tributaries to the River Boyne: • Boyne_040 (Kinnegad 07 Stream & AGHNAGILLAGH Stream). • Boyne_030 (KNOCKERSALLY or COLEHILL Stream / PARK 07 Stream / BALLYNAKIL 07 Stream / CASTLEJORDAN 07 Stream / RAHIN Stream / ROOSK 07 Stream). • YELLOW (CASTLEJORDAN)_030 (Yellow [Castlejordan] Stream). • Boyne_020 (MOUNTWILSON Stream & Kinnafad Stream). These waterbodies flow approximately 6.2km (linear distance, it is noted that the fluvial distance is significantly longer) in an east to northeast direction prior to reaching their confluence point at the River Boyne and River Blackwater SAC. The following potential impacts identified in Section 5.1 above can be ruled out, in the absence of mitigation, on the River Boyne and Blackwater SAC:

NATURA Code	Name	Screened IN/OUT	Details/Reason
			• Uncontrolled releases of silt, sediments and/or other pollutants (dust) to air due to earthworks. **Reason:** Significant distance between the proposed development site and this SAC (3.3km minimum). While construction dust tends to be deposited within 250 m of a construction site, the majority of the deposition occurs within the first 50 m (IAQM, 2024). The following potential impacts identified in Section 5.1 above cannot be ruled out, in the absence of mitigation, on the River Boyne and River Blackwater SAC: • Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies (Habitat degradation as a result of pollution/contamination of receiving waterbodies). • Increased noise, and/or vibrations as a result of construction activity (Disturbance and displacement - otter) • Increased lighting in the vicinity as a result of construction activity (Disturbance and displacement - otter). • Introduction and/or spread of invasive species (habitat degradation as a result of the introduction and/or spread of non-native invasive species). • Flooding events at the Site of the Proposed Development (Habitat degradation as a result of pollution/contamination of receiving waterbodies). • Increased human presence in the vicinity as a result of the Proposed Development (Disturbance and displacement - otter). Chapter 7 Biodiversity of the associated EIAR for the proposed development includes a mammal survey which sought evidence of Otters (*lutra lutra*) along the proposed development route. As outlined in the report: *'Otters are known to utilize watercourses that the Proposed Development route traverses. Throughout the survey, evidence of otter activity was actively sought; however, a single otter footprint was noted at watercourse WCX04. Camera traps were deployed along the watercourses, but no otter activity was captured. It is considered likely that otters use these watercourses; however, due to their secretive and elusive nature, the absence of recorded evidence does not negate their presence or use of the watercourses'.* In line with the precautionary principle, the potential for impacts to otters via disturbance and degradation of their habitats via water quality impacts arising from the proposed development cannot be ruled out. Further, contamination of watercourses which directly link the proposed development site to this SAC from a potential pollution event during construction cannot be ruled out, which could impact on aquatic species including *Lampetra fluviatilis* (River Lamprey) and *Salmo salar* (Salmon).

NATURA Code	Name	Screened IN/OUT	Details/Reason
			In the absence of mitigation, there is the potential for significant effects on the qualifying interests of this SAC. **Likely significant effects cannot be ruled out - Natura Impact Statement Required**
002162	River Barrow and River Nore SAC	**IN**	**Conservation Objectives** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] European dry heaths [4030] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (*Cratoneurion*) [7220] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0] Vertigo moulinsiana (*Desmoulin's Whorl Snail*) [1016] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Austropotamobius pallipes* (White-clawed Crayfish) [1092] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra planeri* (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Alosa fallax fallax* (Twaite Shad) [1103] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355] *Vandenboschia speciosa* (Killarney Fern) [6985] **Potential Impact** The proposed development site is located 14.8 km from this SAC at its closest point (Figure 9). The site has direct hydrological linkage to this SAC via the following river waterbodies: • BALLYLEAKEN Stream (FIGILE_030). • BALLYKILLEEN Stream (FIGILE_030). These two streams traverse the southern section of the site and are secondary/tertiary tributaries to the River Figile. These waterbodies flow in a southerly direction before discharging to the River Figile, which subsequently outfalls to the River Barrow and River Nore SAC at a confluence point located approximately 16.1km south of the site (linear distance, it is noted that the fluvial distance is significantly longer).

NATURA Code	Name	Screened IN/OUT	Details/Reason
			The following potential impacts identified in Section 5.1 above can be ruled out, in the absence of mitigation, on the River Boyne and Blackwater SAC: • Uncontrolled releases of silt, sediments and/or other pollutants (dust) to air due to earthworks. **Reason:** Significant distance between the proposed development site and this SAC (14.8km minimum, far greater than 250m as per IAQM, 2024). The following potential impacts identified in Section 5.1 above cannot be ruled out, in the absence of mitigation, on the River Boyne and River Blackwater SAC: • Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies (Habitat degradation as a result of pollution/contamination of receiving waterbodies). • Increased noise, and/or vibrations as a result of construction activity (Disturbance and displacement - otter) • Increased lighting in the vicinity as a result of construction activity (Disturbance and displacement - otter). • Introduction and/or spread of invasive species (habitat degradation as a result of the introduction and/or spread of non-native invasive species). • Flooding events at the Site of the Proposed Development (Habitat degradation as a result of pollution/contamination of receiving waterbodies). • Increased human presence in the vicinity as a result of the Proposed Development (Disturbance and displacement - otter). Chapter 7 Biodiversity of the associated EIAR for the proposed development includes a mammal survey which sought evidence of Otters (*lutra lutra*) along the proposed development route. As outlined in the report: *'Otters are known to utilize watercourses that the Proposed Development route traverses. Throughout the survey, evidence of otter activity was actively sought; however, a single otter footprint was noted at watercourse WCX04. Camera traps were deployed along the watercourses, but no otter activity was captured. It is considered likely that otters use these watercourses; however, due to their secretive and elusive nature, the absence of recorded evidence does not negate their presence or use of the watercourses'.* In line with the precautionary principle, the potential for impacts to otters via disturbance and degradation of their habitats via water quality impacts arising from the proposed development cannot be ruled out. Further, contamination of watercourses which directly link the proposed development site to this SAC from a potential pollution event during construction cannot be ruled out, which could impact on the QI species of this SAC.

NATURA Code	Name	Screened IN/OUT	Details/Reason
			In the absence of mitigation, there is the potential for significant effects on the qualifying interests of this SAC. The direct hydrogeological pathway has potential to negatively affect the conservation objectives of this SAC. **Likely significant effects cannot be ruled out- Natura Impact Statement Required.**
000925	The Long Derries, Edenderry SAC	**OUT**	**Conservation Objectives** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] **Potential Impact** The proposed development site is located 3.8 km from this SAC at its closest point (Figure 9). There is no 'direct' or 'indirect' Source-Pathway linkage between the Proposed Development site and this SAC. The Long Derries, Edenderry SAC is located hydrologically upgradient/upstream of the Proposed Development site. The site has no potential for a hydrogeological connection to this downstream SAC due to the distance of separation (minimum 3.8km east) being greater than the distance of local underground flow paths typical of the aquifers beneath the site. No potential impact is foreseen. There is no direct or indirect pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. **Likely significant effects can be ruled out.**
002205	Wooddown Bog SAC	**OUT**	**Conservation Objectives** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected. **Qualifying Interests** Degraded raised bogs still capable of natural regeneration [7120] **Potential Impact** The proposed development site is located 15.1 km from this SAC at its closest point. (Figure 9). There is no 'direct' or 'indirect' Source-Pathway linkage between the proposed development site and this SAC. No potential impact is foreseen. There is no direct or indirect pathway from this site to the SAC. The construction and operation of the Proposed Development will not impact on the conservation interests of the site. **No source – pathway linkage - likely significant effects can be ruled out.**
000582	Raheenmore Bog SAC	**OUT**	**Conservation Objectives** To maintain or restore the favourable conservation condition of the Annex I habitat(s) and/or the Annex II species for which the SAC has been selected.

NATURA Code	Name	Screened IN/OUT	Details/Reason
			Qualifying Interests Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the Rhynchosporion [7150] **Potential Impact** The proposed development site is located 16.1 km from this SAC at its closest point. (Figure 9). There is no 'direct' or 'indirect' Source-Pathway linkage between the proposed development site and this SAC. No potential impact is foreseen. There is no direct or indirect pathway from this site to the SAC. The construction and operation of the proposed development will not impact on the conservation interests of the site. **No source – pathway linkage - likely significant effects can be ruled out**
Special Protection Areas			
004232	River Boyne and River Blackwater SPA	**IN**	**Conservation Objective** To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA. **Qualifying Interests** Kingfisher (*Alcedo atthis*) [A229] **Potential Impact** The proposed development site is located 3.3 km from this SPA at its closest point. (Figure 10). There is no direct hydrological pathway to this SPA. There are indirect hydrological pathways to this SPA via the following waterbodies which traverse the northern and central sections of the proposed development site and are primary/secondary tributaries to the River Boyne: • Boyne_040 (Kinnegad 07 Stream & AGHNAGILLAGH Stream). • Boyne_030 (KNOCKERSALLY or COLEHILL Stream / PARK 07 Stream / BALLYNAKIL 07 Stream / CASTLEJORDAN 07 Stream / RAHIN Stream / ROOSK 07 Stream). • YELLOW (CASTLEJORDAN)_030 (Yellow [Castlejordan] Stream). • Boyne_020 (MOUNTWILSON Stream & Kinnafad Stream). These waterbodies flow approximately 6.2km (linear distance, it is noted that the fluvial distance is significantly longer) in an east to northeast direction prior to reaching their confluence point at the River Boyne and River Blackwater SPA. The following potential impacts identified in Section 5.1 above can be ruled out, in the absence of mitigation, on the River Boyne and River Blackwater SPA: • Uncontrolled releases of silt, sediments and/or other pollutants (dust) to air due to earthworks. **Reason:** There is a substantial distance between the proposed development site and this SPA (3.3km minimum). • Increased noise, and/or vibrations as a result of construction activity. **Reason:** There is a substantial distance between the proposed development site and this SPA (3.3km minimum)

NATURA Code	Name	Screened IN/OUT	Details/Reason
			(Far greater than 250m as per IAQM, 2024). For birds, disturbance effects would not be expected to extend beyond a distance of approximately 300m (Cutts et al., 2009; Wright et al., 2010), as noise levels associated with general construction activities would attenuate to close to background levels at that distance. • Increased lighting in the vicinity as a result of construction activity. **Reason:** There is a substantial distance between the proposed development site and this SPA (3.3km minimum). • Increased human presence in the vicinity as a result of the Proposed Development. **Reason:** There is a substantial distance between the proposed development site and this SPA (3.3km minimum). Further, the site consists of undeveloped agricultural land and is not significant for birds of this SPA given the wider availability & abundance of similar suitable habitat in the surrounding environment. The potential impacts on Kingfisher relate to water quality degradation as outlined below. The following potential impacts identified in Section 5.1 above cannot be ruled out, in the absence of mitigation, on the River Boyne and River Blackwater SPA: • Surface water run-off containing silt, sediments and/or other pollutants into nearby waterbodies (Habitat degradation as a result of pollution/contamination of receiving waterbodies). • Introduction and/or spread of invasive species (habitat degradation as a result of the introduction and/or spread of non-native invasive species). • Flooding events at the Site of the Proposed Development (Habitat degradation as a result of pollution/contamination of receiving waterbodies). Out of an abundance of caution, given the potential for addition of sediments into the watercourses during construction, and the potential for the introduction and/or spread of invasive species, significant effects on the qualifying interests of this SAC cannot be ruled out via the existing direct hydrological pathways. In the absence of mitigation, **likely significant effects cannot be ruled out. Natura Impact Statement Required.**

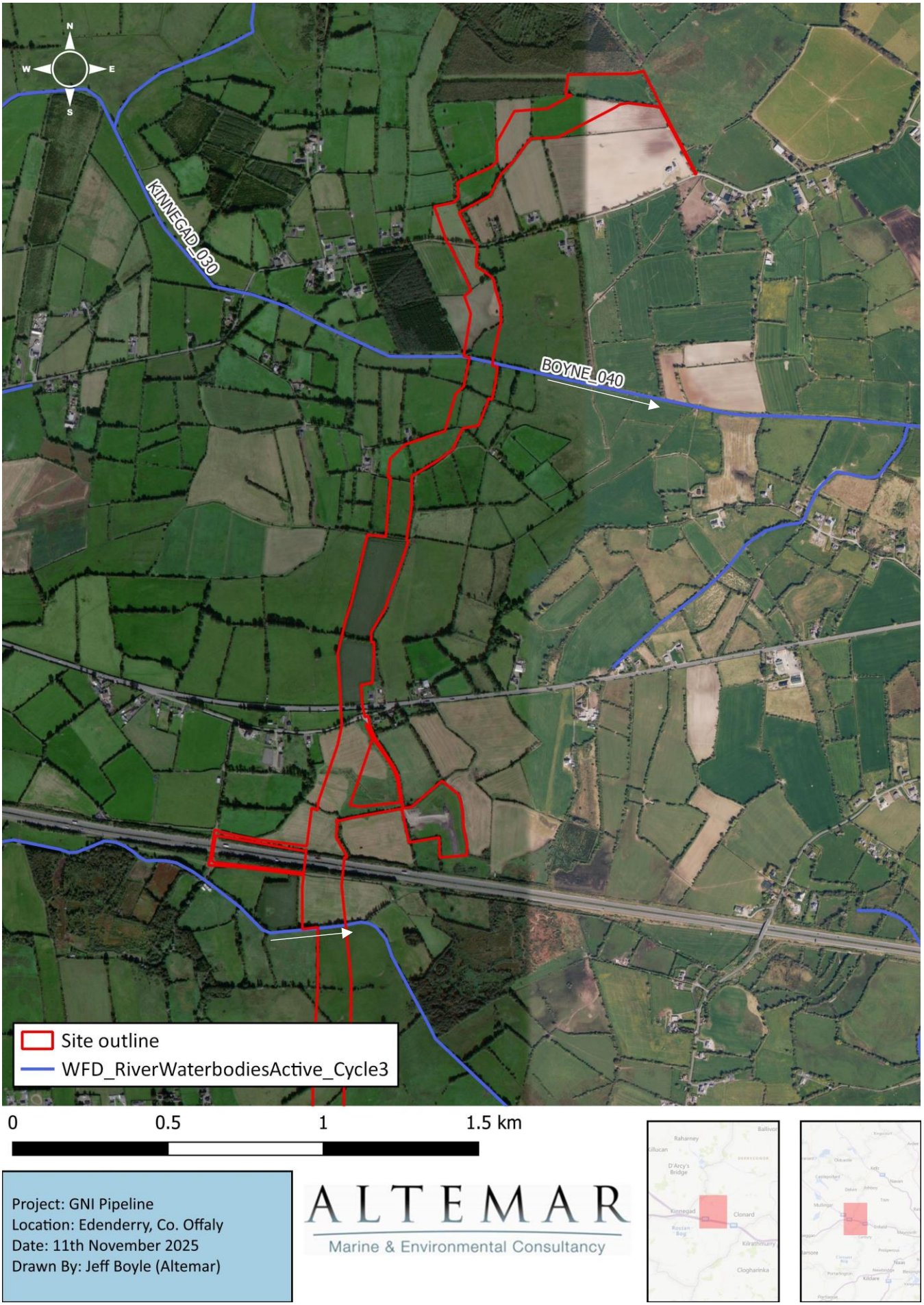

Figure 12. Watercourses along the proposed route (North to South) (A).

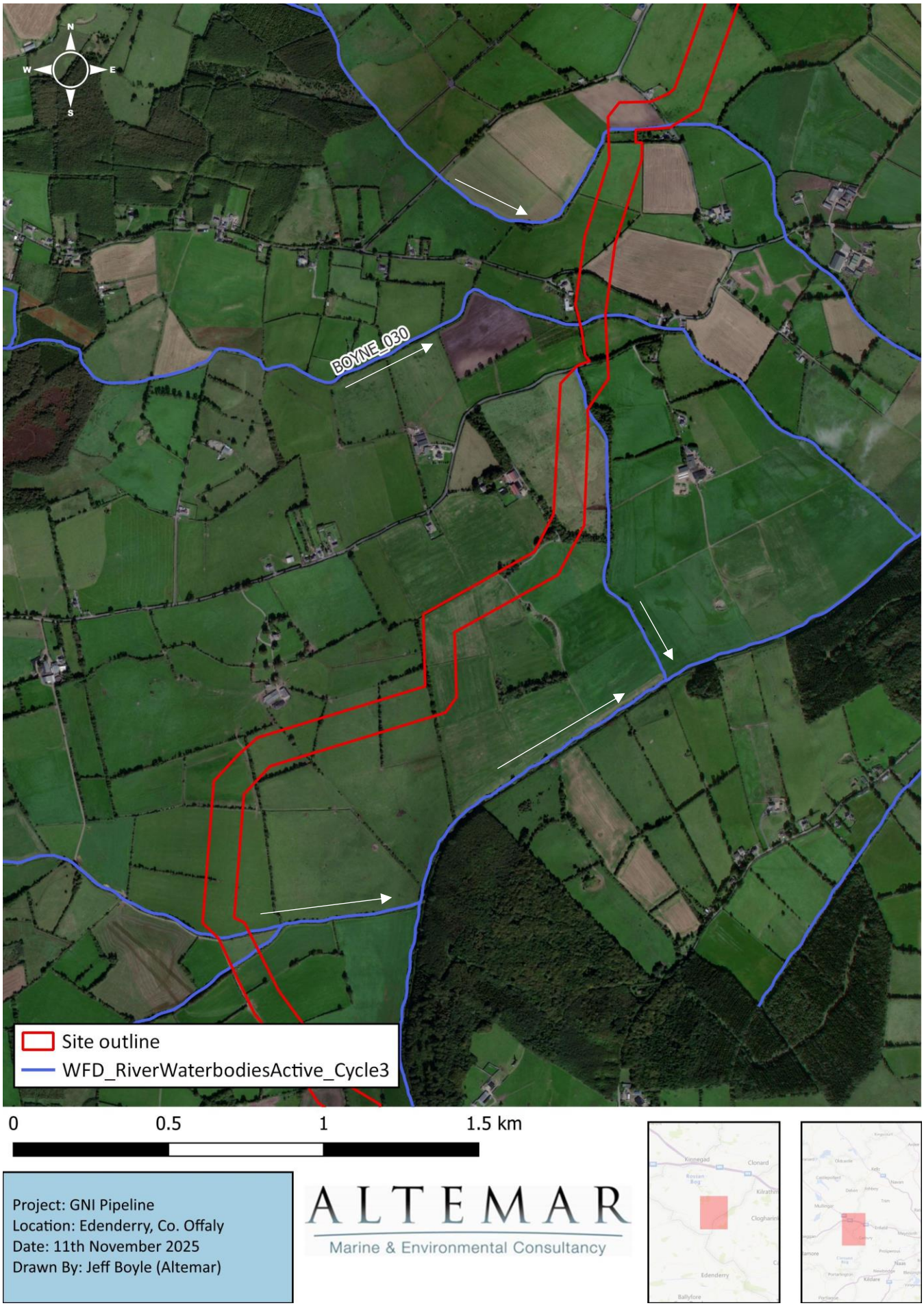

Figure 13. Watercourses along the proposed route (North to South) (B).

Figure 14. Watercourses along the proposed route (North to South) (C).

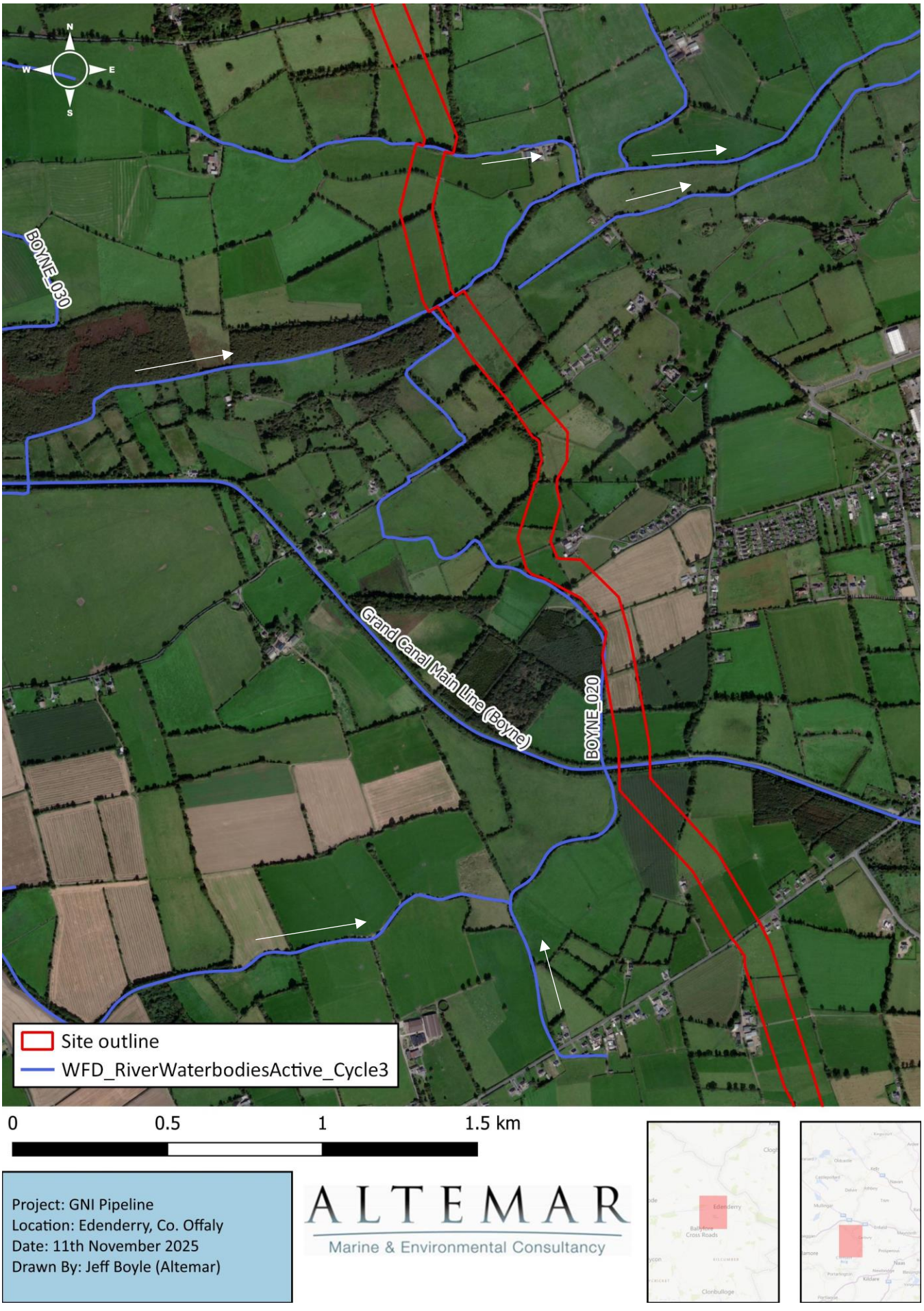

Figure 15. Watercourses along the proposed route (North to South) (D).

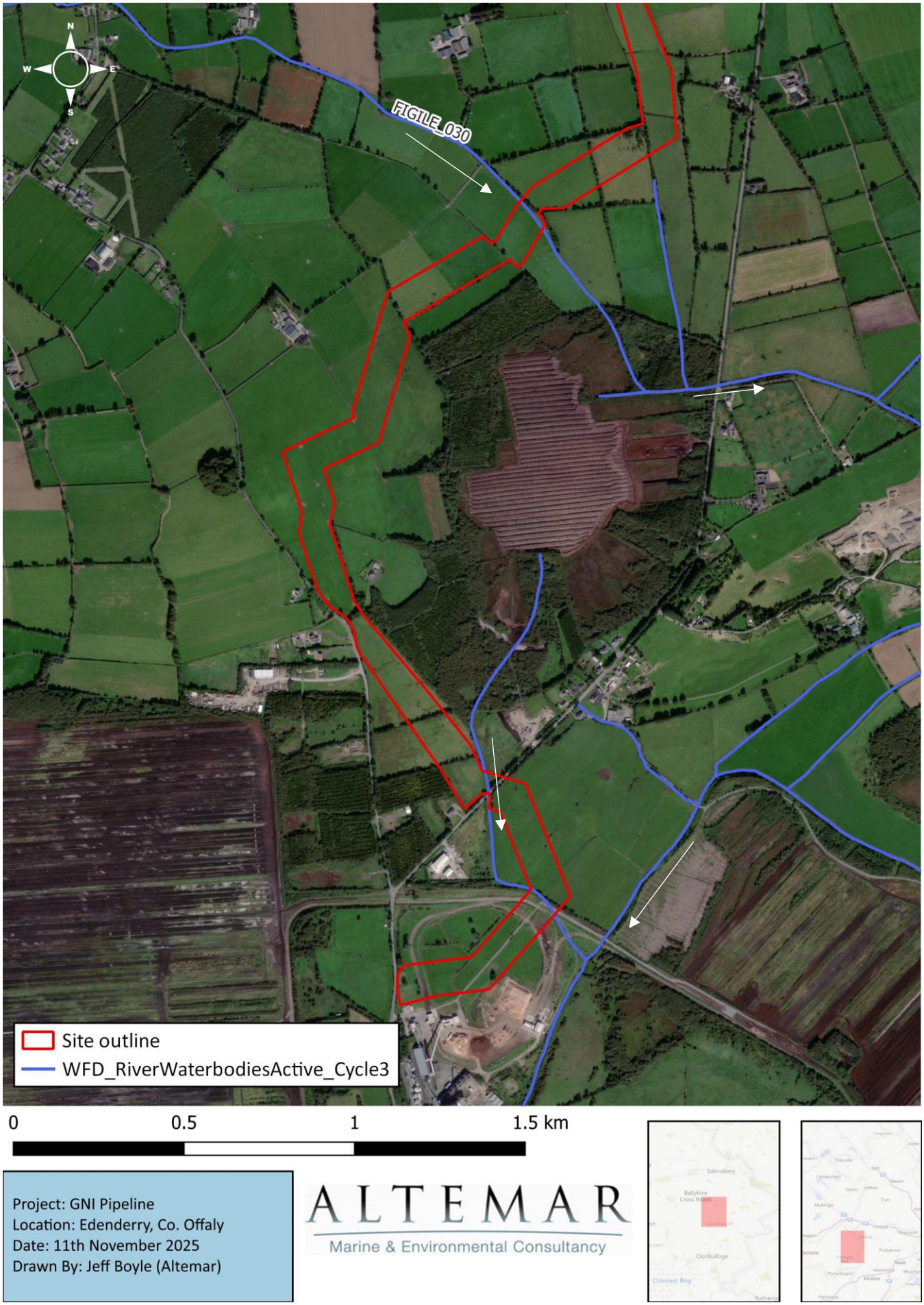

Figure 16. Watercourses along the proposed route (North to South) (E).

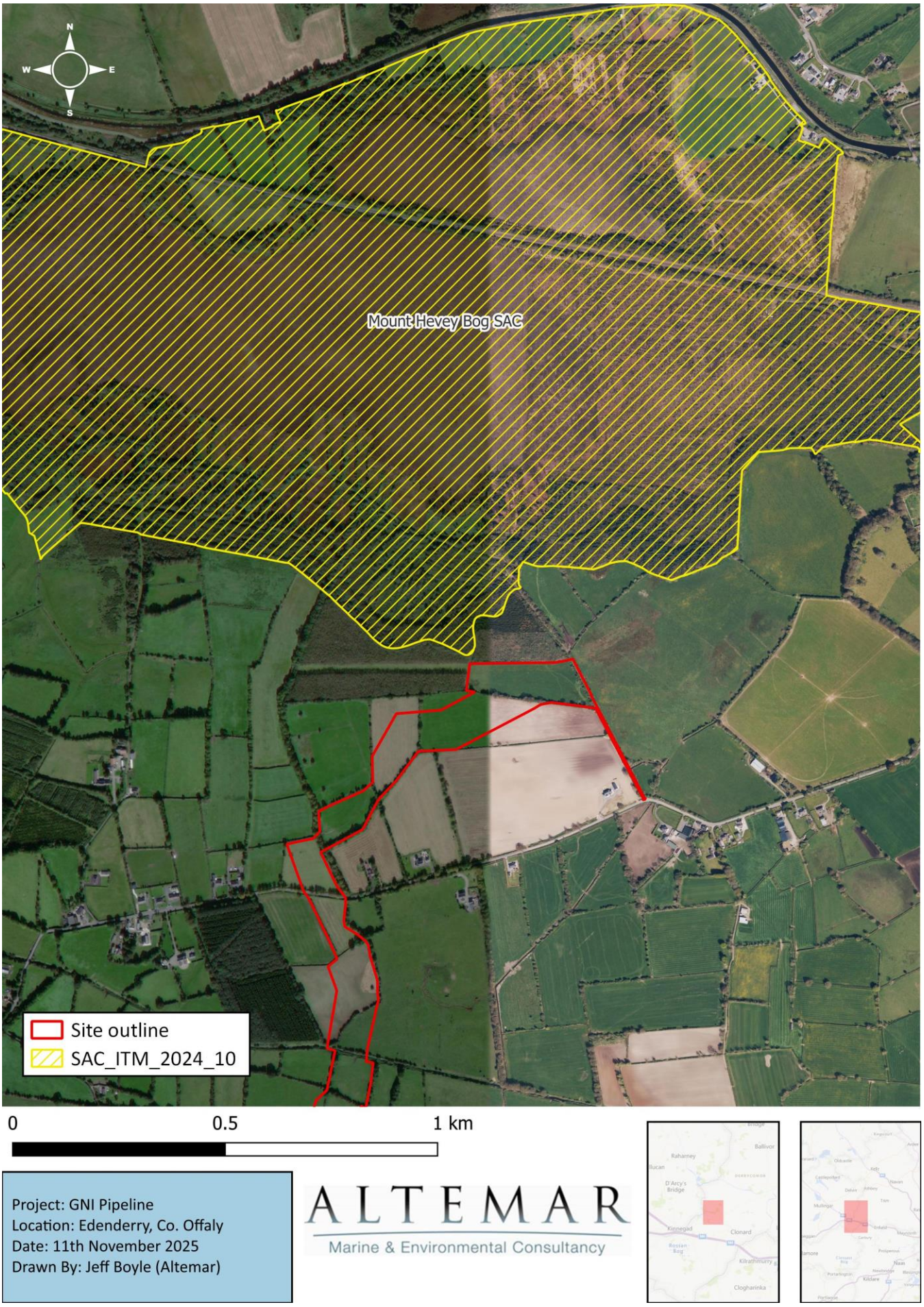

Figure 17. Mount Hevey Bog SAC

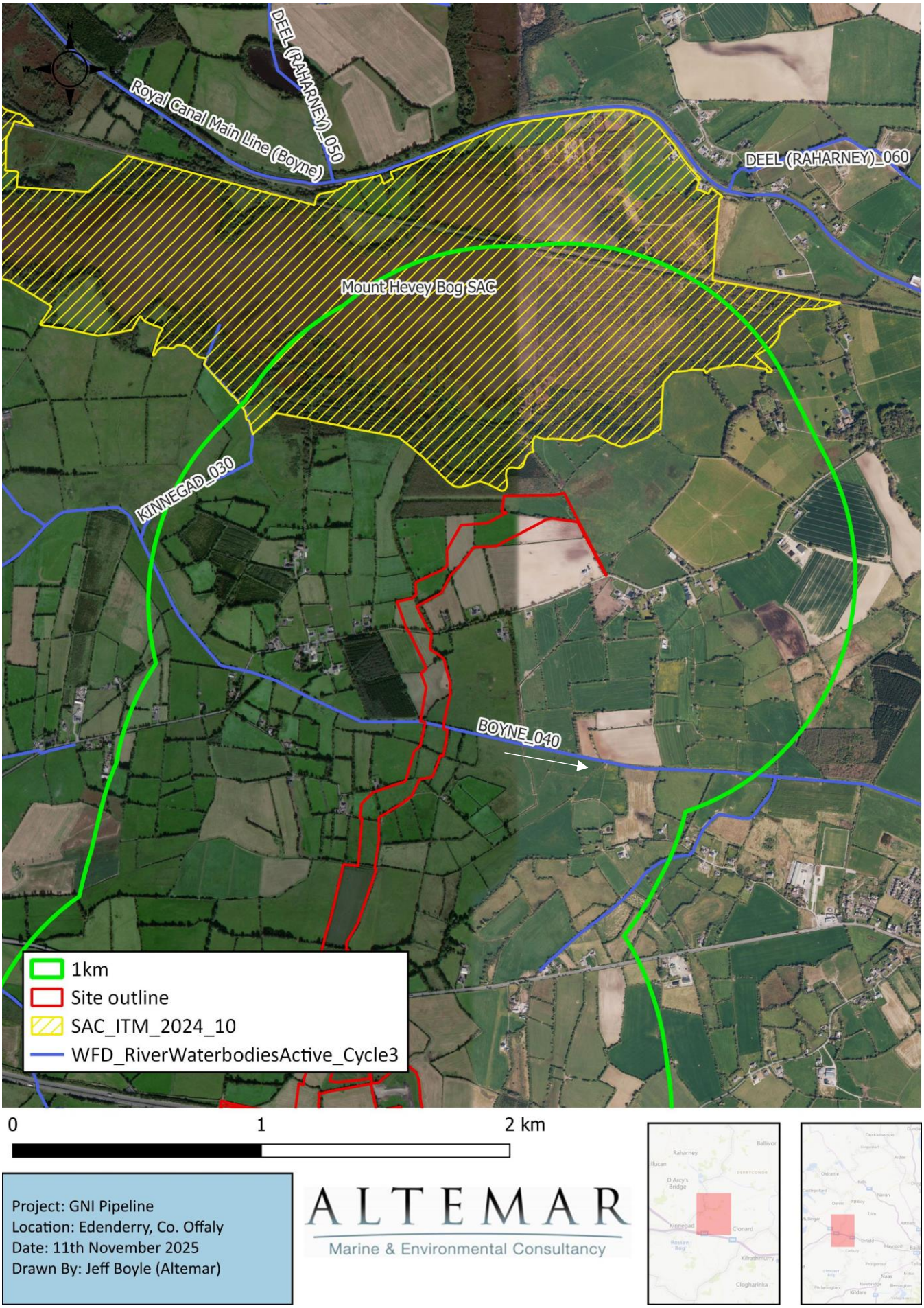

Figure 18. Mount Hevey Bog SAC, watercourses and 1km buffer.

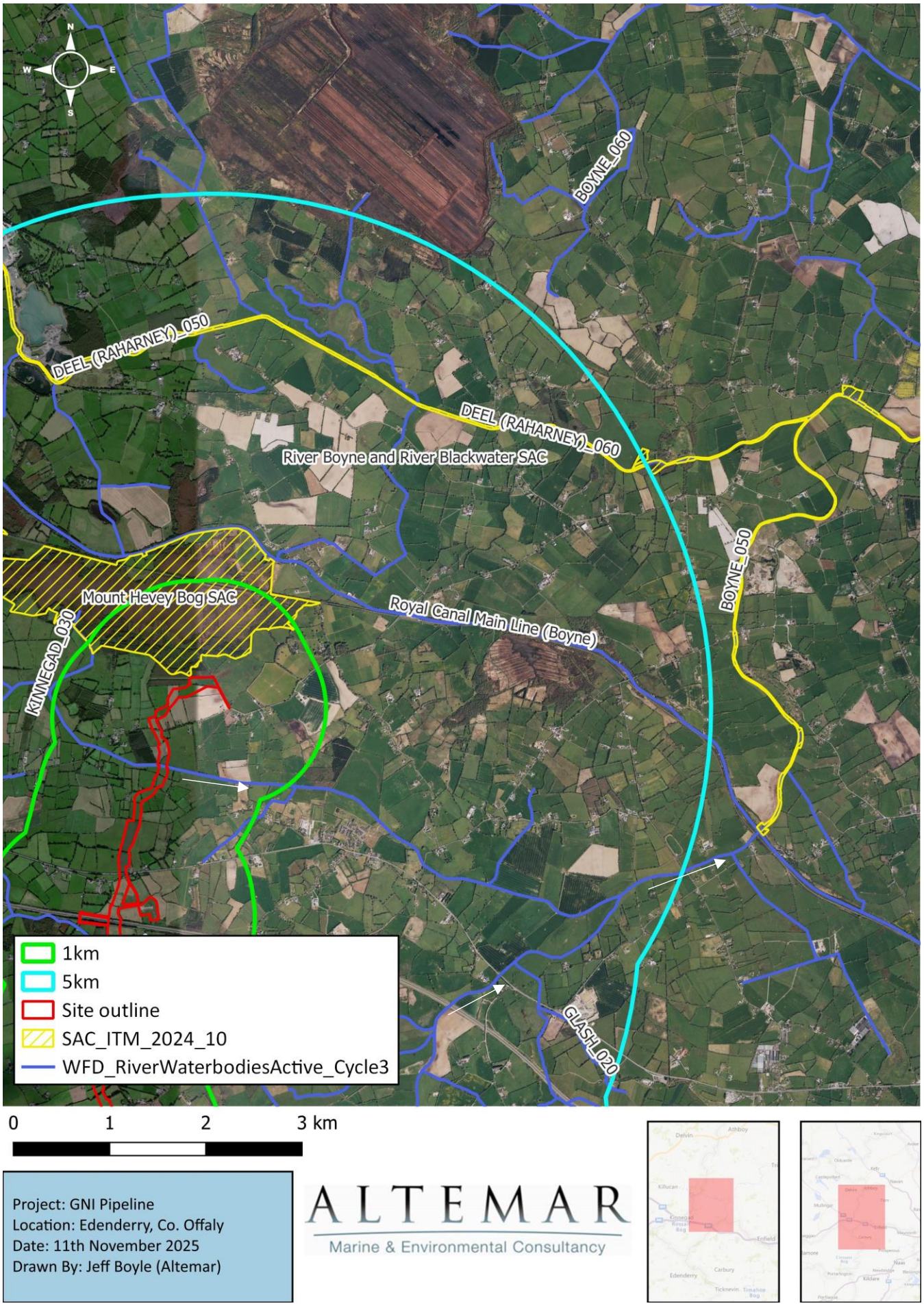

Figure 19. Mount Hevey Bog SAC, River Boyne and River Blackwater SAC watercourses and 1km buffer.

5.3 Results of Source-Pathway-Receptor Assessment

Four European Sites have been identified as having source-pathway-receptor connectivity with the Proposed Development. Three of these sites (The River Boyne and River Blackwater SAC & SPA and The River Barrow and River Nore SAC) are directly linked to the proposed development site via hydrological linkages throughout the overall site.

The fourth European site linked to the Proposed Development is the Mount Hevey Bog SAC, which is located c. 20m from the northernmost point of the overall site area. A weak hydrogeological (groundwater) linkage exists given the proximity of the site, in addition to a physical linkage via construction phase dust.

The following European Sites are therefore considered to fall within the precautionary ZOI of the Proposed Development:

- **River Boyne and Blackwater SAC (002299)**
- **River Boyne and Blackwater SPA (004232)**
- **River Barrow and River Nore SAC (002162)**
- **Mount Hevey Bog SAC (002342)**

All other European sites are screened out in Table 23 above, due to a lack of any source-pathway-receptor connection with the Proposed Development, do not have the potential to be significantly affected by said development, and thus, do not require further consideration in this report. The following section identifies the potential for impacts on the European Sites within the ZOI screened IN in Table 23.

5.4 Summary of Likely Significant Effects on European sites

The potential impacts of the proposed development on the receiving environment, their ZoI, and the European sites at risk of likely significant effects are summarised using the Key Indicators in Table 24 below.

Table 24. Summary of the Potential Impacts of the Proposed Project on the Receiving Environment, their Potential ZoI, and the European sites within the ZoI

Potential Direct or Indirect impacts and zone of influence of the Potential Effects	Are there any European sites within the zone of influence?
Habitat loss and fragmentation Habitat loss will be confined to the lands within the proposed development boundary	No There are no European sites within the ZOI of the proposed project.
***Ex-situ* habitat loss – SCI bird species**	No There are no important *ex-situ* sites located within the footprint of the proposed Project and as such there is no potential for loss of such sites. Field surveys carried out by Altemar Ltd. in 2025 deemed the overall lands to be unsuitable feeding and/or roosting sites for wintering birds, due to habitat conditions being dominated by improved agricultural grassland or arable land and/or subject to relatively high levels of grazing disturbance. As such it was not deemed necessary to carry out detailed wintering bird surveys in these areas. Therefore, there are no European sites within the ZoI of this impact.
Disturbance and displacement impacts – SCI bird species Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, in conjunction with the sensitivity of the qualifying interest species to disturbance effects.	No There are no European sites within the potential disturbance or displacement ZoI of the Project, which is smaller than the ZOI as defined in Section 4.1.
Disturbance and displacement impacts – Otter	Yes The proposed development site is hydrologically linked to the River Barrow and River Nore SAC and River Boyne and Blackwater SAC. Surveys did not identify otters to be present within the watercourses which traverse the proposed development site. However, impacts to otters via disturbance cannot be ruled out in the absence of mitigation as they may inhabit and commute along the watercourses within the ZOI of the proposed development.
Mortality risk – SCI bird species Areas where proposed new bridge structures, railway line and/or other such elevated structures are introduced.	No No SCI species of any European sites are at risk of mortality arising from collision with the proposed development due to its primarily underground and passive nature, and therefore no European sites are within the ZoI.
Habitat degradation as a result of hydrological impacts	**Yes** Hydrologically connected sites including River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC.

Potential Direct or Indirect impacts and zone of influence of the Potential Effects	Are there any European sites within the zone of influence?
Habitat degradation as a result of contamination of surface waters and groundwaters which then contribute to the surface water environment. Habitats and species downstream/hydrologically connected to the proposed Project. Flood impacts which could transport pollutants to nearby receptors.	Mount Hevey Bog SAC is located hydrologically upgradient of the Proposed Development and as such no linkage exists.
Habitat degradation as a result of hydrogeological impacts Groundwater dependant habitats, and habitats that are downstream of the project, and the species those habitats support, in the local area that lie downgradient of the proposed Project.	No The proposed development is downgradient of Mount Hevey Bog SAC and so will not impact on groundwater dependant habitats within the SAC. The Mount Hevey Bog SAC occupies a topographically elevated position relative to the works area, and both groundwater and surface water flow direction are likely away from the SAC. A Source-Pathway Receptor (SPR) risk assessment was undertaken for the construction phase. Risks to the Mount Hevey Bog SAC were assessed as negligible to low risk, due to limited aquifer productivity, cohesive overburden, short groundwater flow paths and likely absence of hydraulic connectivity with the SAC (Minerex Environmental Limited (MEL), 2026).
Habitat degradation as a result of air quality impacts Habitat areas within c. 250m (IAQM, 2024) of the proposed project and haul routes for construction vehicles.	Yes Mount Hevey Bog SAC Dust from construction sites deposited on vegetation may create ecological stress within the local plant community. Potential air quality impacts to ecological receptors are primarily related to the deposition of dust on vegetation, which can interfere with photosynthesis, affect plant health, or alter sensitive habitats where dust loads are excessive. The guidance (IAQM, 2024) states that dust impacts to vegetation can occur up to 50 m from the site and 50 m from site access roads, up to 250 m for the site entrance.
Indirect impacts - Habitat degradation as a result of the introduction and/or spread of non-native invasive species Habitats and species downstream/hydrologically connected to the proposed Project. Introduction and/or spread of invasive species as a result of construction works	Yes Hydrologically connected sites including River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC. Mount Hevey Bog given its proximity to the proposed development site. Mount Hevey Bog SAC
Indirect impacts - Disturbance and displacement impacts as a result of increased population density	No The Proposed Development will not increase the population density within the vicinity of the site and as such will not cause disturbance and displacement impacts.

5.4.1 Summary

In the absence of mitigation measures, the Proposed Development has the potential to affect the receiving water, land and air environment and, consequently, has the potential to have likely significant effects on European site(s). The only impacts associated with the Proposed Development are:

- Pollution/contamination events during construction and/or operation of surface origin affecting water quality in hydrologically connected European Sites (River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC).
- Air quality impacts during the construction phase arising from airborne dust and other particulates to adjacent European Sites (Mount Hevey Bog SAC)
- Accidental introduction and/or spread of non-native invasive species to downstream European Sites (River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC) and the adjacent Mount Hevey Bog SAC.
- Disturbance and displacement impacts to Otters (River Boyne and Blackwater SAC and River Barrow and River Nore SAC.

5.4.2 Potential for In-Combination Effects

There are several permitted and proposed developments (last five years) located in the wider area surrounding the subject site that have been assessed for potential in-combination effects through the examination of planning documentation.

The following developments have been identified for consideration of potential in-combination effects taken from the Department of Housing, Local Government and Heritage's 'National Planning Application Map' portal:

Table 25. Planning application details and reference numbers of sites proximate to the proposed development.

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
Ref: PA92.323980 Applicant: Uisce Éireann Location: Parteen Basin, Lower Shannon, to Peamount, Co. Dublin.	The proposed development comprises, inter alia: • A proposed Raw Water Intake & Pumping Station at Garrynatineel, Ballina, Co. Tipperary; • A proposed Water Treatment Plant at Incha Beg, Birdhill, Co. Tipperary; • A proposed Break Pressure Tank at Knockanacree, Cloughjordan, Co. Tipperary; • A proposed Booster Pumping Station at Coagh Upper, Birr, Co. Offaly; • A proposed Flow Control Valve at Commons Upper, Celbridge, Co. Kildare; • A proposed Termination Point Reservoir at Loughtown Upper, Peamount, County Dublin; • c. 172km of pipeline connecting the water infrastructure sites; • Uprating and associated works to the existing Ardnacrusha – Birdhill 38kv line and Ardnacrusha – Birdhill – Nenagh 38kv line, works at the existing Birdhill 38 kV electricity substation, power connections to infrastructure; and • all ancillary works above and below ground. A complete detailed description of the Proposed Development is set out in the documentation accompanying the application including the public notices, the planning report and Environmental Impact Assessment Report.	Decision: Not yet decided Expected Grant Date: 30/06/2026
Ref: 25/60500 Applicant: EIRGRID PLC Location: CLONMORE, CLONMORE, CO OFFALY.	EirGrid PLC, with the consent and approval of the Electricity Supply Board (ESB), intends to apply for permission for works to uprate the existing Rinawade – Dunfirth Tee – Kinnegad 110kV overhead line (OHL). Within County Offaly, the proposed development will take place within the following townlands: CLONMORE . The Rinawade - Dunfirth Tee - Kinnegad 110 kV OHL circuit runs through County Meath, County Kildare and County Offaly. It is 54 km in length and travels from Kinnegad 110 kV substation in Killaskillen (County Meath) and traverses southeast where a short loop into Dunfirth 110 kV substation in Dunfirth (County Kildare) exists. The line then continues southeast where it terminates at Rinawade 110kV substation in Rinawade Lower (County Kildare). The OHL has a total of 249no. supporting structures. Within the functional area of Offaly County Council there is 0.42 km of the existing OHL circuit, with 2 no. structures. Within the functional area of Kildare County Council there is 30.66 km, with 140 no. structures, and within the functional area of Meath County Council, there is 23.16 km with 107 no. structures. Separate planning applications will be lodged with Kildare County Council and Meath County Council. The proposed development within Co. Offaly will comprise: • the replacement (“restringing”) of the existing OHL circuit conductor wires with a new higher capacity conductor and fibre wrap between structure numbers 38 – 39; • the painting of tower no. 38; • the replacement of insulating and ancillary hardware at all structures where conductor wires will be replaced; • all associated temporary site development works to gain access to the existing structures including vegetation clearance and management, disassembly and reassembly of gate posts / piers and removal and reinstatement of existing fencing; and • other temporary associated and ancillary site development	Decision: Conditional Grant Date: 11/12/2025

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	works required for the purpose of the uprate of the existing circuit, including silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e., guard poles) and temporary watercourse crossings. Where required, an aerial catenary stringing system will be used to facilitate stringing operations over major obstacles, e.g., national roads, rivers, etc. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application	
Ref: NA (not yet submitted) Applicant: Bord na Móna Location: Cushaling Peaker Plant	The related development is at the Cushaling Peaker Plant [subject to planning approval includes: • A new on-site pipeline from the proposed AGI (Above Ground Installation) to two new gas skids (one for each of the two 58 MW Cushaling Peaker Plant units), • Conversion of the fuel system from distillate to natural gas (natural gas becoming the primary fuel), • Retention of distillate as a backup fuel, • Modifications to the internal pipework to the turbine plant to facilitate the change in fuel, • Operation of the peaking units on gas rather than distillate. The plant will remain a peaking facility with no changes to operational hours or status. The existing EPA Industrial Emissions (IE) licence (EPA Ref. P0482-04) and Greenhouse Gas Permit (EPA Ref. IE-GHG166-10429-2) will require amendment to reflect the change in fuel type.	Decision: NA (not yet submitted) Grant Date: NA (not yet submitted)
Ref: 2560500 Applicant: EirGrid plc Location: Clonmore, Clonmore, Co Offaly	EirGrid PLC, with the consent and approval of the Electricity Supply Board (ESB), intends to apply for permission for works to uprate the existing Rinawade – Dunfirth Tee – Kinnegad 110kV overhead line (OHL). Within County Offaly, the proposed development will take place within the following townlands: CLONMORE . The Rinawade - Dunfirth Tee - Kinnegad 110 kV OHL circuit runs through County Meath, County Kildare and County Offaly. It is 54 km in length and travels from Kinnegad 110 kV substation in Killaskillen (County Meath) and traverses southeast where a short loop into Dunfirth 110 kV substation in Dunfirth (County Kildare) exists. The line then continues southeast where it terminates at Rinawade 110kV substation in Rinawade Lower (County Kildare). The OHL has a total of 249no. supporting structures. Within the functional area of Offaly County Council there is 0.42 km of the existing OHL circuit, with 2 no. structures. Within the functional area of Kildare County Council there is 30.66 km, with 140 no. structures, and within the functional area of Meath County Council, there is 23.16 km with 107 no. structures. Separate planning applications will be lodged with Kildare County Council and Meath County Council. The proposed development within Co. Offaly will comprise: • the replacement (“restringing”) of the existing OHL circuit conductor wires with a new higher capacity conductor and fibre wrap between structure numbers 38 – 39; • the painting of tower no. 38; • the replacement of insulating and ancillary hardware at all structures where conductor wires will be replaced; • all associated temporary site development works to gain access to the existing structures including vegetation clearance and management, disassembly and reassembly of gate posts / piers and removal and reinstatement of existing fencing; and • other temporary associated and ancillary site development works required for the purpose of the uprate of the existing circuit, including silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e., guard poles) and temporary watercourse crossings. Where required, an aerial catenary stringing system will be used to facilitate stringing	Decision: Conditional Grant Date: 11/12/2025

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	operations over major obstacles, e.g., national roads, rivers, etc. A Natura Impact Statement will be submitted to the Planning Authority with the application	
Ref: 2360266 Applicant: Kilsaran Concrete Unlimited Company (trading as Kilsaran) Location: Kilrainy and Kilrathmurry townlands, Clonard, Co. Kildare	Application area 51.7 ha. with rock extraction (6.2 ha.), importation of fine sand, use of existing batching plant/ancillary facilities, new site entrance/access, road improvement works, and all site ancillary/restoration works for a period of 12 years. Details of the application work are as follows: 1. Quarry development and associated processing previously permitted under P. Reg. Ref. No. 99/2042 and ABP Ref. PL09.123207) to include drilling, blasting, crushing and screening of rock; and lateral extension to same, with an overall extraction area of c. 6.2 hectares with no vertical deepening below the existing quarry floor. The appropriate period of planning register reference 99/2042 was extended by order dated 03/02/2017 by P. Reg. Ref. No. 16/1246; 2. Importation of up to 35,000 tonnes per annum of processed fine aggregate, principally sand for use in readymix concrete production on site; 3. Use of buildings and structures associated with the sand and gravel pit previously granted planning permission under P. Reg. Ref. No. 03/2754 comprising of the crushing, washing and screening plant with associated silt disposal lagoons; readymix concrete batching plant including powerhouse; prefabricated office; weighbridge; workshop building with concrete laboratory and bunded fuel tanks; aggregate storage bays; and one liquid effluent treatment system unit; 4. Closure of the existing site entrance with provision of a new site entrance located to the north of the existing entrance; realignment of the main internal site access road from the new site entrance to the central processing area with provision of a new wheelwash system; acoustic fence screening (c.2m in height x 170m in length); and a new screening berm along the western site boundary; 5. Restoration of the site lands will be to a combination of beneficial agricultural and ecological after-uses; 6. All associated site works within an overall application area of c. 51.7 hectares. The proposed operational period is for 10 years plus 2 years to complete restoration (total duration sought 12 years); and 7. Provision is also made for 3 no. sections of road improvements (widening) along the haul route between the site entrance and the R148 regional road. The proposals at the identified locations include for works in the public road and verge that aim to achieve a consistent carriageway width of 6.0m along with provision of verge widening on the inside of the three bends to improve forward visibility and intervisibility for all opposed traffic including traffic generated by the proposed development. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of this planning application	Decision: Conditional Grant date: 05/08/2025

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
Ref: 201409 Applicant:Kilsaran Concrete (trading as Kilsaran Build) Location: Brackagh townland, Carbury, Co. Kildare	Planning permission duration of 9 years sought for sand and gravel extraction (dry working), associated processing plant and upgrade works to existing site entrance over an area 17 hectares with restoration back to an agricultural after use. Details of the application are as follows: Development within an overall application area of 17 hectares. Upgrading of the site entrance onto the R401 regional road, consisting of improvements to the surface to allow regular HGV traffic. Installation of all required site facilities, consisting of a prefabricated welfare facility (including a toilet facility with septic tank and percolation area), a double skinned fuel tank in a secure container, a weighbridge and a wheelwash. Installation of a processing plant and associated settlement lagoon (closed water system). Extraction of sand and gravel with processing that includes crushing, washing and screening, using the newly installed plant over an area of 9.2 hectares. The extraction works will take place in two phases (Extraction Phase 1: c. 4.9 hectares and Extraction Phase 2: c. 4.3 hectares). The sand and gravel extraction will be dry working above the water table. The remaining c. 7.8 hectares will consist of the processing area, a stockpile area, and overburden storage area and buffer zones to the site boundaries. Restoration of the site lands will be to a beneficial agricultural after-use. The proposed operational period is for 8 years plus 1 year to complete restoration (total duration sought 9 years). An Environmental Impact Assessment Report (EIAR) has been prepared in respect of this planning application. Revised by Significant Further Information which consists of updates to the EIAR and revised plans which include amendments to the proposed sand and gravel extraction depths within Phase 1 and Phase 2	Decision: Conditional Grant date: 22/08/2023
Ref: ABP-309686 Applicant: Cloncant Renewable Energy Ltd Location: Townlands of Ballykilleen, Cloncreen and Ballinowlart North, Co. Offaly. Grid Ref. (ITM) Easting = 660810, Northing = 726820.	Application for a ten year permission for a 110kV Air Insulated Switchgear (AIS) Loop Substation with 400m long overhead line grid connection and all associated site works. The substation will comprise: 1 No. 110kV Air Insulated Switchgear (AIS) Loop Substation including: an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning and lighting masts, single storey control building containing associated facilities (relay room, battery room, generator room, messroom, welfare facilities, workshop and office). Security fencing and all associated works. • 400m long overhead line (OHL) grid connection going south east from the substation and connecting into the adjacent existing Cushaling – Mount Lucas 110kv OHL. • 1 No. site entrance and 60m entrance road. • 1 No. temporary construction site compound (95m x 50m). • Associated surface water management systems. • All Associated site development works. This planning application is accompanied by a Natura Impact Statement and Environmental Impact Assessment Report.	Decision: Conditional Grant date:11/04/2022
Ref: 22494 Applicant: Cloncant Renewable Energy Limited Location: Ballykilleen, Shean, Kilcumber and Ballinowlart North, County Offaly	The Development Of (a) Approximately 970m of new internal access roads for the permitted Cushaling Wind Farm (Planning Ref. PL2/19/606 and ABP 306924-20), (b) Upgrade of approximately 560m of an existing Bord na Móna bog access road, (c) Construction of a 1.6km double circuit 33kV underground collector cable from the permitted Cushaling Wind Farm to the permitted wind farm substation,	Decision: Conditional Grant date: 04/05/2023

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	(d) Demolition and replacement of a Bord na Móna bogland access bridge, and (e) Relocation of the permitted Cushaling Wind Farm substation 25 meters southwest. A Natura Impact Statement (NIS) will be submitted to the planning authority with the application.	
Ref: 21598 Applicant: KILCUSH SOLAR FARM LTD Location: Ballinowlart North, Ballykillen, Kilcumber, Cloncant, and Cushaling, Edenderry, County Offaly.	A period of 10 years is proposed to construct and complete a solar PV development with a total site area of approximately 117.47 hectares. The development will include PV panels mounted on metal frames, new access tracks, underground cabling, perimeter fencing with CCTV cameras, 22 medium-voltage (MV) power stations, temporary construction compounds, and all ancillary grid infrastructure and associated works. The solar farm will be operational for 40 years.	Decision: Conditional Grant date: 26/10/2022
Ref: 2152 Applicant: BORD NA MONA POWERGEN LTD Location:Ballykilleen Townland, County Offaly (located within the previously approved Cloncreen Wind Farm, ABP Reference PL19.PA0047).	A modular Battery Energy Storage System (BESS) facility is proposed within the footprint of a previously consented construction compound (ABP Ref. PL19.PA0047). Planning permission is sought for a period of 10 years. The facility will consist of up to 28 battery storage modules (each up to 13 metres in length, 3 metres in width, and 3 metres in height), along with ancillary equipment including up to 28 step-up transformers, 28 air-handling units, and all other associated site development works and services. These include lightning protection monopoles, column lighting, and CCTV cameras; internal access roads linking the BESS facility to the consented Cloncreen Wind Farm road network; security fencing; site drainage amendments; and underground electrical cabling as required to facilitate the development. The proposal will involve the continued use of the previously consented construction compound. The BESS facility will be located entirely within the boundary of the consented Cloncreen Wind Farm and will use the existing access arrangements within the wind farm. The application is accompanied by a Natura Impact Statement (NIS).	Decision: Conditional Grant date: 06/09/2021
Ref: 2560087 Applicant: EirGrid plc	EirGrid plc, with the consent and approval of the Electricity Supply Board (ESB) is applying to Offaly County Council for permission for works associated with the proposed uprate of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation in the townland of Ballykilleen, Co. Offaly and the existing Portlaoise 110 kV substation in the townlands of Clonminam and Kylekiproe, Co. Laois. The Proposed Development works across the functional area of Co.Offaly will comprise: Replacement ("restringing") of the existing overhead line circuit conductor with a new higher capacity conductor including installation of a new fibre communication connection; replacement of the existing earthwire with new earthwire between structures 1 and 8; replacement of steel members at 3 no. towers; Full tower painting required at 3 no. locations; replacement of wooden poles only at 7 no. locations; replacement of wooden poles and crossarm at 2 no. locations; replacement of crossarm only at 3 no. locations; replacement of existing danger notices at various locations, as required; replacement of hardware and fittings, such as insulators, insulator hardware, earthwire hardware and anti-climbing guards at various locations, as required; replacement of suspension clamps,	Decision: Conditional Grant date: 23/06/2025

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
Location: Ballykilleen (Edenderry Rural Electoral Division), Kilcumber, Cloncant, Ballydermot, Clonmel, Clonbrown, Clonroosk Little, Clonroosk Big, Coolygagan, Clonbrock Upper, Kilcloncorkry, Kilnantoge Lower, Kilnantoge Upper and Shean., Co. Offaly	vibration dampers & compression assemblies at all locations, as required; All associated temporary site development works to gain access to the existing structures & other temporary associated & ancillary development works required for the purpose of the uprate of the existing circuit. No additional structures are proposed along the existing circuit. Structure 203 will be relocated approx. 101m back towards structure 202 due to its existing position on top of a gravel mound & the potential for subsidence of gravel in the long term. No alteration to the nature, extent, alignment, character or voltage of existing electricity infrastructure is proposed. A Natura Impact Statement (NIS) has been submitted with this application.	
Ref: 21291 Applicant: Edenderry Power Limited Location: Ballykilleen, Edenderry, County Offaly	Edenderry Power Limited currently has planning permission to operate Edenderry Power Plant as a peat and biomass co-fired power plant under grant of planning permission (Offaly County Council Register Reference - PL2/15/129, An Bord Pleanála Register Reference - PL 19.245295). The proposed development will consist of the continued operation of Edenderry Power Plant from the beginning of 2024 to the end of 2030 exclusively using sustainable biomass fuel. The applicant proposes to increase the volume of biomass consumed at the facility from a current maximum of 300,000 to 530,000 tonnes per annum. It is proposed to utilise the existing permitted electricity generation station and infrastructure, including fuel handling systems, utilities, processing systems and ancillary structures as part of the proposed development. There will be no change to existing infrastructure present on-site. Site access and egress will use the existing permitted site entrances to the R401 public road. There will be no change to the permitted boundary of the facility. Edenderry Power Plant is licenced by the Environmental Protection Agency under an Industrial Emissions (IE) Licence [Ref. P0482-04]. Activities at the facility and associated environmental aspects and emissions will continue to be regulated and controlled by the EPA. The planning application is accompanied by an Environmental Impact Assessment Report (EIAR). The planning application is also accompanied by a Natura Impact Statement (NIS).	Decision: Conditional Grant date: 05/05/2022
Ref: ACP Ref: 307136 Applicant: Lightsource Renewable Energy Ireland Limited Location: Lands at Harristown, Castlejordan and Clongall, Co, Meath.	110kV substation with associated electrical plant, control buildings, welfare facilities, security fencing, additional internal access traces, 110kV overhead line grid connection to existing transmission line on site, which will consist of a 10 year permission.	Decision: Conditional Grant date: 18/12/2020

As part of the assessment of the impact of the Proposed Development, account has also been taken of cumulative projects, i.e. developments that are currently permitted or under construction within the surrounding area, including a future related development at Cushaling Peaker Plant at Bord na Móna's Edenderry site. Upon an examination of the above listed plans and projects within the general vicinity of Proposed Development, and adopting a precautionary approach, it is concluded that the potential for in-combination effects on European Sites involving construction surface waters, ground water and dust arising from the Proposed Development, cannot be fully ruled out in the absence of suitable mitigation.

The proposed development has the potential to affect the receiving water and air environment and, consequently, has the potential to have likely significant effects on European sites(s).
As the proposed development itself is likely to affect the QIs/SCIs or conservation objectives of a European site(s) in the absence of mitigation, there is also the potential for other plans or projects to act in combination with it to result in likely significant effects on European sites. It is therefore necessary to proceed to Stage 2 NIS.

6 Appropriate Assessment Screening Conclusions

The Proposed Development has been assessed for its potential to result in likely significant effects on European Sites, with the following factors considered:

- the Nature, size and location of the Proposed Development and possible impacts arising from the associated construction works and its operational lifetime.
- the potential for in-combination effects alongside other plans and projects leading to effects on European sites
- the qualifying interests and conservation objectives of all relevant European Sites

An initial screening of the proposed works, using the precautionary principle (without the use of any mitigation measures) and the Source/Pathway/Receptor links between the proposed works and Natura 2000 sites with the potential to result in significant effects on the conservation objectives and qualifying interests of the Natura 2000 sites was carried out in Table 22 and 23. Based on best scientific knowledge and objective information and assessment, the possibility of significant effects caused by the proposed project was excluded for the following European sites based on distance and the lack of source-pathway-receptor linkage:

Special Areas of Conservation

- The Long Derries, Edenderry SAC (000925)
- Wooddown Bog SAC (002205)
- Raheenmore Bog SAC (000582)

These complete, precise and definitive findings, based on the best available scientific evidence, remove all reasonable scientific doubt that the Proposed Development will have any significant effects on the European Sites listed above in Section 5. It is also noted that, no measures intended to avoid or reduce the potential harmful effects of the project on any European Site have been considered in this Appropriate Assessment Screening Report and its conclusions. The project is limited in scale and extent, and the potential zone of influence is restricted to the immediate vicinity of the proposed development and designated sites which are hydrologically and terrestrially and linked to the Proposed Development site.

However, upon examination of the relevant information including in particular the nature of the potential impact pathways associated with the Proposed Development, the possibility cannot be excluded that the Proposed Development may have a likely significant effect on the European Sites listed below:

Special Areas of Conservation

- Mount Hevey Bog SAC (002342)
- River Barrow and River Nore SAC (002162)
- River Boyne and River Blackwater SAC (002299)

Special Protection Area

- River Boyne and River Blackwater SPA (004232)

In the absence of mitigation measures there is potential for silt laden material, sediments and contaminated surface & foul water drainage to enter watercourses which are connected to Natura 2000 sites located downstream of the works. Invasive species were found within the proposed development lands and as such there is the potential for habitat degradation as a result of the spread of these non-native species. There is also the potential for airborne dust to potentially cause significant effects on the Mount Hevey Bog SAC.
Therefore, an NIS is required in respect of the effects of the project on the Mount Hevey Bog SAC (002342), River Barrow and River Nore SAC (002162) River Boyne and River Blackwater SAC (002299) and River Boyne and River Blackwater SPA (004232) because it cannot be excluded on the basis of best objective scientific information following screening, in the absence of control or mitigation measures that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the named European Site/s.

A Natura Impact Statement is required for the Proposed Development.

7 Stage 2: Natura Impact Statement

A NIS is Stage 2 of the Appropriate Assessment process. In the case of the proposed development, acting on a strictly precautionary basis, an NIS is required in respect of the effects of the project on the Mount Heavy Bog SAC (00234), River Boyne and River Blackwater SAC (002299), River Barrow and River Nore SAC (002162) and River Boyne and River Blackwater SPA (004232) due to the potential for significant effects these sites via silt laden surface water runoff, dust and pollution during construction, and hydrological degradation during operation, because it cannot be excluded on the basis of best objective scientific information, in the absence of control or mitigation measures, following screening that the plan or project, individually and/or in combination with other plans or projects, will have a significant effect on the named European Site/s.

A Stage 2 Appropriate Assessment or NIS is not required for the effects of the project on all other listed Natura sites within, and sites beyond, 15km because, it can be concluded, on the basis of the best objective scientific information following screening, that the plan or project, individually and/or in combination with other plans or projects, will not have a significant effect on the European Site/s.

The NIS evaluates the potential for direct, indirect adverse effects, alone or in combination with other plans and projects having taken into account the use of mitigation measures. The NIS is informed by the associated EIAR Chapters and other relevant surveys and information outlined in Section 3 and 4 of the preceding Appropriate Assessment Screening.

A further review of the Conservation Objectives and qualifying interests is necessary to determine if significant effects are likely to impact the Mount Hevey Bog SAC, River Boyne and River Blackwater SAC, River Barrow and River Nore SAC and River Boyne and River Blackwater SPA.

7.1 General Overview of European Sites

7.1.1 Mount Hevey Bog SAC (Site code: 002342)

As outlined in the Mount Hevey Bog SAC Site Synopsis[11](NPWS, version date 09.01.2014):

'Mount Hevey Bog is situated approximately 4 km north-east of Kinnegad, in the townlands of Cloncrave, White Island, Aghamore, Kilwarden and Kilnagalliagh. The Meath-Westmeath County boundary runs through the centre of the bog. The site comprises a raised bog that includes both areas of high bog and cutover bog. The Dublin-Sligo railway runs through the northern part of the bog isolating two northern lobes. The northern lobes are adjacent to the Royal Canal.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (= priority; numbers in brackets are Natura 2000 codes): [7110] Raised Bog (Active)* [7120] Degraded Raised Bog [7150] Rhynchosporion Vegetation*

Active raised bog comprises areas of high bog that are wet and actively peatforming, where the percentage cover of bog mosses (Sphagnum spp.) is high, and where some or all of the following features occur: hummocks, pools, wet flats, Sphagnum lawns, flushes and soaks. Degraded raised bog corresponds to those areas of high bog whose hydrology has been adversely affected by peat cutting, drainage and other land use activities, but which are capable of regeneration. The Rhynchosporion habitat occurs in wet depressions, pool edges and erosion channels where the vegetation includes White Beak-sedge (Rhynchospora alba) and/or Brown Beak-sedge (R. fusca), and at least some of the following associated species, Bog Asphodel (Narthecium ossifragum), sundews (Drosera spp.), Deergrass (Scirpus cespitosus) and Carnation Sedge (Carex panicea).

The site consists of a long, narrow bog separated into four sub-sections; the larger eastern section supports a wet quaking area with hummock/hollows and pool complex. Hummock/hollow complex also occurs in the south-west lobe and the north-west lobe of the site. An infilled lake is now a soak system. Forestry occurs on the most easterly section of the site. There is abandoned cutover bog all around the bog and particularly on the western section. There are some wet and actively regenerating areas of the cutover along the southern margins of the western lobe and along the railway. Much of the high bog has vegetation typical of the Midlands Raised Bog type. The

[11] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002342.pdf

vegetation consists of Heather (Calluna vulgaris), cottongrasses (Eriophorum angustifolium and E. vaginatum), Bog Asphodel, White Beak-sedge and midland indicator species Bog-rosemary (Andromeda polifolia) and the bog moss Sphagnum magellanicum. The wet quaking area in the eastern section of the bog has pools that support the bog moss Sphagnum cuspidatum, with White Beak-sedge, cottongrasses and Heather at the edges. The hummock/hollow complex supports a range of hummock-forming bog mosses, including Sphagnum imbricatum and S. fuscum, as well as other species such as S. capillifolium, S. magellanicum and S. papillosum. Other plants found in the hummock/hollow complexes are Bog-rosemary, Cross-leaved Heath (Erica tetralix), Bog Asphodel and Deergrass.

The infilled lake is wet and quaking and the vegetation is dominated by Purple Moor-grass (Molinia caerulea), Bog-myrtle (Myrica gale) and Downy Birch (Betula pubescens), along with the bog mosses Sphagnum palustre and S. papillosum. The Downy Birch trees appear to be between 20 and 30 years old, and the Bog-myrtle is over 150 cm high. The edge of the former lake is clearly marked by robust plants of Heather. Some areas of old abandoned cutover bog on the site are very wet and regenerating well, with a good cover of bog mosses, including species such as S. cuspidatum, S. papillosum, S. capillifolium, S. auriculatum and S. subnitens.

Current land use on the site consists of limited mechanised peat-cutting, mostly on the eastern end of the high bog. There are areas of old peat cuttings all around the site with some very old abandoned regenerating cutover along the edge of the railway. The area to the east of the site has been afforested. Areas of cutover have been reclaimed for agricultural purposes. Damaging activities associated with these land uses include drainage throughout the site (both old and recent) and burning of the high bog. These are all activities that have resulted in loss of habitat and damage to the hydrological status of the site, and pose a continuing threat to its viability.

Mount Hevey Bog is a site of considerable conservation significance as it comprises a raised bog, a rare habitat in the E.U. and one that is becoming increasingly scarce and under threat in Ireland. The site supports a good diversity of raised bog microhabitats, including hummock/hollow complexes, pools, flushes and regenerating cutover, as well as a number of scarce plant species. Active raised bog is listed as a priority habitat on Annex I of the E.U. Habitats Directive. Priority status is given to habitats and species that are threatened throughout the E.U. Ireland has a high proportion of the total E.U. resource of this habitat type (over 60%) and so has a special responsibility for its conservation at an international level. '

As outlined in the Mount Hevey Bog SAC Conservation Objectives document (NPWS,2021):
'The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network. European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites. A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site. The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level. Favourable conservation status of a habitat is achieved when:

• its natural range, and area it covers within that range, are stable or increasing, and
• the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
• the conservation status of its typical species is favourable. The favourable conservation status of a species is achieved when:
• population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and
• the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and
• there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis'.

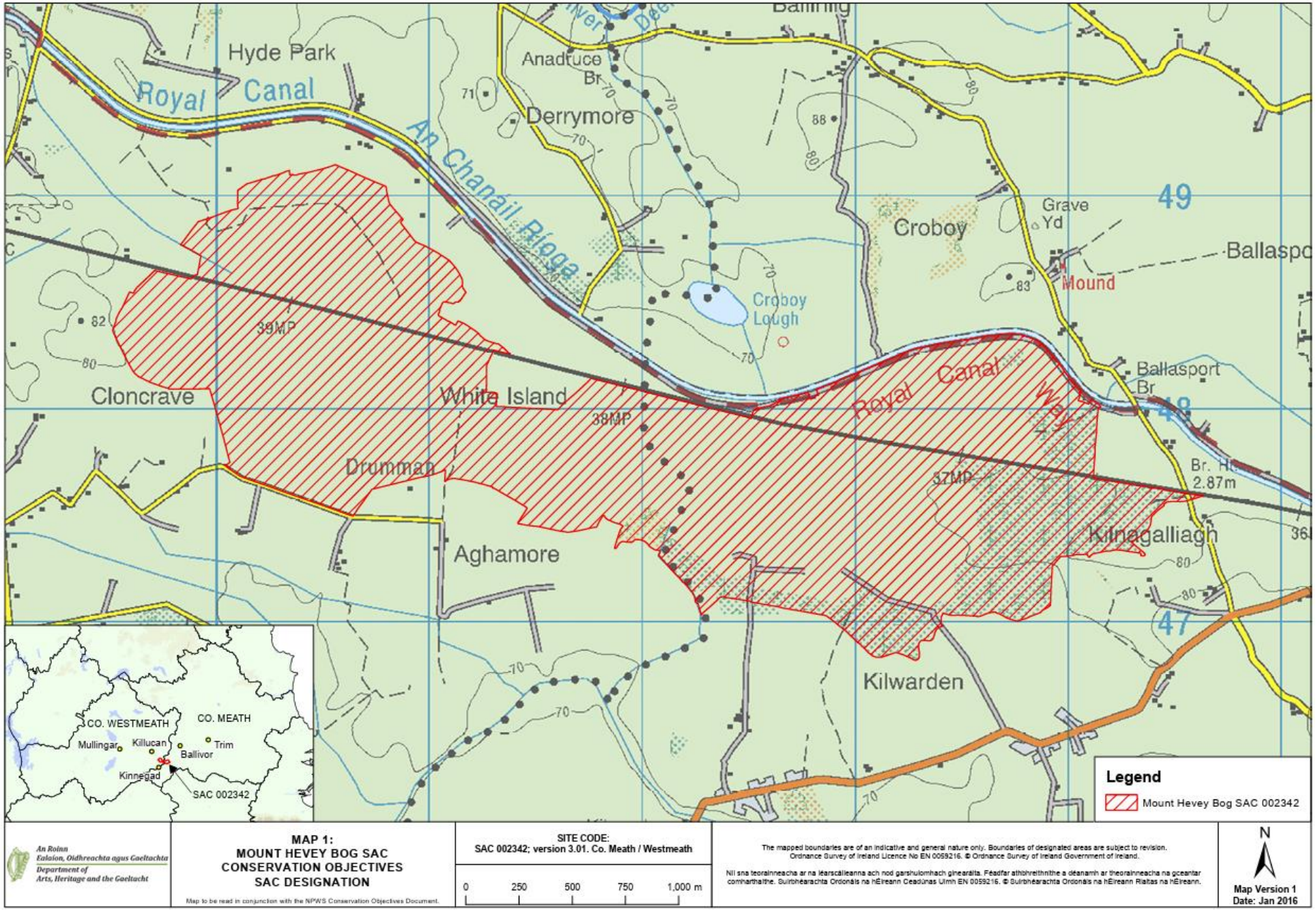

Figure 20. Mount Hevey Bog SAC

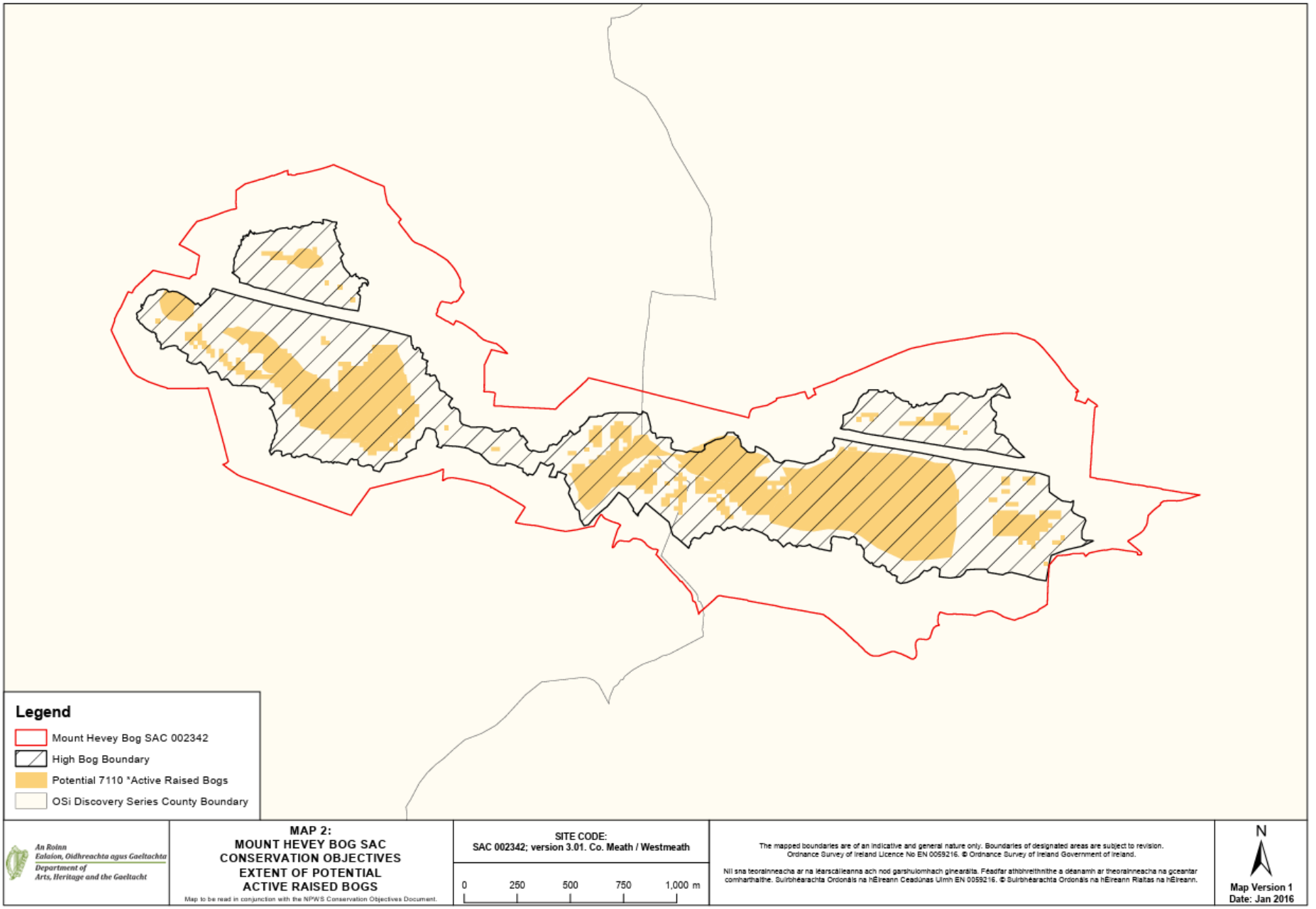

Figure 21. Extent of potential active raised bogs in Mount Hevey Bog SAC

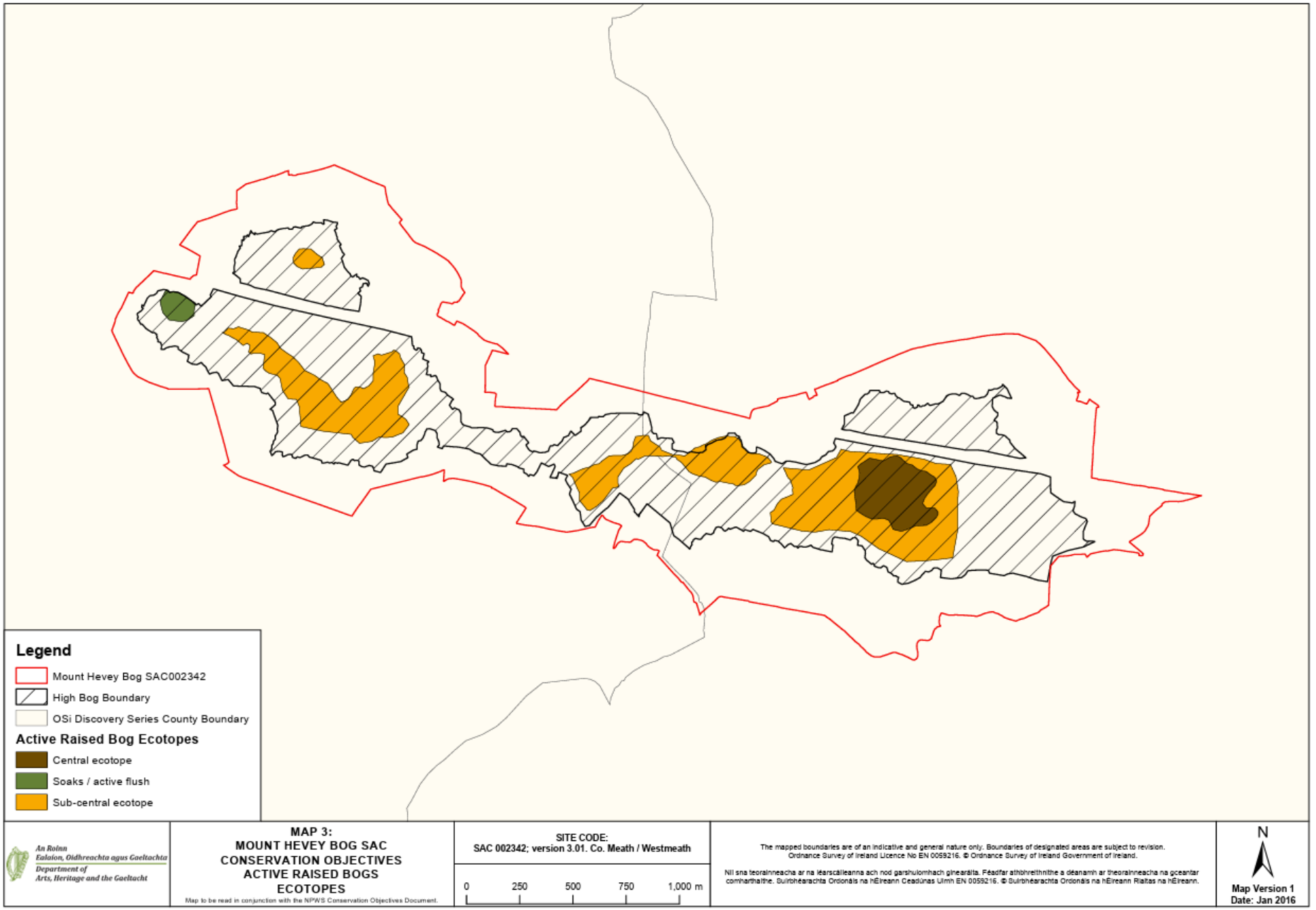

Figure 22: Mount Hevey Bog SAC active raised bogs ecotypes

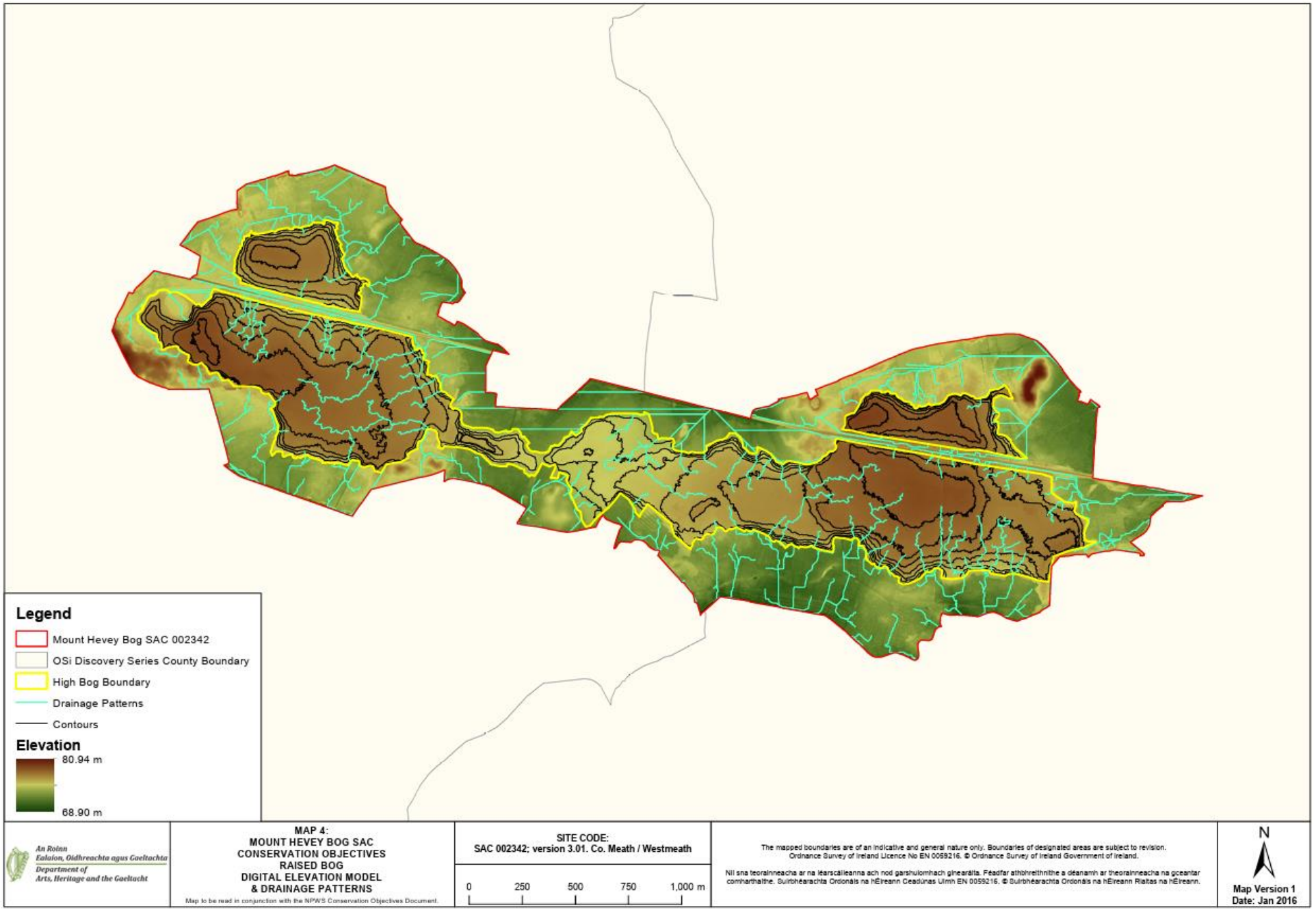

Figure 23. Mount Hevey Bog SAC Drainage elevation model

7.1.2 River Boyne and River Blackwater SAC (Site code: 002299)

As outlined in the River Boyne and River Blackwater SAC Site Synopsis[12] (NPWS, Version date 06.01.2014):

'This site comprises the freshwater element of the River Boyne as far as the Boyne Aqueduct, the Blackwater as far as Lough Ramor and the Boyne tributaries including the Deel, Stoneyford and Tremblestown Rivers. These riverine stretches drain a considerable area of Meath and Westmeath, and smaller areas of Cavan and Louth. The underlying geology is Carboniferous Limestone for the most part, with areas of Upper, Lower and Middle well represented. In the vicinity of Kells Silurian Quartzite is present while close to Trim are Carboniferous Shales and Sandstones. There are many large towns adjacent to but not within the site, including Slane, Navan, Kells, Trim, Athboy and Ballivor.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (= priority; numbers in brackets are Natura 2000 codes):*

[7230] Alkaline Fens; [91E0] Alluvial Forests; [1099] River Lamprey (Lampetra fluviatilis); [1106] Atlantic Salmon (Salmo salar); [1355] Otter (Lutra lutra).'*

'*The dominant habitat along the edges of the river is freshwater marsh, and the following plant species occur commonly in these areas: Yellow Iris, Creeping Bent (Agrostis stolonifera), Canary Reed-grass (Phalaris arundinacea), Marsh Bedstraw (Galium palustre), Water Mint (Mentha aquatica) and Water Forget-me-not (Myosotis scorpioides). In the wetter areas Common Meadow-rue (Thalictrum flavum) is found. In the vicinity of Dowth, Fen Bedstraw (Galium uliginosum), a scarce species mainly confined to marshy areas in the midlands, is common in this vegetation. Swamp Meadow-grass (Poa palustris) is an introduced plant which has spread into the wild (naturalised) along the Boyne approximately 5 km south-west of Slane. It is a rare species which is listed in the Red Data Book and has been recorded among freshwater marsh vegetation on the banks of the Boyne in this site. The only other record for this species in the Republic of Ireland is from a site in Co. Monaghan.*'

'*The Boyne and its tributaries form one of Ireland's premier game fisheries and the area offers a wide range of angling, from fishing for spring salmon and grilse to seatrout fishing and extensive brown trout fishing. Atlantic Salmon (Salmo salar) use the tributaries and headwaters as spawning grounds. Although this species is still fished commercially in Ireland, it is considered to be endangered or locally threatened elsewhere in Europe and is listed on Annex II of the Habitats Directive. Atlantic Salmon run the Boyne almost every month of the year. The Boyne is most important as it represents an eastern river which holds large three-sea-winter fish from 20-30 lb. These fish generally arrive in February, with smaller spring fish (10 lb) arriving in April/May. The grilse come in July, water permitting. The river gets a further run of fish in late August and this run would appear to last well after the fishing season. The salmon fishing season lasts from 1st March to 30th September*.'

'*The site supports populations of several species listed on Annex II of the E.U. Habitats Directive, and habitats listed on Annex I of this Directive, as well as examples of other important habitat types. Although the wet woodland areas appear small there are few similar examples of this type of alluvial wet woodland remaining in the country, particularly in the north-east. The semi-natural habitats, particularly the strips of woodland which extend along the river banks, and the marsh and wet grasslands, increase the overall habitat diversity and add to the ecological value of the site, as does the presence of a range of Red Data Book plant and animal species and the presence of nationally rare plant species.*'

As outlined in the Conservation Objectives document [13] (NPWS, 2021):

'*The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.*

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are

[12] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY002299.pdf
[13] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002299.pdf

responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

A site-specific conservation objective aims to define favourable conservation condition for a particular habitat or species at that site.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- *its natural range, and area it covers within that range, are stable or increasing, and*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
- *the conservation status of its typical species is favourable.*

The favourable conservation status of a species is achieved when:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.'*

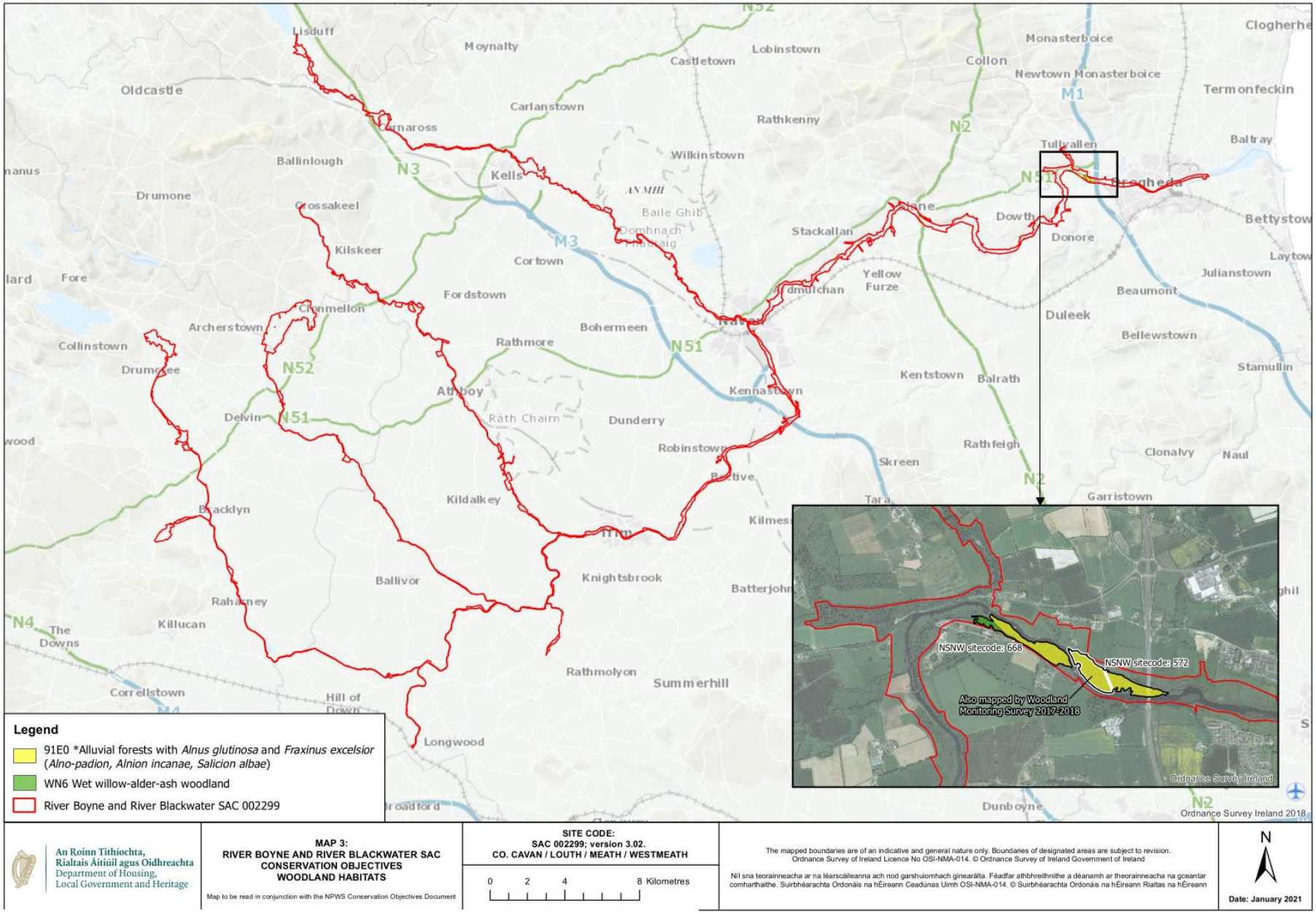

Figure 24. River Boyne and River Blackwater SAC – Woodland Habitats

7.1.3 River Barrow and River Nore SAC

As outlined in the River Barrow and River Nore SAC Site Synopsis (NPWS, Version date 03.04.2024):

'This site consists of the freshwater stretches of the Barrow and Nore River catchments as far upstream as the Slieve Bloom Mountains, and it also includes the tidal elements and estuary as far downstream as Creadun Head in Waterford. The site passes through eight counties – Offaly, Kildare, Laois, Carlow, Kilkenny, Tipperary, Wexford and Waterford. Major towns along the edge of the site include Mountmellick, Portarlington, Monasterevin, Stradbally, Athy, Carlow, Leighlinbridge, Graiguenamanagh, New Ross, Inistioge, Thomastown, Callan, Bennettsbridge, Kilkenny and Durrow. The larger of the many tributaries include the Lerr, Fushoge, Mountain, Aughavaud, Owenass, Boherbaun and Stradbally Rivers of the Barrow, and the Delour, Dinin, Erkina, Owveg, Munster, Arrigle and King's Rivers on the Nore.

Both rivers rise in the Old Red Sandstone of the Slieve Bloom Mountains before passing through a band of Carboniferous shales and sandstones. The Nore, for a large part of its course, traverses limestone plains and then Old Red Sandstone for a short stretch below Thomastown. Before joining the Barrow it runs over intrusive rocks poor in silica. The upper reaches of the Barrow also run through limestone. The middle reaches and many of the eastern tributaries, sourced in the Blackstairs Mountains, run through Leinster Granite. The southern end, like the Nore runs over intrusive rocks poor in silica. Waterford Harbour is a deep valley excavated by glacial floodwaters when the sea level was lower than today. The coast shelves quite rapidly along much of the shore.

The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive (= priority; numbers in brackets are Natura 2000 codes):*

[1130] Estuaries

[1140] Tidal Mudflats and Sandflats

[1170] Reefs

[1310] Salicornia Mud

[1330] Atlantic Salt Meadows

[1410] Mediterranean Salt Meadows

[3260] Floating River Vegetation

[4030] Dry Heath

[6430] Hydrophilous Tall Herb Communities

*[7220] Petrifying Springs**

[91A0] Old Oak Woodlands

*[91E0] Alluvial Forests**

[1016] Desmoulin's Whorl Snail (Vertigo moulinsiana)

[1029] Freshwater Pearl Mussel (Margaritifera margaritifera)

[1092] White-clawed Crayfish (Austropotamobius pallipes)

[1095] Sea Lamprey (Petromyzon marinus)

[1096] Brook Lamprey (Lampetra planeri)

[1099] River Lamprey (Lampetra fluviatilis)

[1103] Twaite Shad (Alosa fallax)

[1106] Atlantic Salmon (Salmo salar)

[1355] Otter (Lutra lutra)

[1421] Killarney Fern (Trichomanes speciosum)

Good examples of alluvial forest (a priority habitat on Annex I of the E.U. Habitats Directive) are seen at Rathsnagadan, Murphy's of the River, in Abbeyleix estate and along other shorter stretches of both the tidal and freshwater elements of the site. Typical species seen include Almond Willow (Salix triandra), White Willow (S. alba), Rusty Willow (S. cinerea subsp. oleifolia), Crack Willow (S. fragilis) and Osier (S. viminalis), along with Iris (Iris pseudacorus), Hemlock Water-dropwort (Oenanthe crocata), Wild Angelica (Angelica sylvestris), Thin-spiked Wood-sedge (Carex strigosa), Pendulous Sedge (C. pendula), Meadowsweet (Filipendula ulmaria), Common Valerian (Valeriana officinalis) and the Red Data Book species Nettle-leaved Bellflower (Campanula trachelium).

A good example of petrifying springs with tufa formations occurs at Dysart Wood along the Nore. This is a rare habitat in Ireland and one listed with priority status on Annex I of the E.U. Habitats Directive. These hard water springs are characterised by lime encrustations, often associated with small waterfalls. A rich bryophyte flora is typical of the habitat and two diagnostic species, Palustriella commutata and Eucladium verticillatum, have been recorded.

The best examples of old oak woodlands are seen in the ancient Park Hill woodland in the estate at Abbeyleix; at Kyleadohir, on the Delour, Forest Wood House, Kylecorragh and Brownstown Woods on the Nore; and at Cloghristic Wood, Drummond Wood and Borris Demesne on the Barrow, though other patches occur throughout the site. Abbeyleix Woods is a large tract of mixed deciduous woodland which is one of the only remaining true ancient woodlands in Ireland. Historical records show that Park Hill has been continuously wooded since the 16th century and has the most complete written record of any woodland in the country. It supports a variety of woodland habitats and an exceptional diversity of species including 22 native trees, 44 bryophytes and 92 lichens. It also contains eight indicator species of ancient woodlands. Park Hill is also the site of two rare plants, Nettle-leaved Bellflower and the moss Leucodon sciuroides. The rare Myxomycete fungus, Licea minima has been recorded from woodland at Abbeyleix.

Oak woodland covers parts of the valley side south of Woodstock and is well developed at Brownsford where the Nore takes several sharp bends. The steep valley side is covered by oak (Quercus spp.), Holly (Ilex aquifolium), Hazel (Corylus avellana) and Downy Birch (Betula pubescens), with some Beech (Fagus sylvatica) and Ash (Fraxinus excelsior). All the trees are regenerating through a cover of Bramble (Rubus fruticosus agg.), Foxglove (Digitalis purpurea), Great Wood-rush (Luzula sylvatica) and Broad Buckler-fern (Dryopteris dilatata).

On the steeply sloping banks of the River Nore, about 5 km west of New Ross, in Co. Kilkenny, Kylecorragh Woods form a prominent feature in the landscape. This is an excellent example of relatively undisturbed, relict oak woodland with a very good tree canopy. The wood is quite damp and there is a rich and varied ground flora. At Brownstown, a small, mature oak dominated woodland occurs on a steep slope. There is younger woodland to the north and east of it. Regeneration throughout is evident. The understorey is similar to the woods at Brownsford. The ground flora of this woodland is developed on acidic, brown earth type soil and comprises a thick carpet of Bilberry (Vaccinium myrtillus), Heather (Calluna vulgaris), Hard Fern (Blechnum spicant), Common Cow-wheat (Melampyrum pratense) and Bracken (Pteridium aquilinum).

Borris Demesne contains a very good example of a semi-natural broadleaved woodland in very good condition. There is quite a high degree of natural regeneration of oak and Ash through the woodland. At the northern end of the estate oak species predominate. Drummond Wood, also on the Barrow, consists of three blocks of deciduous woods situated on steep slopes above the river. The deciduous trees are mostly oak species. The woods have a well-established understorey of Holly, and the herb layer is varied, with Bramble abundant. The whitebeam Sorbus devoniensis has also been recorded here.

Eutrophic tall herb vegetation occurs in association with the various areas of alluvial forest and elsewhere where the floodplain of the river is intact. Characteristic species of the habitat include Meadowsweet, Purple Loosestrife (Lythrum salicaria), Marsh Ragwort (Senecio aquaticus), Ground Ivy (Glechoma hederacea) and Hedge Bindweed (Calystegia sepium). Indian Balsam (Impatiens glandulifera), an introduced and invasive species, is abundant in places.

Floating river vegetation is well represented in the Barrow and in the many tributaries of the site. In the Barrow the species found include water-starworts (Callitriche spp.), Canadian Pondweed (Elodea canadensis), Bulbous Rush (Juncus bulbosus), water-milfoils (Myriophyllum spp.), the pondweed Potamogeton x nitens, Broad-leaved Pondweed (P. natans), Fennel Pondweed (P. pectinatus), Perfoliated Pondweed (P. perfoliatus) and crowfoots (Ranunculus spp.). The water quality of the Barrow has improved since the vegetation survey was carried out (EPA, 1996).

Dry heath at the site occurs in pockets along the steep valley sides of the rivers especially in the Barrow Valley and along the Barrow tributaries where they occur in the foothills of the Blackstairs Mountains. The dry heath vegetation along the slopes of the river bank consists of Bracken and Gorse (Ulex europaeus) with patches of acidic grassland vegetation. Additional typical species include Heath Bedstraw (Galium saxatile), Foxglove, Common Sorrel (Rumex acetosa) and Creeping Bent (Agrostis stolonifera). On the steep slopes above New Ross the Red Data Book species Greater Broomrape (Orobanche rapum-genistae) has been recorded. Where rocky outcrops are shown on the maps Bilberry and Great Wood-rush are present. At Ballyhack a small area of dry heath is interspersed with patches of lowland dry grassland. These support a number of clover species, including the legally protected Clustered Clover (Trifolium glomeratum) - a species known from only one other site in Ireland. This grassland community is especially well developed on the west side of the mud-capped walls by the road. On the east of the cliffs a group of rock-dwelling species occur, i.e. English Stonecrop (Sedum anglicum), Sheep's-bit (Jasione montana) and Wild Madder (Rubia peregrina). These rocks also support good lichen and moss assemblages with Ramalina subfarinacea and Hedwigia ciliata.

Dry heath at the site generally grades into wet woodland or wet swamp vegetation lower down the slopes on the river bank. Close to the Blackstairs Mountains, in the foothills associated with the Aughnabrisky, Aughavaud and Mountain Rivers there are small patches of wet heath dominated by Purple Moor-grass (Molinia caerulea) with Heather, Tormentil (Potentilla erecta), Carnation Sedge (Carex panicea) and Bell Heather (Erica cinerea).

Salt meadows occur at the southern section of the site in old meadows where the embankment has been breached, along the tidal stretches of in-flowing rivers below Stokestown House, in a narrow band on the channel side of Common Reed (Phragmites australis) beds and in narrow fragmented strips along the open shoreline. In the larger areas of salt meadow, notably at Carrickcloney, Ballinlaw Ferry and Rochestown on the west bank; Fisherstown, Alderton and Great Island to Dunbrody on the east bank, the Atlantic and Mediterranean sub types are generally intermixed. At the upper edge of the salt meadow in the narrow ecotonal areas bordering the grasslands where there is significant percolation of salt water, the legally protected species Borrer's Saltmarsh-grass (Puccinellia fasciculata) and Meadow Barley (Hordeum secalinum) are found. The very rare and also legally protected Divided Sedge (Carex divisa) is also found. Sea Rush (Juncus maritimus) is also present. Other plants recorded and associated with salt meadows include Sea Aster (Aster tripolium), Thrift (Armeria maritima), Sea Couch (Elymus pycnanthus), Spear-leaved Orache (Atriplex prostrata), Lesser Sea-spurrey (Spergularia marina), Sea Arrowgrass (Triglochin maritima) and Sea Plantain (Plantago maritima).

Glassworts (Salicornia spp.) and other annuals colonising mud and sand are found in the creeks of the saltmarshes and at the seaward edges of them. The habitat also occurs in small amounts on some stretches of the shore free of stones.

The estuary and the other E.U. Habitats Directive Annex I habitats within it form a large component of the site. Extensive areas of intertidal flats, comprised of substrates ranging from fine, silty mud to coarse sand with pebbles/stones are present. Good quality intertidal sand and mudflats have developed on a linear shelf on the western side of Waterford Harbour, extending for over 6 km from north to south between Passage East and Creadaun Head, and in places are over 1 km wide. The sediments are mostly firm sands, though grade into muddy sands towards the upper shore. They have a typical macro-invertebrate fauna, characterised by polychaetes and bivalves. Common species include Arenicola marina, Nephtys hombergii, Scoloplos armiger, Lanice conchilega and Cerastoderma edule. An extensive area of honey-comb worm biogenic reef occurs adjacent to Duncannon, Co. Wexford on the eastern shore of the estuary. It is formed by the polychaete worm Sabellaria alveolata. This intertidal Sabellaria alveolata reef is formed as a sheet of interlocking tubes over a considerable area of exposed bedrock. This polychaete species constructs tubes, composed of aggregated sand grains, in tightly packed masses with a distinctive honeycomb-like appearance. These can be up to 25cm proud of the substrate and form

hummocks, sheets or more massive formations. A range of species are reported from these reefs including: Enteromorpha sp.; Ulva sp.; Fucus vesiculosus; Fucus serratus; Polysiphonia sp.; Chondrus crispus; Palmaria palmate; Coralinus officialis; Nemertea sp.; Actinia equine; Patella vulgate; Littorina littorea; Littorina obtusata and Mytilus edulis.

The western shore of the harbour is generally stony and backed by low cliffs of glacial drift. At Woodstown there is a sandy beach, now much influenced by recreation pressure and erosion. Behind it a lagoonal marsh has been impounded which runs westwards from Gaultiere Lodge along the course of a slow stream. An extensive reedbed occurs here. At the edges is a tall fen dominated by sedges (Carex spp.), Meadowsweet, willowherbs (Epilobium spp.) and rushes (Juncus spp.). Wet woodland also occurs.

The dunes which fringe the strand at Duncannon are dominated by Marram (Ammophila arenaria) towards the sea. Other species present include Wild Clary/Sage (Salvia verbenaca), a rare Red Data Book species. The rocks around Duncannon ford have a rich flora of seaweeds typical of a moderately exposed shore and the cliffs themselves support a number of coastal species on ledges, including Thrift, Rock Samphire (Crithmum maritimum) and Buck's-horn Plantain (Plantago coronopus).

Other habitats which occur throughout the site include wet grassland, marsh, reedswamp, improved grassland, arable land, quarries, coniferous plantations, deciduous woodland, scrub and ponds.

Seventeen Red Data Book plant species have been recorded within the site, most in the recent past. These are Killarney Fern (Trichomanes speciosum), Divided Sedge, Clustered Clover, Basil Thyme (Acinos arvensis), Red Hemp-nettle (Galeopsis angustifolia), Borrer's Saltmarsh-grass, Meadow Barley, Opposite-leaved Pondweed (Groenlandia densa), Meadow Saffron/Autumn Crocus (Colchicum autumnale), Wild Clary/Sage, Nettle-leaved Bellflower, Saw-wort (Serratula tinctoria), Bird Cherry (Prunus padus), Blue Fleabane (Erigeron acer), Fly Orchid (Ophrys insectifera), Ivy Broomrape (Orobanche hederae) and Greater Broomrape. Of these, the first nine are protected under the Flora (Protection) Order, 2015. Divided Sedge was thought to be extinct but has been found in a few locations in the site since 1990. In addition plants which do not have a very wide distribution in the country are found in the site including Thin-spiked Wood-sedge, Field Garlic (Allium oleraceum) and Summer Snowflake. Six rare lichens, indicators of ancient woodland, are found including Lobaria laetevirens and L. pulmonaria. The rare moss Leucodon sciuroides also occurs.

The site is very important for the presence of a number of E.U. Habitats Directive Annex II animal species including Freshwater Pearl Mussel (Margaritifera margaritifera), White-clawed Crayfish, Salmon, Twaite Shad, three lamprey species – Sea Lamprey, Brook Lamprey and River Lamprey, the tiny whorl snail Vertigo moulinsiana and Otter. This is one of only a handful of spawning grounds in the country for Twaite Shad. The freshwater stretches of the River Nore main channel is a designated salmonid river. The Barrow/Nore is mainly a grilse fishery though spring salmon fishing is good in the vicinity of Thomastown and Inistioge on the Nore. The upper stretches of the Barrow and Nore, particularly the Owenass River, are very important for spawning.

The site supports many other important animal species. Those which are listed in the Irish Red Data Book include Daubenton's Bat, Badger, Irish Hare and Common Frog. The rare Red Data Book fish species Smelt (Osmerus eperlanus) occurs in estuarine stretches of the site. In addition to the Freshwater Pearl Mussel, the site also supports two other freshwater mussel species, Anodonta anatina and A. cygnea.

Three rare invertebrates have been recorded in alluvial woodland at Murphy's of the River. These are: Neoascia obliqua (Order Diptera: Syrphidae), Tetanocera freyi (Order Diptera: Sciomyzidae) and Dictya umbrarum (Order Diptera: Sciomyzidae). The rare invertebrate, Mitostoma chrysomelas (Order Arachnida), occurs in the old oak woodland at Abbeyleix and only two other sites in the country. Two flies (Order Diptera) Chrysogaster virescens and Hybomitra muhlfeldi also occur at this woodland.

The site is of ornithological importance for a number of E.U. Birds Directive Annex I species, including Greenland White-fronted Goose, Whooper Swan, Bewick's Swan, Bar-tailed Godwit, Peregrine and Kingfisher. Nationally important numbers of Golden Plover and Bar-tailed Godwit are found during the winter. Wintering flocks of migratory birds are seen in Shanahoe Marsh and the Curragh and Goul Marsh, both in Co. Laois, and also along the Barrow Estuary in Waterford Harbour. There is also an extensive autumnal roosting site in the reedbeds of the

Barrow Estuary used by Swallows before they leave the country. The old oak woodland at Abbeyleix has a typical bird fauna including Jay, Long-eared Owl and Raven. The reedbed at Woodstown supports populations of typical waterbirds including Mallard, Snipe, Sedge Warbler and Water Rail.

Land use at the site consists mainly of agricultural activities – mostly intensive in nature and principally grazing and silage production. Slurry is spread over much of the area. Arable crops are also grown. The spreading of slurry and fertiliser poses a threat to the water quality of the salmonid river and to the populations of E.U. Habitats Directive Annex II animal species within the site. Many of the woodlands along the rivers belong to old estates and support many non-native species. Little active woodland management occurs. Fishing is a main tourist attraction along stretches of the main rivers and their tributaries and there are a number of Angler Associations, some with a number of beats. Fishing stands and styles have been erected in places. Both commercial and leisure fishing takes place on the rivers. There is net fishing in the estuary and a mussel bed also. Other recreational activities such as boating, golfing and walking, particularly along the Barrow towpath, are also popular. There is a golf course on the banks of the Nore at Mount Juliet and GAA pitches on the banks at Inistioge and Thomastown. There are active and disused sand and gravel pits throughout the site. Several industrial developments, which discharge into the river, border the site. New Ross is an important shipping port. Shipping to and from Waterford and Belview ports also passes through the estuary.

The main threats to the site and current damaging activities include high inputs of nutrients into the river system from agricultural run-off and several sewage plants, over-grazing within the woodland areas, and invasion by non-native species, for example Cherry Laurel (Prunus laurocerasus) and Rhododendron (Rhododendron ponticum). The water quality of the site remains vulnerable. Good quality water is necessary to maintain the populations of the Annex II animal species listed above. Good quality is dependent on controlling fertilisation of the grasslands, particularly along the Nore. It also requires that sewage be properly treated before discharge. Drainage activities in the catchment can lead to flash floods which can damage the many Annex II species present. Capital and maintenance dredging within the lower reaches of the system pose a threat to migrating fish species such as lamprey and shad. Land reclamation also poses a threat to the salt meadows and the populations of legally protected species therein.

Overall, the site is of considerable conservation significance for the occurrence of good examples of habitats and of populations of plant and animal species that are listed on Annexes I and II of the E.U. Habitats Directive. Furthermore it is of high conservation value for the populations of bird species that use it. The occurrence of several Red Data Book plant species including three rare plants in the salt meadows add further interest to this site.'

7.1.4 River Boyne and River Blackwater SPA (Site code: 004232)

As outlined in the River Boyne and River Blackwater SPA Site Synopsis[14] (NPWS, Version date 25.11.2010):

'The River Boyne and River Blackwater SPA is a long, linear site that comprises stretches of the River Boyne and several of its tributaries; most of the site is in Co. Meath, but it extends also into Cos Cavan, Louth and Westmeath. It includes the following river sections: the River Boyne from the M1 motorway bridge, west of Drogheda, to the junction with the Royal Canal, west of Longwood, Co Meath; the River Blackwater from its junction with the River Boyne in Navan to the junction with Lough Ramor in Co. Cavan; the Tremblestown River/Athboy River from the junction with the River Boyne at Kilnagross Bridge west of Trim to the bridge in Athboy, Co. Meath; the Stoneyford River from its junction with the River Boyne to Stonestown Bridge in Co. Westmeath; the River Deel from its junction with the River Boyne to Cummer Bridge, Co. Westmeath. The site includes the river channel and marginal vegetation.

Most of the site is underlain by Carboniferous limestone but Silurian quartzite also occurs in the vicinity of Kells and Carboniferous shales and sandstones close to Trim.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive of special conservation interest for the following species: Kingfisher.

A survey in 2010 recorded 19 pairs of Kingfisher (based on 15 probable and 4 possible territories) in the River Boyne and River Blackwater SPA. A survey conducted in 2008 recorded 20-22 Kingfisher territories within the SPA. Other species which occur within the site include Mute Swan (90), Teal (166), Mallard (219), Cormorant (36), Grey Heron (44), Moorhen (84), Snipe (32) and Sand Martin (553) – all figures are peak counts recorded during the 2010 survey.

The River Boyne and River Blackwater Special Protection Area is of high ornithological importance as it supports a nationally important population of Kingfisher, a species that is listed on Annex I of the E.U. Birds Directive.'

As outlined in the Conservation Objectives document [15] (NPWS, 2022):

'The overall aim of the Habitats Directive is to maintain or restore the favourable conservation status of habitats and species of community interest. These habitats and species are listed in the Habitats and Birds Directives and Special Areas of Conservation and Special Protection Areas are designated to afford protection to the most vulnerable of them. These two designations are collectively known as the Natura 2000 network.

European and national legislation places a collective obligation on Ireland and its citizens to maintain habitats and species in the Natura 2000 network at favourable conservation condition. The Government and its agencies are responsible for the implementation and enforcement of regulations that will ensure the ecological integrity of these sites.

The maintenance of habitats and species within Natura 2000 sites at favourable conservation condition will contribute to the overall maintenance of favourable conservation status of those habitats and species at a national level.

Favourable conservation status of a habitat is achieved when:

- *its natural range, and area it covers within that range, are stable or increasing, and*
- *the specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and*
- *the conservation status of its typical species is favourable.*

The favourable conservation status of a species is achieved when:

- *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
- *the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and*
- *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

Objective: To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA:

Bird Code	***Common Name***	***Scientific Name***
A229	*Kingfisher*	*Alcedo atthis'*

[14] https://www.npws.ie/sites/default/files/protected-sites/synopsis/SY004232.pdf

[15] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO004232.pdf

7.2 Status of Qualifying Interests and Special Conservation Interests for European Sites

The Qualifying Interests (QI) (Features of Interest), Special Conservation Interests (SCIs) for the SAC and SPA sites and the National conservation status of the QI of the Natura 2000 site subject to the NIS are seen in Table 26.

Table 26. Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for Natura 2000 sites.

Qualifying Interests, Conservation Status, Management Objectives, Conditions underpinning site integrity for relevant European sites		
Natura 2000 Site Name & Code	Qualifying Interests	Current Conservation Status & Trend
Special Areas of Conservation (SAC)		
Mount Hevey Bog SAC	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120] Depressions on peat substrates of the *Rhynchosporion* [7150]	**Unfavourable-Bad & Declining** **Unfavourable-Inadequate** **Unfavourable-Inadequate**
River Boyne and River Blackwater SAC	Alkaline fens [7230] Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (Alno-Padion, Alnion incanae, Salicion albae) [91E0] *Lampetra fluviatilis* (River Lamprey) [1099] *Salmo salar* (Salmon) [1106] *Lutra lutra* (Otter) [1355]	**Unfavourable-Bad & Declining** **Unfavourable-Bad & Declining** **Unknown** **Inadequate** **Favourable**
River Boyne and River Blackwater SPA	Kingfisher (*Alcedo atthis*) [A229]	**Inadequate**
River Barrow and River Nore SAC **IE002162**	Estuaries [1130] Mudflats and sandflats not covered by seawater at low tide [1140] Reefs [1170] Salicornia and other annuals colonising mud and sand [1310] Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] Mediterranean salt meadows (*Juncetalia maritimi*) [1410] Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260] European dry heaths [4030] Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] Petrifying springs with tufa formation (*Cratoneurion*) [7220] Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] Desmoulin's Whorl Snail (*Vertigo moulinsiana*) [1016] Freshwater Pearl Mussel (*Margaritifera margaritifera*) [1029] White-clawed Crayfish (*Austropotamobius pallipes*) [1092] Sea Lamprey (*Petromyzon marinus*) [1095] Brook Lamprey (*Lampetra planeri*) [1096] River Lamprey (*Lampetra fluviatilis*) [1099] Twaite Shad (*Alosa fallax fallax*) [1103] Salmon (*Salmo salar*) [1106] Otter (*Lutra lutra*) [1355] Killarney Fern (*Trichomanes speciosum*) [1421]	**Bad** **Bad** **Bad** **Bad** **Bad** **Inadequate** **Inadequate** **Bad** **Bad** **Bad** **Bad** **Bad** **Inadequate** **Bad** **Bad** **Favourable** **Inadequate** **Bad** **Bad** **Favourable** **N/A** **N/A**

	Freshwater Pearl Mussel (*Margaritifera Margaritifera*) [1990]	

The site-specific conservation objectives for the European sites are shown in Table 27.

Table 27. Site specific conservation objectives for Natura 2000 sites

Mount Hevey Bog SAC [002342]		
Attribute	**Measure**	**Target**
[7110] Active raised bogs		
To restore the favourable conservation condition of Active raised bogs in Mount Hevey Bog SAC, which is defined by the following list of attributes and targets:		
Habitat area	Hectares	**Restore area of active raised bog to 77.8ha, subject to natural processes**
Habitat distribution	Occurrence	Restore the distribution and variability of active raised bog across the SAC. See map 3 for distribution in 2000
High bog area	Hectares	No decline in extent of high bog necessary to support the development and maintenance of active raised bog. See map 2
Hydrological regime: water levels	Centimetres	Restore appropriate water levels throughout the site
Hydrological regime: flow patterns	Flow direction; slope	Restore, where possible, appropriate high bog topography, flow directions and slopes. See map 4 for current situation
Transitional areas between high bog and adjacent mineral soils (including cutover areas)	Hectares; distribution	Restore adequate transitional areas to support/protect active raised bog and the services it provides
Vegetation quality: central ecotope, active flush, soaks, bog woodland	Hectares	Restore 38.9ha of central ecotope/active flush/soaks/bog woodland as appropriate
Vegetation quality: microtopographical features	Hectares	Restore adequate cover of high quality microtopographical features
Vegetation quality: bog moss (Sphagnum) species	Percentage cover	Restore adequate cover of bog moss (Sphagnum) species to ensure peatforming capacity
Typical ARB species: flora	Occurrence	Restore, where appropriate, typical active raised bog flora
Typical ARB species: fauna	Occurrence	Restore, where appropriate, typical active raised bog fauna
Elements of local distinctiveness	Occurrence	Maintain features of local distinctiveness, subject to natural processes
Negative physical indicators	Percentage cover	Negative physical features absent or insignificant
Vegetation composition: native negative indicator species	Percentage cover	Native negative indicator species at insignificant levels
Vegetation composition: nonnative invasive species	Percentage cover	Non-native invasive species at insignificant levels and not more than 1% cover
Air quality: nitrogen deposition	kg N/ha/year	Air quality surrounding bog close to natural reference conditions. The total N deposition should not exceed 5kg N/ha/yr
Water quality	Hydrochemical measures	Water quality on the high bog and transitional areas close to natural reference conditions
[7120] Degraded raised bogs still capable of natural regeneration - The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Mount Hevey Bog SAC		
The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110) and a separate conservation objective has not been set in Mount Hevey Bog SAC.		

[7150] Depressions on peat substrates of the Rhynchosporion - Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Mount Hevey Bog SAC		
Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Mount Hevey Bog SAC		
River Boyne and River Blackwater SAC [002299]		
Attribute	**Measure**	**Target**
[7230] Alkaline Fens – To maintain the favourable conservation condition		
To maintain the favourable conservation condition of Alkaline fens in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:		
Habitat area	Hectares	Area is stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline, subject to natural processes
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil pH and nutrient status within natural ranges
Ecosystem function: peat formation	Percentage cover of peat-forming vegetation and water table levels	Maintain active peat formation, where appropriate
Ecosystem function: hydrology - groundwater levels	Water levels (centimetres); duration of levels; hydraulic gradients; water supply	Maintain, or where necessary restore, appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat
Ecosystem function: hydrology - surface water flow	Drain density and form	Maintain, or where necessary restore, as close as possible to natural or semi-natural, drainage conditions
Ecosystem function: water quality	Various	Maintain appropriate water quality, particularly pH and nutrient levels, to support the natural structure and functioning of the habitat
Vegetation composition: community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes
Vegetation composition: typical brown mosses	Percentage cover at a representative number of monitoring stops	Maintain adequate cover of typical brown moss species
Vegetation composition: typical vascular plants	Percentage cover at a representative number of monitoring stops	Maintain adequate cover of typical vascular plant species
Vegetation composition: native negative indicator species	Percentage cover at a representative number of monitoring stops	Cover of native negative indicator species at insignificant levels

Vegetation composition: nonnative species	Percentage cover at a representative number of monitoring stops	Cover of non-native species less than 1%
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%
Vegetation composition: algal cover	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of algae less than 2%
Vegetation structure: vegetation height	Percentage cover at a representative number of monitoring stops	At least 50% of the live leaves/flowering shoots are more than either 5cm or 15cm above ground surface depending on community type
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of disturbed bare ground not more than 10%
Physical structure: tufa formations	Percentage cover in local vicinity of a representative number of monitoring stops	Disturbed proportion of vegetation cover where tufa is present is less than 1%
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat; maintain features of local distinctiveness, subject to natural processes
Transitional areas between fen and adjacent habitats	Hectares; distribution	Maintain adequate transitional areas to support/protect the alkaline fen ecosystem and the services it provides
[91E0] Alluvial forests with Alnus glutinosa and Fraxinus excelsior (*Alno-Padion, Alnion incanae, Salicion albae*) – To restore the favourable conservation condition		
To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:		
Habitat area	Hectares	Area is stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline, subject to natural processes
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size
Woodland structure: cover and height	Percentage; metres; centimetres	Total canopy cover at least 30%; median canopy height at least 7m; native shrub layer cover 10-75%; native herb/dwarf shrub layer cover at least 20% and height at least 20cm; bryophyte cover at least 4%
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types

Woodland structure: natural regeneration	Seedling: sapling: pole ratio	Seedlings, saplings and pole age-classes of target species for 91E0* woodlands and other native tree species occur in adequate proportions to ensure survival of woodland canopy
Hydrological regime: flooding depth/height of water table	Metres	Appropriate hydrological regime necessary for maintenance of alluvial vegetation
Woodland structure: dead wood	Number per hectare	At least 19 stems/ha of dead wood of at least 20cm diameter
Woodland structure: veteran trees	Number per hectare	No decline
Woodland structure: indicators of local distinctiveness	Occurrence; population size	No decline in distribution and, in the case of red listed and other rare or localised species, population size
Woodland structure: indicators of overgrazing	Occurrence	All five indicators of overgrazing absent
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover at least 90% of canopy; target species cover at least 50% of canopy
Vegetation composition: typical species	Occurrence	At least 1 target species for 91E0* woodlands present; at least 6 positive indicator species for 91E0* woodlands present
Vegetation composition: negative indicator species	Occurrence	Negative indicator species cover not greater than 10%; regeneration of negative indicator species absent
Vegetation composition: problematic native species	Percentage	Cover of common nettle (Urtica dioica) less than 75%
[1099] River Lamprey (*Lampetra fluviatillis*) – To restore the favourable conservation condition		
To restore the favourable conservation condition of River Lamprey (Lampetra fluviatilis) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:		
Distribution	Percentage of river accessible	Restore access to all water courses down to first order streams
Distribution of larvae	Number of positive sites in 2nd order channels (and greater), downstream of spawning areas	Not less than 50% of sample sites with suitable habitat positive for larval brook/river lamprey
Population structure of larvae	Number of age/size classes	At least three age/size classes of larval brook/river lamprey present
Larval lamprey density in fine sediment	Larval lamprey/m²	Mean density of brook/river larval lamprey in sites with suitable habitat more than 5/m²
Extent and distribution of spawning nursery habitat	m² and occurrence	No decline in extent and distribution of spawning and nursery beds
[1106] Salmon (*Salmo salar*) – To restore the favourable conservation condition		
To restore the favourable conservation condition of Atlantic Salmon (*Salmo salar*) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:		
Distribution: extent of anadromy	Percentage of river accessible	100% of river channels down to second order accessible from estuary

Adult spawning fish	Number	Conservation limit (CL) for each system consistently exceeded
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling
Out-migrating smolt abundance	Number	No significant decline
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA
[1355] Otter (*Lutra lutra*) – To maintain the favourable conservation condition		
To maintain the favourable conservation condition of Otter (*Lutra lutra*) in River Boyne and River Blackwater SAC, which is defined by the following list of attributes and targets:		
Distribution	Percentage positive survey sites	No significant decline
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 447.6ha along river banks/ lake shoreline/around ponds
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 263.3km
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 31.6ha
Couching sites and holts	Number	No significant decline
Fish biomass available	Kilograms	No significant decline
Barriers to connectivity	Number	No significant increase

River Boyne and Blackwater SPA (004232)		
Attribute	**Measure**	**Target**
A229 Kingfisher (*Alcedo atthis*) – To maintain the Favourable conservation condition		
Population size	Number of breeding territories/pairs	No significant decline in the long term
Productivity rate	Number of fledged young per confirmed breeding pair	Sufficient productivity to maintain the population trend as stable or increasing
Spatial distribution of territories	Numbers and distribution of occupied territories across site	No significant loss of distribution in the long term, other than that occurring due to natural patterns of variation
Extent and quality of nesting banks and other suitable nesting features	Hectares; condition assessment	Sufficient area of high quality nesting habitat to support the population target
Forage spatial distribution, extent, abundance and availability	Location, hectares, and forage biomass	Sufficient number of locations, area of suitable forage habitat and available forage biomass to support the population target
Water quality	Water quality indicators	Both biotic (i.e. Q-value) and abiotic indices reflect overall good-high quality status
Barriers to connectivity	Number, location, shape and hectares	No significant increase
Disturbance to breeding sites	Intensity, frequency, timing and duration	Disturbance occurs at levels that do not significantly impact upon breeding Kingfisher

Rive Barrow and River Nore SAC (002162)		
Attribute	Measure	Target
1170 Reefs - To maintain the Favourable conservation condition of Reefs in River Barrow and River Nore SAC, which is defined by the following list of attributes and targets:		
Habitat Area	Hectares	The permanent area is stable or increasing, subject to natural processes. See map 4
Distribution	Occurrence	The distribution of reefs is stable or increasing, subject to natural processes. See map 4
Community extent	Community extent	Conserve the following community type in a natural condition: Sheltered to moderately exposed intertidal reef community complex in a natural condition, subject to natural processes. See map 4a
Community structure: extent	Hectares	Conserve the extent of Sabellaria alveolata reef community, subject to natural processes. See map 4a
Community structure: quality	Honeycomb reef structure	Conserve the high quality of the Sabellaria alveolata reef community, subject to natural processes. See map 4a
1310 Salicornia and other annuals colonising mud and sand - To maintain the Favourable conservation condition		

Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For the one sub-site mapped: Ringville - 0.03ha. See map 5
Habitat distribution	Occurrence	No decline, subject to natural processes. See map 5
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain or where necessary restore natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Vegetation structure: zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession. See map 5
Vegetation structure: vegetation height	Centimetres	Maintain structural variation within sward
Vegetation structure: vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated.
Vegetation composition: typical species and subcommunities	Percentage cover at a representative sample of monitoring stops	Maintain range of subcommunities with typical species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009).
Vegetation structure: negative indicator species: Spartina anglica	Hectares	No significant expansion of Spartina. No new sites for this species and an annual spread of less than 1% where it is already known to occur
1330 Atlantic salt meadows (Glauco-Puccinellietalia maritimae) - To maintain the Favourable conservation condition		
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Dunbrody Abbey - 1.25ha, Killowen - 2.59ha, Rochestown - 17.50ha, Ringville - 6.70ha. See map 5
Habitat Distribution	Occurrence	No decline, subject to natural processes. See map 5
Physical structure: sediment supply	Presence/absence of physical barriers	Maintain the natural circulation of sediment and organic matter, without any physical obstructions
Vegetation Structure: Zonation	Occurrence	Maintain range of habitat zonations including transitional zones, subject to natural processes including erosion and succession
Vegetation Composition: Typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain the presence of species-poor communities with characteristic species: *Honckenya peploides, Beta vulgaris ssp. maritima, Crithmum maritimum, Tripleurospermum maritimum, Glaucium flavum and Silene uniflora*
Vegetation Composition: Negative indicator species	Percentage cover	Negative indicator species (including non-natives) to represent less than 5% cove
1310 Salicornia and other annuals colonizing mud and sand - To maintain the Favourable conservation condition		
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-site surveyed: 35.00ha
Habitat Distribution	Occurrence	No decline, subject to natural processes

Physical Structure: Sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
Physical Structure: Creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
Physical Structure: Flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Vegetation Structure: Zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession
Vegetation Structure: Vegetation height	Centimetres	Maintain structural variation within sward
Vegetation Structure: Vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation Structure: Typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub- communities with characteristic species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009)
Vegetation Structure: Negative indicator species – *Spartina anglica*	Hectares	No significant expansion of Spartina. No new sites for this species and an annual spread of less than 1% where it is already known to occur.
1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) - To maintain the Favourable conservation condition		
Habitat Area	Hectares	Area stable or increasing, subject to natural processes, including erosion and succession. For the sub-site (357.57ha) and potential areas (22.42ha) mapped: 379.98ha.
Habitat Distribution	Occurrence	No decline, subject to natural processes.
Physical Structure: Sediment supply	Presence/absence of physical barriers	Maintain/restore natural circulation of sediments and organic matter, without any physical obstructions
Physical structure: flooding regime	Hectares flooded; frequency	Maintain natural tidal regime
Physical structure: creeks and pans	Occurrence	Maintain/restore creek and pan structure, subject to natural processes, including erosion and succession
Vegetation Structure: Zonation	Occurrence	Maintain range of saltmarsh habitat zonations including transitional zones, subject to natural processes including erosion and succession.
Vegetation Structure: Vegetation height	Centimetres	Maintain structural variation within sward
Vegetation Structure: Vegetation cover	Percentage cover at a representative sample of monitoring stops	Maintain more than 90% of area outside creeks vegetated
Vegetation Structure: Typical species and sub-communities	Percentage cover at a representative sample of monitoring stops	Maintain range of sub- communities with characteristic species listed in Saltmarsh Monitoring Project (McCorry & Ryle, 2009)

Vegetation Structure: Negative indicator species – *Spartina anglica*	Hectares	No significant expansion of Spartina. No new sites for this species and an annual spread of less than 1% where it is already known to occur
3260 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation - To maintain the Favourable conservation condition		
Habitat distribution	Occurrence	No decline, subject to natural processes
Habitat area	Kilometres	Area stable or increasing, subject to natural processes
Hydrological regime: river flow	Metres per second	Maintain appropriate hydrological regimes
Hydrological regime: groundwater discharge	Metres per second	The groundwater flow to the habitat should be permanent and sufficient to maintain tufa formation
Substratum composition: particle size range	Millimetres	The substratum should be dominated by large particles and free from fine sediments
Water chemistry: minerals	Milligrammes per litre	The groundwater and surface water should have sufficient concentrations of minerals to allow deposition and persistence of tufa deposits
Water quality: suspended sediment	Milligrammes per litre	The concentration of suspended solids in the water column should be sufficiently low to prevent excessive deposition of fine sediments
Water quality: nutrients	Milligrammes per litre	The concentration of nutrients in the water column should be sufficiently low to prevent changes in species composition or habitat condition
Vegetation composition: typical species	Occurrence	Typical species of the relevant habitat sub-type should be present and in good condition
Floodplain connectivity	Area	The area of active floodplain at and upstream of the habitat should be maintained
4030 European dry heaths - To maintain the Favourable conservation condition		
Habitat distribution	Occurrence	No decline from current habitat distribution, subject to natural processes
Habitat area	Hectares	Area stable or increasing, subject to natural processes. Habitat area is not known but estimated as less than 400ha of the area of the SAC, occurring in dispersed locations
Physical structure: free-draining, acid, low nutrient soil; rock outcrops	Occurrence	No significant change in soil nutrient status, subject to natural processes. No increase or decrease in area of natural rock outcrop
Vegetation structure: subshrub indicator species	Percentage cover	Cover of characteristic subshrub indicator species at least 25%: gorse (Ulex europaeus) and where rocky outcrops occur bilberry (Vaccinium myrtillus) and woodrush (Luzula sylvatica). Some rock outcrops support English stonecrop (Sedum anglicum), sheep's bit (Jasione montana) and wild madder (Rubia peregrina) as well as important moss and lichen assemblages
Vegetation structure: senescent gorse	Percentage cover	Cover of senescent gorse less than 50%
Vegetation structure: browsing	Percentage cover	Long shoots of bilberry with signs of browsing collectively less than 33%
Vegetation structure: native trees and shrubs	Percentage cover	Cover of scattered native trees and shrub less than 20%
Vegetation composition: positive indicator species	Number	Number of positive indicator species at least 2 e.g. gorse and associated dry heath/ acid grassland flora

Vegetation structure: positive indicator species	Percentage cover	Cover of positive indicator species at least 60%. This should include plant species characterisitic of dry heath in this SAC including gorse, bilberry and associated acid grassland flora
Vegetation composition: bryophyte and non-crustose lichen species	Number	Number of bryophyte or non-crustose lichen species present at least 2
Vegetation composition: bracken (Pteridium aquilinum)	Percentage cover	Cover of bracken less than 10% - however see 'Notes'
Vegetation structure: weedy negative indicator species	Percentage cover	Cover of agricultural weed species (negative indicator species) less than 1%
Vegetation composition: nonnative species	Percentage cover	Cover of non-native species less than 1%.
Vegetation composition: rare/scarce heath species	Location, area and number	No decline in distribution or population sizes of rare, threatened or scarce species, including Greater Broomrape (Orobanche rapum-genistae) and the legally protected clustered clover (Trifolium glomeratum)
Vegetation structure: disturbed bare ground	Percentage cover	Cover of disturbed bare ground less than 10% (but if peat soil less than 5%)
Vegetation structure: burning	Occurrence	No signs of burning within sensitive areas
6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels - To maintain the Favourable conservation condition		
Habitat distribution	Occurrence	No decline from current habitat distribution, subject to natural processes
Habitat area	Hectares	Area stable or increasing, subject to natural processes
Hydrological regime: flooding depth/height of water table	Metres	Maintain appropriate hydrological regimes
Vegetation structure:sward height	Centimetres	30-70% of sward is between 40 and 150cm in height
Vegetation composition: broadleaf herb: grass ratio	Percentage	Broadleaf herb component of vegetation between 40 and 90%
Vegetation composition: typical species	Number	At least 5 positive indicator species present
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control- NB Indian balsam (Impatiens glandulifera), monkeyflower (Mimulus guttatus), Japanese knotweed (Fallopia japonica) and giant hogweed (Heracleum mantegazzianum)
7220 Petrifying springs with tufa formation (Cratoneurion)* - To maintain the Favourable conservation condition		
Habitat area	Square metres	Area stable or increasing, subject to natural processes
Habitat distribution	Occurrence	No decline. See map 6 for recorded location
Hydrological regime: height of water table; water flow	Metres; metres per second	Maintain appropriate hydrological regimes
Water quality	Water chemistry measures	Maintain oligotrophic and calcareous conditions
Occurrence	Occurrence	Maintain typical species
91A0 Old sessile oak woods with Ilex and Blechnum in the British Isles - To maintain the Favourable conservation condition		

Habitat area	Hectares	Area stable or increasing, subject to natural processes, at least 85.08ha for sub-sites surveyed: see map 6
Habitat distribution	Occurrence	No decline. Surveyed locations shown on map 6
Woodland size	Hectares	Area stable of increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy
Woodland structure: dead wood	m^3 per hectare; number per hectare	At least $30m^3$/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter
Woodland structure: veteran trees	Number per hectare	No decline
Woodland structure: indicators of local disctinctiveness	Occurrence	No decline
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including oak (Quercus petraea) and birch (Betula pubescens)
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control
91E0 Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* - To maintain the Favourable conservation condition		
Habitat area	Hectares	Area stable or increasing, subject to natural processes, at least 181.54ha for sites surveyed: see map 6
Habitat distribution	Occurrence	No decline. Surveyed locations shown on map 6
Woodland size	Hectares	Area stable of increasing. Where topographically possible, "large" woods at least 25ha in size and “small” woods at least 3ha in size
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semimature trees and shrubs; and well-developed herb layer
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy
Hydrological regime: flooding depth/height of water table	Metres	Appropriate hydrological regime necessary for maintenance of alluvial vegetation

Woodland structure: dead wood	m^3 per hectare; number per hectare	At least $30m^3$/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter (greater than 20cm diameter in the case of alder)
Woodland structure: veteran trees	Number per hectare	No decline
Woodland structure: indicators of local disctinctiveness	Occurrence	No decline
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including ash (Fraxinus excelsior) alder (Alnus glutinosa), willows (Salix spp) and locally, oak (Quercus robur)
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control
1016 Desmoulin's Whorl Snail (*Vertigo moulinsiana*) - To maintain the Favourable conservation condition		
Distribution: occupied sites	Number	No decline. Two known sites: Borris Bridge, Co. Carlow S711503; Boston Bridge, Kilnaseer S338774, Co. Laois. See map 7
Population size: adults	Number per positive sample	At least 5 adults snails in at least 50% of samples
Population density	Percentage positive samples	Adult snails present in at least 60% of samples per site
Area of occupancy	Hectares	Minimum of 1ha of suitable habitat per site
Habitat quality: vegetation	Percentage of samples with suitable vegetation	90% of samples in habitat classes I and II as defined in Moorkens & Killeen (2011)
Habitat quality: soil moisture levels	Percentage of samples with appropriate soil moisture levels	90% of samples in moisture class 3-4 as defined in Moorkens & Killeen (2011)
1029 Freshwater Pearl Mussel (*Margaritifera margaritifera*) – To restore the favourable conservation condition		
Distribution: Ballymurphy	Kilometres	Restore distribution at 3.91km. See map 8
Distribution: Mountain	Kilometres	Restore distribution at 9.45km. See map 8
Distribution: Nore	Kilometres	Restore distribution at 21.13km. See map 8
Population size: Ballymurphy	Number of adult mussels	Restore Ballymurphy population to at least 1,000 adult mussels
Population size: Mountain	Number of adult mussels	Restore Mountain population to at least 4,000 adult mussels
Population size: Nore	Number of adult mussels	Restore Mountain population to at least 5,000 adult mussels
Population structure: recruitment	Percentage per size class	Restore to at least 20% of population no more than 65mm in length; and at least 5% of population no more than 30mm in length

Population structure: adult mortality Ballymurphy	Percentage	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution
Population structure: adult mortality. Mountain	Percentage	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution
Population structure: adult mortality. Nore	Percentage	No more than 5% decline from previous number of live adults counted; dead shells less than 1% of the adult population and scattered in distribution
Suitable habitat: extent	Kilometres	Restore suitable habitat in more than 3.91km in the Ballymurphy, 5.3km in the Mountain and 16.72km in the Nore system (see map 8) and any additional stretches necessary for salmonid spawning
Suitable habitat: condition plants)	Kilometres	Restore condition of suitable habitat
Water quality: macroinvertebrate s and phytobenthos (diatoms)	Ecological quality ratio (EQR)	Restore water quality- macroinvertebrates: EQR greater than 0.90 (Q4-5 or Q5); phytobenthos: EQR greater than 0.93
Substratum quality: filamentous algae (macroalgae); macrophytes (rooted higher plants)	Percentage	Restore substratum quality- filamentous algae: absent or trace (less than 5%); macrophytes: absent or trace (less than 5%)
Substratum quality: sediment	Occurrence	Restore substratum quality- stable cobble and gravel substrate with very little fine material; no artificially elevated levels of fine sediment
Substratum quality: oxygen availability	Redox potential	Restore to no more than 20% decline from water column to 5cm depth in substrate
Hydrological regime: flow variability	Metres per second	Restore appropriate hydrological regime
Host fish	Number	Maintain sufficient juvenile salmonids to host glochidial larvae
Fringing habitat: area and condition	Hectares	Restore the area and condition of fringing habitats necessary to support the population
1092 White-clawed Crayfish (*Austropotamobius pallipes*) - To maintain the Favourable conservation condition		
Distribution	Occurrence	No reduction from baseline. See map 7
Population structure: recruitment	Percentage occurrence of juveniles and females with eggs	Juveniles and/or females with eggs in at least 50% of positive samples
Negative indicator species	Occurrence	No alien crayfish species
Disease	Occurrence	No instances of disease
Water quality	EPA Q value	At least Q3-4 at all sites sampled by EPA
Habitat quality: heterogeneity	Occurrence of positive habitat features	No decline in heterogeneity or habitat quality
1095 Sea Lamprey (*Petromyzon marinus*) - To maintain the Favourable conservation condition		
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem length of rivers accessible from estuary
Population structure of juveniles	Number of age/size groups	At least three age/size groups present

Juvenile density in fine sediment	Juveniles/m²	Juvenile density at least 1/m²
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning beds
Availability of juvenile habitat	Number of positive sites in 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive
1096 Brook Lamprey (*Lampetra planeri*) - To maintain the Favourable conservation condition		
Distribution: extent of anadromy	% of river accessible	Access to all watercourses down to first order streams
Population structure of juveniles	Number of age/size groups	At least three age/size groups of brook/river lamprey present
Juvenile density in fine sediment	Juveniles/m²	Mean catchment juvenile density of brook/river lamprey at least 2/m²
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning beds
Availability of juvenile habitat	Number of positive sites in 2nd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive
1099 River Lamprey (*Lampetra fluviatilis*) - To maintain the Favourable conservation condition		
Distribution: extent of anadromy	Greater than 75% of main stem and major tributaries down to second order accessible from estuary	Greater than 75% of main stem and major tributaries down to second order accessible from estuary
Population structure of juveniles	Number of age/size groups	At least three age/size groups of river/brook lamprey present
Juvenile density in fine sediment	Juveniles/m²	Mean catchment juvenile density of brook/river lamprey at least 2/m²
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning beds
Availability of juvenile habitat	Number of positive sites in 3rd order channels (and greater), downstream of spawning areas	More than 50% of sample sites positive
1103 Twaite Shad (*Alosa fallax fallax*) - To maintain the Favourable conservation condition		
Distribution: extent of anadromy	% of river accessible	Greater than 75% of main stem and major tributaries down to second order accessible from estuary
Population structure: age classes	Number of age classes	More than one age class present
Extent and distribution of spawning habitat	m² and occurrence	No decline in extent and distribution of spawning habitats
Water quality: oxygen levels	Milligrammes per litre	No lower than 5mg/l
Spawning habitat quality: Filamentous algae; macrophytes; sediment	Occurrence	Maintain stable gravel substrate with very little fine material, free of filamentous algal (macroalgae) growth and macrophyte (rooted higher plants) growth
1106 Salmon (*Salmo salar*) - To maintain the Favourable conservation condition		

Distribution: extent of anadromy	% of river accessible	100% of river channels down to second order accessible from estuary
Adult spawning fish	Number	Conservation limit (CL) for each system consistently exceeded
Salmon fry abundance	Number of fry/5 minutes electrofishing	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 min sampling
Out-migrating smolt abundance	Number	No significant decline
Number and distribution of redds	Number and occurrence	No decline in number and distribution of spawning redds due to anthropogenic causes
Water quality	EPA Q value	At least Q4 at all sites sampled by EPA
1355 Otter (*Lutra lutra*) - To maintain the Favourable conservation condition		
Distribution	Percentage positive survey sites	No significant decline
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 122.8ha above high water mark (HWM); 1136.0ha along river banks / around ponds
Extent of marine habitat	Hectares	No significant decline. Area mapped and calculated as 857.7ha
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 616.6km
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 2.6ha
Couching sites and holts	Number	No significant decline
Fish biomass available	Kilograms	No significant decline
1421 Killarney Fern (*Trichomanes speciosum*) - To maintain the Favourable conservation condition		
Distribution	Location	No decline. Three locations known, with three colonies of gametophyte and one sporophyte colony. See map 7
Population size	Number	Maintain at least three colonies of gametophyte, and at least one sporophyte colony of over 35 fronds
Population structure: juvenile fronds	Occurrence	At least one of the locations to have a population structure comprising sporophyte, unfurling fronds, 'juvenile' sporophyte and gametophyte generations
Habitat extent	m^2	No loss of suitable habitat, such as shaded rock crevices, caves or gullies in or near to, known colonies. No loss of woodland canopy at or near to known locations
Hydrological conditions: visible water	Occurrence	Maintain hydrological conditions at the locations so that all colonies are in dripping or damp seeping habitats, and water is visible at all locations
Hydrological conditions: humidity	Number of dessicated fronds	No increase. Presence of dessicated sporophyte fronds or gametophyte mats indicates conditions are unsuitable
Light levels: shading	Percentage	No changes due to anthropogenic impacts
Invasive species	Occurrence	Absent or under control

7.3 Analysis of the Potential Impacts on Natura 2000 Sites

7.3.1 Construction Impacts

In the absence of mitigation measures, the Proposed Development has the potential to affect the receiving water, land and air environment and, consequently, has the potential to have likely significant effects on European site(s). The only impacts associated with the Proposed Development are:

- Pollution/contamination events during construction and/or operation of surface origin affecting water quality in hydrologically connected European Sites (River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC).
- Air quality impacts during the construction phase arising from airborne dust and other particulates to adjacent European Sites (Mount Hevey Bog SAC)
- Accidental introduction and/or spread of non-native invasive species to downstream European Sites (River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC) and the adjacent Mount Hevey Bog SAC.
- Disturbance and displacement impacts (lighting, noise, vibration, increased human presence) to Otters (River Boyne and Blackwater SAC and River Barrow and River Nore SAC).

Table 28. Summary of the Potential Impacts of the Proposed Project on the Receiving Environment, their Potential ZoI, and the European sites within the ZoI

Potential Direct or Indirect impacts and zone of influence of the Potential Effects	Are there any European sites within the zone of influence?
Habitat loss and fragmentation Habitat loss will be confined to the lands within the proposed development boundary	No There are no European sites within the ZOI of the proposed project.
***Ex-situ* habitat loss – SCI bird species**	No There are no important *ex-situ* sites located within the footprint of the proposed Project and as such there is no potential for loss of such sites. 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 improved agricultural grassland or arable land and/or subject to relatively high levels of grazing disturbance. As such it was not deemed necessary to carry out detailed wintering bird surveys in these areas. Therefore, there are no European sites within the ZoI of this impact.
Disturbance and displacement impacts – SCI bird species Potentially up to several hundred metres from the proposed development boundary, dependent upon the predicted levels of noise, vibration and visual disturbance associated with the proposed development, in conjunction with the sensitivity of the qualifying interest species to disturbance effects.	No There are no European sites within the potential disturbance or displacement ZoI of the Project, which is smaller than the ZOI as defined in Section 4.1.
Disturbance and displacement impacts – Otter	Yes The proposed development site is hydrologically linked to the River Barrow and River Nore SAC and River Boyne and Blackwater SAC. Surveys by Altemar Ltd. in 2025 identified a single otter footprint within the proposed development site. Triturus Environmental Ltd. identified otter spraint at 2 no. sites within the proposed development site. Therefore, impacts to otters via disturbance cannot be

Potential Direct or Indirect impacts and zone of influence of the Potential Effects	Are there any European sites within the zone of influence?
	ruled out in the absence of mitigation as they may inhabit and commute along the watercourses within the ZOI of the proposed development. Disturbance and displacement can be in the form of lighting, noise, vibration, increased human presence).
Mortality risk – SCI bird species Areas where proposed new bridge structures, railway line and/or other such elevated structures are introduced.	No No SCI species of any European sites are at risk of mortality arising from collision with the proposed development due to its primarily underground and passive nature, and therefore no European sites are within the ZoI.
Habitat degradation as a result of hydrological impacts Habitat degradation as a result of contamination of surface waters and groundwaters which then contribute to the surface water environment. Habitats and species downstream/hydrologically connected to the proposed Project. Flood impacts which could transport pollutants to nearby receptors.	**Yes** Hydrologically connected sites including River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC. Mount Hevey Bog SAC is located hydrologically upgradient of the Proposed Development and as such no linkage exists.
Habitat degradation as a result of hydrogeological impacts Groundwater dependant habitats, and habitats that are downstream of the project, and the species those habitats support, in the local area that lie downgradient of the proposed Project.	No The proposed development is downgradient of Mount Hevey Bog SAC and so will not impact on groundwater dependant habitats within the SAC. The Mount Hevey Bog SAC occupies a topographically elevated position relative to the works area, and both groundwater and surface water flow direction are likely away from the SAC. A Source-Pathway Receptor (SPR) risk assessment was undertaken for the construction phase. Risks to the Mount Hevey Bog SAC were assessed as negligible to low risk, due to limited aquifer productivity, cohesive overburden, short groundwater flow paths and likely absence of hydraulic connectivity with the SAC (Minerex Environmental Limited (MEL), 2026).
Habitat degradation as a result of air quality impacts Habitat areas within c. 250m (IAQM, 2024) of the proposed project and haul routes for construction vehicles.	Yes Mount Hevey Bog SAC Dust from construction sites deposited on vegetation may create ecological stress within the local plant community. Potential air quality impacts to ecological receptors are primarily related to the deposition of dust on vegetation, which can interfere with photosynthesis, affect plant health, or alter sensitive habitats where dust loads are excessive. The guidance (IAQM, 2024) states that dust impacts to vegetation can occur up to 50 m from the site and 50 m from site access roads, up to 250 m for the site entrance.

Potential Direct or Indirect impacts and zone of influence of the Potential Effects	Are there any European sites within the zone of influence?
Indirect impacts - Habitat degradation as a result of the introduction and/or spread of non-native invasive species Habitats and species downstream/hydrologically connected to the proposed Project. Introduction and/or spread of invasive species as a result of construction works	Yes Hydrologically connected sites including River Boyne and River Blackwater SAC & SPA, River Barrow and River Nore SAC. Mount Hevey Bog SAC given its proximity to the proposed development site. Mount Hevey Bog SAC
Indirect impacts - Disturbance and displacement impacts as a result of increased population density	No The Proposed Development will not increase the population density within the vicinity of the site and as such will not cause disturbance and displacement impacts.

The potential adverse effects on the qualifying interests and conservation measures of the European Sites are considered below in Table 29.

In summary, the construction of the proposed development would potentially impact on the existing ecology of the site and the surrounding area. These potential construction impacts would include impacts that may arise during the site clearance, reprofiling, excavations of the site and transportation of materials. There is also the potential for direct hydrological pathways to the River Boyne and Blackwater SAC/SPA and the River Barrow and River Nore SAC via works within and around watercourses which lead to these sites. There is the potential for significant effects on the Mount Hevey Bog SAC via airborne dust during construction. The potential impacts on the integrity of European sites in light of conservation measures are assessed in Table 29.

7.3.2 Operational Impacts

In the absence of mitigation, considering the overall passive nature of both the above ground and underground elements of the Proposed Development, no potential impacts are foreseen on any European sites during the operational phase from the existence of the pipeline itself. The only potential operational impacts relate to maintenance of the pipeline and the potential for hydrological impacts during these activities.

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
Mount Hevey Bog SAC	**Active raised bogs [7110]** – *to restore favourable condition* **Degraded raised bogs still capable of natural regeneration [7120] -** *The long-term aim for Degraded raised bogs still capable of natural regeneration is that its peat-forming capability is re-established; therefore, the conservation objective for this habitat is inherently linked to that of Active raised bogs (7110)* **Depressions on peat substrates of the *Rhynchosporion* [7150] -** *Depressions on peat substrates of the Rhynchosporion is an integral part of good quality Active raised bogs (7110) and thus a separate conservation objective has not been set for the habitat in Mount Hevey Bog SAC*	As can be seen from Figure 17, the proposed development borders closely (20m) with the Mount Hevey Bog SAC. **Construction Phase Impacts:** *Habitat degradation as a result of air quality impacts – Dust and airborne pollutants including NOx & SOx* In the absence of mitigation measures, dust may enter the SAC during strong winds and specific aspects of the proposed project e.g. excavations and removal of soil on site. While construction dust tends to be deposited within 250 m of a construction site, and 50m from site access roads & haul routes, the majority of the deposition occurs within the first 50 m (IAQM, 2024). It is considered that given the nature of the QIs of this SAC, even in the absence of construction phase controls, the proposed impact would be minor, temporary and dust level would not significantly impact on the Qualifying Interests & conservation objectives of this SAC. However, in line with the precautionary principle, and given the proximity of this SAC to the northernmost section of the Proposed Development, construction phase mitigation measures should be in place to ensure that the SAC is not impacted. *Habitat degradation as a result of the introduction and/or spread of non-native invasive species* Japanese knotweed (*Fallopia japonica*) (invasive species listed in the First Schedule of regulation 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2024) was noted during the invasive species surveys, approximately 64m east outside of the proposed development route between chainage 23100m and 23200m. Some medium[16] & high[17]-impact invasive species as per the 2013 Prioritisation Risk Assessment conducted by Invasive Species Ireland noted on within the proposed development area and included buddleia (*Buddleja davidii*) and cherry laurel (*Laurocerasus officinalis*). Buddleia and cherry laurel are not listed under the First schedule invasive species list. The introduction and/or spread of invasive species to downstream European sites via watercourses could potentially result in the degradation of existing habitats present. There is also the potential for the introduction and/or spread of these species to the adjacent Mount Hevey Bog SAC located c.20m from the northern portion of the proposed development site. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Invasive species can also be introduced by construction machinery and/or personnel. Mitigation measures are required to prevent these potential impacts as described in Table 30.

[16] https://invasives.ie/app/uploads/2022/01/Invasives_taggedMediumImpact_2013RA-2.pdf
[17] https://invasives.ie/app/uploads/2022/01/Invasives_taggedlist_HighImpact_2013RA-1.pdf

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
		Operational Phase Impacts: Once constructed, the proposed GNI143 Ballykilleen Pipeline will not require any on site staff to operate it. GNI maintenance staff, one van, will carry out checks every two weeks to a month along with routine inspection and maintenance, including pigging, of the asset every seven to ten years. Therefore, there is no potential for air quality impacts from operational traffic and no further assessment is required. No operational phase impacts are foreseen.
River Boyne and River Blackwater SAC	**Alkaline fens [7230] -** *To maintain the favourable conservation condition of Alkaline fens in River Boyne and River Blackwater SAC* **Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0] -** *To restore the favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae)* in River Boyne and River Blackwater SAC* ***Lampetra fluviatilis* (River Lamprey) [1099] -** *To restore the favourable conservation condition of River Lamprey (Lampetra fluviatilis) in River Boyne and River Blackwater SAC* ***Salmo salar* (Salmon) [1106] -** *To restore the favourable conservation condition of Atlantic Salmon (Salmo salar) in River Boyne and River Blackwater SAC* ***Lutra lutra* (Otter) [1355] -** *To maintain the favourable conservation condition of Otter*	**Construction Phase Impacts:** *Habitat degradation as a result of hydrological impacts* In the absence of mitigation measures, there is the potential for a pollution event (e.g. fuel or petrochemical spills) or flood event of sufficient magnitude during construction to negatively affect the water quality of the hydrologically linked watercourses between this SAC and the Proposed Development site. This in turn could have the potential to affect the natural conditions that support the conservation objectives of the QI species of this SAC. Although there is a substantial fluvial distance (minimum 3.3km) involving a series of streams and tributaries linking the proposed development site and this SAC, it is considered that Otter which may be present within this network may be connected with the River Boyne and River Blackwater SAC population. As such, a pollution event during construction or operation has the potential to affect the water quality of waterbodies used by otter connected with the River Boyne and River Blackwater population e.g. by negatively affecting the quantity and quality of prey available. These potential hydrological impacts could occur to such a degree that the conservation objectives of River Boyne and River Blackwater SAC are undermined. . A low number of high conservation value aquatic species were recorded by Triturus Environmental Ltd. during the fisheries surveys in 2025 including Atlantic salmon (*Salmo salar*) (2 no. sites) and lamprey (*lampetra sp.)* (3 no. sites). As outlined by Triturus Environmental 2025: *'The watercourses surveyed in the vicinity of the proposed Edenderry Gas Pipeline development were typically heavily modified lowland channels and drainage ditches of low aquatic value. Widespread historical straightening and deepening as part of land drainage works had resulted in watercourses with poor hydromorphology and often poor summer flows. A total of 6 no. sites on the Ballynakill Stream, Mountwilson Stream, Ballyleakin River and three unmapped channels were dry at the time of survey. Bordering and adjoining land uses had also exacerbated significant siltation and eutrophication impacts. Such pressures*

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
	(Lutra lutra) in River Boyne and River Blackwater SAC.	*evidently influenced biological water quality with all sampling sites failing to achieve good status in July-August 2025.* *… Salmonid populations were very restricted in the survey area, with brown trout recorded from 5 no. sites on the on the Kinnegad River (RVX1 & RVX1b), Knockerasally River (WCX4), an unmapped Boyne tributary (WCX14) and the Kinnafad River (WCX19). Low numbers of Atlantic salmon were recorded from sites RVX1 and RVX1b on the Kinnegad River. This limited distribution reflected the widespread hydromorphological and water quality pressures in the survey area.* *The distribution of lamprey was also highly limited with Lampetra sp. ammocoetes recorded from 2 no. sites on the Kinnegad River (RVX1 & RVX1b) and an unmapped Kinnafad River tributary (WXC20). Lamprey habitat was generally poor across the survey area and the abundances and distribution of ammocoetes reflected the often low summer flows, the poor hydromorphology of most sites and paucity of suitable spawning and nursery areas.'* The proposed works will involve open-cut method for installing pipeline sections under drainage ditches, unmarked channels, and a number of watercourses. With the level of exposed earth along the working corridor and potential need for dewatering of excavations, there is the potential for impacts on aquatic biodiversity from silt or petrochemicals via contaminated surface water runoff and open-cut installation adjacent to/through waterbodies. In the absence of mitigation, given the context and scale of the proposed in-stream works, and potential for surface water run-off containing silt/petrochemicals/pollutants to enter waterbodies along the construction corridor, mitigation measures are required to prevent further deterioration of these watercourses. The only instance of Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0] in this SAC is located just west of Drogheda, Co. Louth, approximately 50.5km east of the proposed development site. Alkaline fens [7230] have not been mapped as part of the conservation objectives series[18]. However, no impacts are foreseen given on these QIs given the substantial distance between the proposed development site and Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0], and the mitigation proposed which will eliminate any risk of impacts to Alkaline Fens [7230].

[18] https://www.npws.ie/sites/default/files/protected-sites/conservation_objectives/CO002299.pdf

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
		Habitat degradation as a result of the introduction and/or spread of non-native invasive species Japanese knotweed (*Fallopia japonica*) (invasive species listed in the First Schedule of regulation 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2024) was noted during the invasive species surveys, approximately 64m east outside of the proposed development route between chainage 23100m and 23200m. Some medium[19] & high[20]-impact invasive species as per the 2013 Prioritisation Risk Assessment conducted by Invasive Species Ireland noted on within the proposed development area and included buddleia (*Buddleja davidii*) and cherry laurel (*Laurocerasus officinalis*). Buddleia and cherry laurel are not listed under the First schedule invasive species list. The introduction and/or spread of invasive species to downstream European sites via watercourses could potentially result in the degradation of existing habitats present. There is also the potential for the introduction and/or spread of these species to the adjacent Mount Hevey Bog SAC located c.20m from the northern portion of the proposed development site. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Invasive species can also be introduced by construction machinery and/or personnel. Mitigation measures are required to prevent these potential impacts as described in Table 30. *Disturbance and displacement impacts (via lighting, noise, vibration, human presence) – Otter* For mammal species such as otter, disturbance effects would not be expected to extend beyond 250m[21]. As evidence of Otter was recorded at 1 site (Watercourse WCX04) during surveys by Altemar Ltd. and Triturus Environmental Limited. at 2 locations (site RVX1b and RVX2b) within the proposed development site, out of an abundance of caution, mitigation measures are required to prevent disturbance to otter. Disturbance can occur from noise, vibration, lighting and increased human presence. Mitigation measures are required in relation to disturbance to otters during construction. **Operation Phase Impacts:** *Habitat degradation as a result of hydrological impacts*

[19] https://invasives.ie/app/uploads/2022/01/Invasives_taggedMediumImpact_2013RA-2.pdf
[20] https://invasives.ie/app/uploads/2022/01/Invasives_taggedlist_HighImpact_2013RA-1.pdf
[21] This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by existing surrounding vegetation and buildings, with the actual ZoI of construction related disturbance likely to be much less in reality.

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
		During maintenance activities, there is the potential for localised and minor accidental spillages associated with maintenance vehicles or equipment. There is limited potential for leaks or spills of petroleum hydrocarbons from during site maintenance activities during operation of the development; if unmitigated, such spillages could result localised contamination of surface water runoff or underlying soils. These pollutants such as hydrocarbons that are a known carcinogen in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc). Mitigation measures are required during the operational phase to ensure no impacts occur on hydrological receptors during maintenance activities.
River Boyne and River Blackwater SPA	**Kingfisher (*Alcedo atthis*) [A229] -** *To maintain the Favourable conservation condition of Kingfisher in River Boyne and River Blackwater SPA*	**Construction Phase Impacts:** *Habitat degradation as a result of hydrological impacts* In the absence of mitigation measures, there is the potential for a pollution event (e.g. fuel or petrochemical spills) or flood event during construction or operation to negatively affect the water quality of the hydrologically linked watercourses between this SPA and the Proposed Development site. This in turn could affect the sole QI species of this SPA, Kingfisher. It is noted that Kingfisher was not observed during the bird surveys. The Kingfisher likely utilises the main channel of the River Boyne where water quality and biological characteristics are more suitable for feeding and breeding habitat. *Habitat degradation as a result of the introduction and/or spread of non-native invasive species* Japanese knotweed (*Fallopia japonica*) (invasive species listed in the First Schedule of regulation 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2024) was noted during the invasive species surveys, approximately 64m east outside of the proposed development route between chainage 23100m and 23200m. Some medium[22] & high[23]-impact invasive species as per the 2013 Prioritisation Risk Assessment conducted by Invasive Species Ireland noted on within the proposed development area and included buddleia (*Buddleja davidii*) and cherry laurel (*Laurocerasus officinalis*). Buddleia and cherry laurel are not listed under the First schedule invasive species list. The introduction and/or spread of invasive species to downstream European sites via watercourses could potentially result in the degradation of existing habitats present. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat.

[22] https://invasives.ie/app/uploads/2022/01/Invasives_taggedMediumImpact_2013RA-2.pdf
[23] https://invasives.ie/app/uploads/2022/01/Invasives_taggedlist_HighImpact_2013RA-1.pdf

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
		Invasive species can also be introduced by construction machinery and/or personnel. **Operation Phase Impacts:** *Habitat degradation as a result of hydrological impacts* During maintenance activities, there is the potential for localised and minor accidental spillages associated with maintenance vehicles or equipment. There is limited potential for leaks or spills of petroleum hydrocarbons from during site maintenance activities during operation of the development; if unmitigated, such spillages could result localised contamination of surface water runoff or underlying soils. These pollutants such as hydrocarbons that are a known carcinogen in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc). Mitigation measures are required during the operational phase to ensure no impacts occur on hydrological receptors during maintenance activities. Mitigation measures are required to prevent these potential impacts as described in Table 30.
River Barrow and River Nore SAC	**Estuaries [1130] -** *To maintain the favourable conservation condition of Estuaries in the River Barrow and River Nore SAC* **Mudflats and sandflats not covered by seawater at low tide [1140] -** *To maintain the Favourable conservation condition of the Mudflats and sandflats not covered by seawater at low tide in the River Barrow and River Nore SAC* **Reefs [1170] -** *To maintain the Favourable conservation condition of Reefs in River Barrow and River Nore SAC* **Salicornia and other annuals colonising mud and sand [1310] -** *To maintain the favourable*	**Construction Phase Impacts:** *Habitat degradation as a result of hydrological impacts* In the absence of mitigation measures, there is the potential for a pollution event (e.g. fuel or petrochemical spills) or flood event of sufficient magnitude during construction to negatively affect the water quality of the hydrologically linked watercourses between this SAC and the Proposed Development site. This in turn could have the potential to affect the natural conditions that support the conservation objectives of the QI species of this SAC. Although there is a substantial fluvial distance (minimum 14.8km) involving a series of streams and tributaries linking the proposed development site and this SAC, it is considered that Otter which may be present within this network may be connected with the River Barrow and River Noree SAC population. As such, a pollution event during construction or operation has the potential to affect the water quality of waterbodies used by otter connected with the River Barrow and River Nore population e.g. by negatively affecting the quantity and quality of prey available. These potential hydrological impacts could occur to such a degree that the conservation objectives of River Barrow and River Nore SAC are undermined.

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
	conservation condition of Salicornia and other annuals colonizing mud and sand in the River Barrow and River Nore SAC **Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] -** *To restore the Favourable conservation condition of Atlantic salt meadows in the River Barrow and River Nore SAC* **Mediterranean salt meadows (*Juncetalia maritimi*) [1410] -** *To restore the favourable conservation condition of Mediterranean salt meadows in the River Barrow and River Nore SAC* **Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] -** *To maintain the Favourable conservation condition of Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation in the River Barrow and River Nore SAC* **European dry heaths [4030] -** *To maintain the favourable conservation condition of European dry heaths in the River Barrow and River Nore SAC* **Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430] -** *To maintain the favourable*	A low number of high conservation value aquatic species were recorded by Triturus Environmental Ltd. during the fisheries surveys in 2025 including Atlantic salmon (*Salmo salar*) (2 no. sites) and lamprey (*lampetra sp.)* (3 no. sites). As outlined by Triturus Environmental 2025: *'The watercourses surveyed in the vicinity of the proposed Edenderry Gas Pipeline development were typically heavily modified lowland channels and drainage ditches of low aquatic value. Widespread historical straightening and deepening as part of land drainage works had resulted in watercourses with poor hydromorphology and often poor summer flows. A total of 6 no. sites on the Ballynakill Stream, Mountwilson Stream, Ballyleakin River and three unmapped channels were dry at the time of survey. Bordering and adjoining land uses had also exacerbated significant siltation and eutrophication impacts. Such pressures evidently influenced biological water quality with all sampling sites failing to achieve good status in July-August 2025.* *… Salmonid populations were very restricted in the survey area, with brown trout recorded from 5 no. sites on the on the Kinnegad River (RVX1 & RVX1b), Knockerasally River (WCX4), an unmapped Boyne tributary (WCX14) and the Kinnafad River (WCX19). Low numbers of Atlantic salmon were recorded from sites RVX1 and RVX1b on the Kinnegad River. This limited distribution reflected the widespread hydromorphological and water quality pressures in the survey area.* *The distribution of lamprey was also highly limited with Lampetra sp. ammocoetes recorded from 2 no. sites on the Kinnegad River (RVX1 & RVX1b) and an unmapped Kinnafad River tributary (WXC20). Lamprey habitat was generally poor across the survey area and the abundances and distribution of ammocoetes reflected the often low summer flows, the poor hydromorphology of most sites and paucity of suitable spawning and nursery areas.'* The proposed works will involve open-cut method for installing pipeline sections under drainage ditches, unmarked channels, and a number of watercourses. With the level of exposed earth along the working corridor and potential need for dewatering of excavations, there is the potential for impacts on aquatic biodiversity from silt or petrochemicals via contaminated surface water runoff and open-cut installation adjacent to/through waterbodies. In the absence of mitigation, given the context and scale of the proposed in-stream works, and potential for surface water run-off containing silt/petrochemicals/pollutants to enter waterbodies along the construction corridor, mitigation measures are required to prevent further deterioration of these watercourses.

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
	conservation condition of Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels in the River Barrow and River Nore SAC **Petrifying springs with tufa formation (*Cratoneurion*) [7220] -** *To maintain the Favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion) in the River Barrow and River Nore SAC* **Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0] -** *To restore the favourable conservation condition of Old oak woodland with Ilex and Blechnum in the River Barrow and River Nore SAC* **Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0] -** *To restore the Favourable conservation condition of Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) in the River Barrow and River Nore SAC* **Vertigo moulinsiana (*Desmoulin's Whorl Snail*) [1016] -** *To maintain the Favourable conservation condition of Desmoulin's whorl snail in the River Barrow and River Nore SAC*	It Is noted that *Austropotamobius pallipes* (White-clawed Crayfish) [1092], *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029], Vertigo moulinsiana (*Desmoulin's Whorl Snail*) [1016] and *Alosa fallax fallax* (Twaite Shad) [1103] were not recorded during the fisheries surveys by Triturus Environmental Ltd. Salicornia and other annuals colonising mud and sand [1310], Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Reefs [1170], Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330], Mediterranean salt meadows (*Juncetalia maritimi*) [1410], Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260], European dry heaths [4030], Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels [6430], Petrifying springs with tufa formation (*Cratoneurion*) [7220], Old sessile oak woods with Ilex and Blechnum in the British Isles [91A0], Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae)* [91E0] and *Vandenboschia speciosa* (Killarney Fern) [6985] are all located within the main boundary of the River Barrow and River Nore SAC, located a substantial distance from the proposed development site (minimum 14.8km). With the implementation of mitigation measures to eliminate the likelihood of significant effects on water quality within the river network, adverse effects on all QI species and habitats of this SAC will not occur. *Disturbance and displacement impacts (via lighting, noise, vibration, human presence) – Otter* For mammal species such as otter, disturbance effects would not be expected to extend beyond 250m[24]. As evidence of Otter was recorded at 1 site (Watercourse WCX04) during surveys by Altemar Ltd. and Triturus Environmental Limited. at 2 locations (site RVX1b and RVX2b) within the proposed development site, out of an abundance of caution, mitigation measures are required to prevent disturbance to otter. Disturbance can occur from noise, vibration, lighting and increased human presence. Mitigation measures are required in relation to disturbance to otters during construction. *Habitat degradation as a result of the introduction and/or spread of non-native invasive species* Japanese knotweed (*Fallopia japonica*) (invasive species listed in the First Schedule of regulation 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2024) was noted during the invasive species surveys, approximately 64m east outside of the proposed development route between chainage

[24] This is consistent with Transport Infrastructure Ireland (TII) guidance (Guidelines for the Treatment of Otters prior to the Construction of National Road Schemes and Guidelines for the Treatment of Badgers prior to the Construction of National Road Schemes) documents. This is a precautionary distance, and likely to be moderated by the screening effect provided by existing surrounding vegetation and buildings, with the actual ZoI of construction related disturbance likely to be much less in reality.

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
	***Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] -** *To restore the Favourable conservation condition of the Freshwater pearl mussel (Margaritifera margaritifera) in River Barrow and River Nore SAC* ***Austropotamobius pallipes* (White-clawed Crayfish) [1092] -** *To maintain the Favourable conservation condition of White-clawed crayfish in the River Barrow and River Nore SAC* ***Petromyzon marinus* (Sea Lamprey) [1095] -** *To restore the Favourable conservation condition of Sea lamprey in the River Barrow and River Nore SAC* ***Lampetra planeri* (Brook Lamprey) [1096] -** *To restore the favourable conservation condition of Brook lamprey in the River Barrow and River Nore SAC* ***Lampetra fluviatilis* (River Lamprey) [1099] -** *To restore the Favourable conservation condition of River lamprey in the River Barrow and River Nore SAC* ***Alosa fallax fallax* (Twaite Shad) [1103] -** *To restore the favourable conservation condition*	23100m and 23200m. Some medium[25] & high[26]-impact invasive species as per the 2013 Prioritisation Risk Assessment conducted by Invasive Species Ireland noted on within the proposed development area and included buddleia (*Buddleja davidii*) and cherry laurel (*Laurocerasus officinalis*). Buddleia and cherry laurel are not listed under the First schedule invasive species list. The introduction and/or spread of invasive species to downstream European sites via watercourses could potentially result in the degradation of existing habitats present. These species may outcompete other native species present, negatively impacting the species composition, diversity and abundance and the physical structural integrity of the habitat. Invasive species can also be introduced by construction machinery and/or personnel. **Operation Phase Impacts:** *Habitat degradation as a result of hydrological impacts* During maintenance activities, there is the potential for localised and minor accidental spillages associated with maintenance vehicles or equipment. There is limited potential for leaks or spills of petroleum hydrocarbons from during site maintenance activities during operation of the development; if unmitigated, such spillages could result localised contamination of surface water runoff or underlying soils. These pollutants such as hydrocarbons that are a known carcinogen in many animals and suspected to be carcinogenic to humans and changes in water pH in runoff water may result in adverse changes in water chemistry (dissolved oxygen content, biological oxygen demand etc). Mitigation measures are required during the operational phase to ensure no impacts occur on hydrological receptors during maintenance activities. Mitigation measures are required to prevent these potential impacts as described in Table 30.

[25] https://invasives.ie/app/uploads/2022/01/Invasives_taggedMediumImpact_2013RA-2.pdf
[26] https://invasives.ie/app/uploads/2022/01/Invasives_taggedlist_HighImpact_2013RA-1.pdf

Table 29. Potential for adverse effects on the qualifying interests and conservation objectives of Natura 2000 sites		
Natura 2000 Site	Qualifying Interests & Conservation Objectives	Potential for Adverse Effects
	of Twaite shad in the River Barrow and River Nore SAC ***Salmo salar* (Salmon) [1106]** **-** *To restore the favourable conservation condition of Salmon in the River Barrow and River Nore SAC* ***Vandenboschia speciosa* (Killarney Fern) [6985] -** *To maintain the Favourable conservation condition of Killarney Fern in the River Barrow and River Nore SAC* ***Lutra lutra* (Otter) [1355] -** *To restore the favourable conservation condition of Otter in the River Barrow and River Nore SAC*	

Table 30. *Mitigation measures to prevent impacts on sensitive receptors*

Sensitive Receptors	Potential Impacts on SPA & SAC	Predicted Impact and Mitigation Measures to Prevent Impacts on sensitive receptors
Mount Hevey SAC River Boyne & River Blackwater SAC & SPA River Barrow and River Nore SAC	• Habitat degradation • Dust deposition • Pollution • Downstream impacts • Negative impacts on the aquatic environment, aquatic species and qualifying interests.	Construction Phase Habitat degradation as a result of hydrological impacts (on the River Boyne and River Blackwater SAC/SPA and the River Barrow and River Nore SAC. **Construction & Environmental Management Plan (CEMP)** The following specific mitigation measures outlined in the Construction Environment Management Plan (CEMP) prepared by AWN Consulting, relevant to the protection of European Sites, reviewed and agreed with Altemar, will be implemented*:* **Water (Hydrogeology and Hydrology)** **Mitigation of General Construction Activities** **Sediment Control Plan (SCP)**

Sensitive Receptors	Potential Impacts on SPA & SAC	Predicted Impact and Mitigation Measures to Prevent Impacts on sensitive receptors
		'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. Any surface water run-off collecting in excavations will likely contain a high sediment load. This will not be allowed to directly discharge to any stormwater sewer, drainage ditch or watercourse.* • *Where works are required within designated flood zones, topsoil stripping will be avoided where practicable, and trenchless construction methods will be employed where feasible to minimise sediment disturbance and migration.* • *To further support environmental protection measures, the contractor shall deploy bog mats along the construction running track in designated flood zone areas. These mats will be placed directly on top of the existing topsoil to minimise ground disturbance and prevent sediment from entering adjacent watercourses.* • *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 distance from the Yellow River and Kilwarden River and >20 m distance from any other surface water body. 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.*

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		• *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 nearby watercourses using a combination of settlement ponds and silt fences. Regular maintenance, including grading, resurfacing, and drainage management, is required to keep hauls road in good condition during the works.* • *Dust suppression measures (e.g. damping down during dry periods), power washing facility or wheel cleaning facility, road sweeping, and general housekeeping will ensure that the surrounding environment are free of nuisance dust and dirt on roads.* • *Silt fencing will be installed along the working area adjacent to any rivers and watercourses, 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 (extreme weather events).* • *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.* • *The proposed construction berm constructed within the Flood Zone A will provide protection against the predicted 1% AEP flood event. Once constructed, the berm will be covered with a suitable geotextile layer across the berm surface, to reduce the mobilisation of suspended solids during flood or rainfall events.* • *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.*

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		Measures for the Control and Treatment of Construction Surface Water *The control and treatment measures for construction water to be implemented include minimisation and mitigation measures set out below:* • *Construction working areas, compounds, laydown areas and access routes will be restricted to the minimum extent required to reduce soil compaction and disturbance of natural drainage.* • *Temporary drainage features, including interceptor drains and cut off ditches, will be installed upslope of excavation and working areas to intercept clean surface water and prevent increased inflows to construction areas.* • *Temporary hardstandings and compacted areas within compounds will be designed with controlled drainage to prevent uncontrolled surface runoff.* • *No permanent diversion, infilling or obstruction of existing drainage ditches or watercourses will occur as part of the Proposed Development.* • *Existing drainage pathways will be maintained throughout construction, with temporary crossings installed where required to maintain flow continuity.* • *During construction, surface waters drainage, including any excavation dewatering, will be treated to allow settlement prior to discharge.* • *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.* • *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 direct discharges to fisheries waters 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 log of 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.*

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

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		Control of Concrete • *Where feasible all 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 wastewaters or contaminated storm water to the underlying subsoil.* • *Wash water from cleaning ready-mix concrete wagons and mixers will be contaminated. Wagons and mixers must be washed off-site or in a bunded, impermeable designated washout area. Washout to be removed off site and disposed of appropriately at a licenced facility or reused for concrete creation. Washout area is to be located as far away from the watercourse as is practicably possible.* • *No wash-down or wash-out of ready-mix concrete vehicles during the construction works will be carried out at the site within any riparian or ecological buffer zone. Wash-outs will only be allowed to take place in designated areas with an impervious surface where all wash water is contained and removed from site by road tanker or discharged to foul sewer subject to agreement with Uisce Éireann.* **Waste Management** • *Building materials will be chosen to 'design out waste';* • *On-site segregation of waste materials will be carried out where possible to increase opportunities for off-site reuse, recycling and recovery. The following waste types, at a minimum, will be segregated:* – *Concrete rubble (including ceramics, tiles and bricks);* – *Metals; and* – *Timber.* • *Left over materials (e.g. timber off-cuts, broken concrete blocks / bricks) and any suitable construction materials shall be re-used on-site, where possible;* • *All waste materials will be stored in skips or other suitable receptacles in designated areas of the site;* • *Any hazardous wastes generated (such as chemicals, solvents, glues, fuels, oils) will also be segregated and will be stored in appropriate receptacles (in suitably bunded areas, where required);* • *A Resource Manager will be appointed by the main Contractor(s) to ensure effective management of waste during the excavation and construction works;* • *All construction staff will be provided with training regarding the waste management procedures;* • *All waste leaving site will be reused, recycled or recovered, where possible, to avoid material designated for disposal;* • *All waste leaving the site will be transported by suitably permitted contractors and taken to suitably registered, permitted or licenced facilities; and* • *All waste leaving the site will be recorded and copies of relevant documentation maintained.*

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		Welfare Facilities and Materials Storage • *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 >50 m distance from the Yellow River Kilwarden River, and Grand Canal, 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.* • *Construction materials, including aggregates etc. will be stored >50 m distance from the Yellow River Kilwarden River, and Grand Canal 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.* • *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.* **Mitigation of Impacts from Open cut Watercourse Crossings** • *The working areas at each watercourse will be kept to the minimum area required to carry out the proposed works and the area should be marked out and cordoned off in advance of work commencement.* • *No watercourse crossings by vehicles or plant (i.e. fording) will occur at any location along the pipeline route.* • *Where access is required, temporary culverts and/or bridges will be installed to allow vehicles to cross watercourses, thereby mitigating disruption to both flow and water quality.* • *No unnecessary tracking or excavating in grassland/vegetated areas will be avoided to prevent sediment laden run-off.* • *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 fencing will be embedded to ensure silt retention and deposition and be positioned a minimum of 5m from the watercourse.* • *Clearance of surrounding grasses and riparian vegetation to facilitate installation of silt fencing will be avoided.* • *Monitoring of the effectiveness of silt fencing will be undertaken, and maintenance 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.* • *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 is to be avoided.* • *Following the dewatering process but prior to initiating the construction activities, systematically extract the exposed bed material 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. Once crossing works are complete, this material will be used to reinstate the stream bed to its original level.*

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		• *De-watering may be required within the trench for pipeline works. Should this be required, water will be discharged into a vegetated area at least 20m from any watercourse. Water will be discharged via a silt bag and/or settlement tank. Silt fencing will surround the discharge area.* • *Prior to the commencement of works a photographic record of the existing condition of the watercourses 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 watercourses, respectively, ensuring they extend past the area of the proposed trench and running track.* • *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.* • *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.* • *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.*

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		Mitigation of Impacts from Temporary Structures at Watercourse Crossings • *Temporary structures at watercourse crossings will require consent from the Office of Public Works (OPW) under Section 50 of the Arterial Drainage Act.* • *All temporary culvert, flume or bridge crossings of watercourses will be subject to written agreement with Inland Fisheries Ireland with respect to sizing, location, duration and timing.* • *All temporary culverts and flumes will be sized to pass anticipated flows without causing upstream impoundment or downstream scour.* • *Structures will be inspected regularly and maintained to ensure hydraulic capacity is maintained throughout their operational period.* • *The temporary bridge at the Kilwarden River (RVX01) will span the channel and avoid direct bed disturbance, with abutments set back from the bank to preserve flow conveyance.* • *Temporary structures will be removed following completion of works, and the channel reinstated to original flow conditions.* **Protection of Watercourses and Fisheries Habitat** • *In accordance with guidance and recommendations issued by Inland Fisheries Ireland, no fording of watercourses by vehicles or plant will occur at any stage of the Proposed Development.* • *All temporary watercourse crossing structures will be subject to written agreement with Inland Fisheries Ireland in respect of their design, sizing, timing, duration and method of installation. Clear span bridge type structures will be prioritised where practicable. Where culverts or flumes are required, these will be designed to pass the full range of anticipated flows, including flood flows, without ponding, scour or alteration of stream hydraulics.* • *No instream works shall be undertaken without prior agreement with Inland Fisheries Ireland, and works within watercourses will be programmed to avoid sensitive fisheries periods, with instream works normally restricted to the July–September window unless otherwise agreed.* • *A precautionary approach to sediment control will be applied at all watercourse crossings, ensuring that there is no discharge of silt laden water, concrete residues, hydrocarbons or other deleterious substances to surface waters. Measures will include fluming, isolation of works areas, staged settlement, silt fencing and reinstatement of channel beds and banks using natural materials.* • *Biosecurity measures will be implemented to prevent the introduction or spread of invasive aquatic or riparian species, including the cleaning of machinery and equipment prior to entering and leaving watercourse working areas.* **Mitigation of Impacts from Trenchless River and Watercourse Crossings** • *A minimum vertical clearance of 1.6 m will be maintained between the pipeline and the true bed level of all watercourses and canals.*

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		• *Launch and/or reception points for trenchless drilling/excavations will be located a minimum of 10 m from the top of the watercourse bank, and outside riparian buffer zones and flood zones (A and B), except where not practicable due to site specific engineering constraints.* • *Welfare facilities will be situated a minimum of 50 m from the Yellow River, Kilwarden River and the Grand Canal, and a minimum of 20 m from any other surface water body.* • *All construction plant, refuelling, maintenance activities, and material storage associated with trenchless crossings, will be stored a minimum of 50 m from the Yellow River, Kilwarden River and the Grand Canal, and a minimum of 20 m from any other surface water body.* • *All drilling fluids (where used) will be contained within closed systems, with returns managed and removed off site for disposal at a licenced / permitted facility.* **Aquatic Biodiversity** • *Silt interception should be integrated into all surface water run-off during construction prior to discharge off the works area.* • *Discharge from de-watering of excavations will not be discharged directly to any watercourses, streams, drainage ditches or other waterbodies/features.* • *An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phases and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity within the site and neighbouring areas, including mammals, birds, bats and watercourses, will not be impacted.* • *Watercourses along the proposed development will be maintained in their current states and sufficient measures implemented and monitored to prevent downstream impacts on aquatic biodiversity.* • All other measures in relation to protection of surface water discharge and waterbodies will be fully implemented/adhered to. Disturbance and Displacement of Otters **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.*

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		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 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.* **Surveys for the Presence of Otters** • Preconstruction surveys for otters will be carried out along the full route given the time between the original surveys and site clearance and construction works commencing on site. • If otters or evidence of otters is found during pre-construction surveys, an otter management plan will be developed by the appointed ecologist. No works will commence until this plan is developed and further mitigation is implemented to ensure no impacts on otters. • The construction corridor will be marked out prior to the commencement of construction. • All mitigation measures as outlined within the accompanying CEMP and elsewhere within the EIAR and NIS in relation to protection of surface waters will be implemented in full. Habitat degradation as a result of the introduction and/or spread of invasive species (On the Mount Hevey Bog SAC, River Boyne and River Blackwater SAC/SPA and River Barrow and River Nore SAC) **Biosecurity and Invasive Species Management** General Procedures for Construction Biosecurity of both plant and animal species will be employed pre and post works and will form part of the Appointed Contractor's CEMP. The biosecurity protocols will include: • Implement Check–Clean–Dry procedures for all plant, equipment and PPE before entering and leaving site. • Restrict machinery movement and use designated access routes to protect the riparian zones. • Identify and demarcate any invasive species areas to prevent disturbance. • Inspect, segregate and appropriately manage excavated soils to avoid spread of invasive plant material. • Follow IFI field work protocol for field survey work (2010) aquatic biosecurity protocols for all works near watercourses

Sensitive Receptors	Potential Impacts on SPA & SAC	Predicted Impact and Mitigation Measures to Prevent Impacts on sensitive receptors
		• Deliver toolbox talks to all personnel on invasive species awareness and biosecurity requirements. • Maintain ongoing environmental supervision to ensure compliance and address issues promptly. <u>Specific Procedures for Construction</u> • All existing areas containing Japanese knotweed will be marked with tape/fenced to create a 7m exclusion zone. • No machinery/personnel will be permitted to enter the Japanese knotweed exclusion zone without prior consultation and supervision by a qualified ecologist or invasive species specialist. • No machinery or personnel involved with the subject development will be permitted to utilise the access road adjacent to the current extent of Japanese knotweed. • All measures outlined in the Invasive Species Management Plan (Appendix I) will be adhered to. • A pre-construction assessment for invasive species will be carried out prior to construction and an updated Invasive Species Management Plan provided. <u>Habitat degradation as a result of Air Quality Impacts (on Mount Hevey Bog SAC)</u> **Air Quality** *The objective of dust control at the site is to ensure that no significant nuisance occurs at nearby sensitive receptors. In order to develop a workable and transparent dust control strategy, the following measures have been proposed by drawing on best practice guidance from Ireland, and the UK Institute of Air Quality Management publication 'Guidance on the Assessment of Dust from Demolition and Construction' (IAQM, 2024)* <u>Communications</u> • *Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.* • *Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.* • *Display the head or regional office contact information* <u>Site Management</u> • *Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.* • *Make the complaints log available to the local authority when asked.* • *Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.*

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		• *Hold regular liaison meetings with other high risk construction sites within 500 m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.* <u>Preparing and Maintaining the Site</u> • *Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.* • *Erect solid screens or barriers around dust causing activities or the site boundary that are at least as high as any stockpiles on site.* • *Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period* • *Avoid site runoff of water or mud.* • *Keep site fencing, barriers and scaffolding clean using wet methods.* • *Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.* • *Cover, seed or fence stockpiles to prevent wind whipping.* <u>Operating Vehicles / Machinery and Sustainable Travel</u> • *Ensure all vehicles switch off engines when stationary – no idling vehicles.* • *Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.* • *Impose and signpost a maximum-speed-limit of 24 kmph on surfaced and 16 kmph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)* • *Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.* • *Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)* <u>Operations</u> • *Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems* • *Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate* • *Use enclosed chutes and conveyors and covered skips.* • *Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.* • *Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.* <u>Waste Management</u> • *Bonfires and burning of waste materials is prohibited.*

Sensitive Receptors	Potential Impacts on SPA & SAC	Predicted Impact and Mitigation Measures to Prevent Impacts on sensitive receptors
		Measures Specific to Earthworks • *Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable* • *Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable.* • *Only remove the cover in small areas during work and not all at once.* Measures Specific to Construction • *Avoid scabbling (roughening of concrete surfaces) if possible.* • *Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.* • *Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.* • *For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.* Measures Specific to Trackout • *Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.* • *Avoid dry sweeping of large areas.* • *Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.* • *Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.* • *Record all inspections of haul routes and any subsequent action in a site logbook.* • *Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.* • *Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).* • *Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.* • *Access gates to be located at least 10 m from receptors where possible.* Monitoring *Monitoring of construction dust deposition along the site boundary to nearby sensitive receptors during the construction phase of the proposed development is recommended to ensure mitigation measures are working satisfactorily. The location should be at the site boundary close to dust-causing activities where there is potential to affect nearby residences or commercial properties. Given the length of the site, and that the areas with the largest amount of dust generation will move over time during the construction phase, the monitoring location should be moved with these activities to capture a worst-case location.*

Sensitive Receptors	Potential Impacts on SPA & SAC	Predicted Impact and Mitigation Measures to Prevent Impacts on sensitive receptors
		Monitoring can be carried out using the Bergerhoff method in accordance with the requirements of the German Standard VDI 2119. The Bergerhoff Gauge consists of a collecting vessel and a stand with a protecting gauge. The collecting vessel is secured to the stand with the opening of the collecting vessel located approximately 2 m above ground level. The TA Luft limit value is 350 mg/m2/day during the monitoring period of 30 days (+/- 2 days). Operational Phase *Habitat degradation as a result of hydrological impacts* Mitigation measures are required during the operational phase to ensure no impacts occur on hydrological receptors during maintenance activities. Any maintenance activities that may introduce contaminants will be carried out in accordance with Gas Networks Ireland (GNI) ISO 14001 operational environmental management system.

8 In-Combination Assessment

There are several permitted and proposed developments (last five years) located within the wider area surrounding the proposed development site that have been assessed for potential in-combination effects through the examination of planning documentation. From review of the Planning Portal, many proposed schemes or consented (including those under construction, or operating) within 2 km of the Proposed Development can be reasonably excluded from further consideration in this assessment, based on either their small scale or nature, and that any anticipated localised potential effects will not act in combination with the expected effects of the Proposed Development. Consequently, there is not considered to be any credible risk of adverse impacts from these projects on River Barrow and River Nore SAC, River Boyne and River Blackwater SAC/SPA and Mount Hevey Bog SAC, which could conceivably contribute to those associated with the proposed development. Most proposed or consented schemes within the search parameters are small-scale residential projects. Those which relate to large scale housing and infrastructural developments or non-residential are shown in Table 31. The following developments have been identified for consideration of potential in-combination effects taken from the Department of Housing, Local Government and Heritage's 'National Planning Application Map' portal:

Table 31. Planning application details and reference numbers of sites proximate to the proposed development.

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
Ref: PA92.323980 Applicant: Uisce Éireann Location: Parteen Basin, Lower Shannon, to Peamount, Co. Dublin.	The proposed development comprises, inter alia: • A proposed Raw Water Intake & Pumping Station at Garrynatineel, Ballina, Co. Tipperary; • A proposed Water Treatment Plant at Incha Beg, Birdhill, Co. Tipperary; • A proposed Break Pressure Tank at Knockanacree, Cloughjordan, Co. Tipperary; • A proposed Booster Pumping Station at Coagh Upper, Birr, Co. Offaly; • A proposed Flow Control Valve at Commons Upper, Celbridge, Co. Kildare; • A proposed Termination Point Reservoir at Loughtown Upper, Peamount, County Dublin; • c. 172km of pipeline connecting the water infrastructure sites; • Uprating and associated works to the existing Ardnacrusha – Birdhill 38kv line and Ardnacrusha – Birdhill – Nenagh 38kv line, works at the existing Birdhill 38 kV electricity substation, power connections to infrastructure; and • all ancillary works above and below ground.	Decision: Not yet decided Expected Grant Date: 30/06/2026

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	A complete detailed description of the Proposed Development is set out in the documentation accompanying the application including the public notices, the planning report and Environmental Impact Assessment Report.	
Ref: 25/60500 Applicant: EIRGRID PLC Location: CLONMORE, CLONMORE, CO OFFALY.	EirGrid PLC, with the consent and approval of the Electricity Supply Board (ESB), intends to apply for permission for works to uprate the existing Rinawade – Dunfirth Tee – Kinnegad 110kV overhead line (OHL). Within County Offaly, the proposed development will take place within the following townlands: CLONMORE . The Rinawade - Dunfirth Tee - Kinnegad 110 kV OHL circuit runs through County Meath, County Kildare and County Offaly. It is 54 km in length and travels from Kinnegad 110 kV substation in Killaskillen (County Meath) and traverses southeast where a short loop into Dunfirth 110 kV substation in Dunfirth (County Kildare) exists. The line then continues southeast where it terminates at Rinawade 110kV substation in Rinawade Lower (County Kildare). The OHL has a total of 249no. supporting structures. Within the functional area of Offaly County Council there is 0.42 km of the existing OHL circuit, with 2 no. structures. Within the functional area of Kildare County Council there is 30.66 km, with 140 no. structures, and within the functional area of Meath County Council, there is 23.16 km with 107 no. structures. Separate planning applications will be lodged with Kildare County Council and Meath County Council. The proposed development within Co. Offaly will comprise: • the replacement ("restringing") of the existing OHL circuit conductor wires with a new higher capacity conductor and fibre wrap between structure numbers 38 – 39; • the painting of tower no. 38; • the replacement of insulating and ancillary hardware at all structures where conductor wires will be replaced; • all associated temporary site development works to gain access to the existing structures including vegetation clearance and management, disassembly and reassembly of gate posts / piers and removal and reinstatement of existing fencing; and • other temporary associated and ancillary site development works required for the purpose of the uprate of the existing circuit, including silt traps, silt fences, vegetation clearance and management, stone tracks, ground protection mats, infrastructure crossing support systems (i.e., guard poles) and temporary watercourse crossings. Where required, an aerial catenary stringing system will be used to facilitate stringing operations over major obstacles, e.g., national roads, rivers, etc. A Natura Impact Statement (NIS) will be submitted to the Planning Authority with the application	Decision: Conditional Grant Date: 11/12/2025
Ref: NA (not yet submitted) Applicant: Bord na Móna Location: Cushaling Peaker Plant	The related development is at the Cushaling Peaker Plant [subject to planning approval includes: • A new on-site pipeline from the proposed AGI (Above Ground Installation) to two new gas skids (one for each of the two 58 MW Cushaling Peaker Plant units), • Conversion of the fuel system from distillate to natural gas (natural gas becoming the primary fuel),	Decision: NA (not yet submitted)

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	• Retention of distillate as a backup fuel, • Modifications to the internal pipework to the turbine plant to facilitate the change in fuel, • Operation of the peaking units on gas rather than distillate. The plant will remain a peaking facility with no changes to operational hours or status. The existing EPA Industrial Emissions (IE) licence (EPA Ref. P0482-04) and Greenhouse Gas Permit (EPA Ref. IE-GHG166-10429-2) will require amendment to reflect the change in fuel type.	Grant Date: NA (not yet submitted)
Ref: 2360266 Applicant: Kilsaran Concrete Unlimited Company (trading as Kilsaran) Location: Kilrainy and Kilrathmurry townlands, Clonard, Co. Kildare	Application area 51.7 ha. with rock extraction (6.2 ha.), importation of fine sand, use of existing batching plant/ancillary facilities, new site entrance/access, road improvement works, and all site ancillary/restoration works for a period of 12 years. Details of the application work are as follows: 1. Quarry development and associated processing previously permitted under P. Reg. Ref. No. 99/2042 and ABP Ref. PL09.123207) to include drilling, blasting, crushing and screening of rock; and lateral extension to same, with an overall extraction area of c. 6.2 hectares with no vertical deepening below the existing quarry floor. The appropriate period of planning register reference 99/2042 was extended by order dated 03/02/2017 by P. Reg. Ref. No. 16/1246; 2. Importation of up to 35,000 tonnes per annum of processed fine aggregate, principally sand for use in readymix concrete production on site; 3. Use of buildings and structures associated with the sand and gravel pit previously granted planning permission under P. Reg. Ref. No. 03/2754 comprising of the crushing, washing and screening plant with associated silt disposal lagoons; readymix concrete batching plant including powerhouse; prefabricated office; weighbridge; workshop building with concrete laboratory and bunded fuel tanks; aggregate storage bays; and one liquid effluent treatment system unit; 4. Closure of the existing site entrance with provision of a new site entrance located to the north of the existing entrance; realignment of the main internal site access road from the new site entrance to the central processing area with provision of a new wheelwash system; acoustic fence screening (c.2m in height x 170m in length); and a new screening berm along the western site boundary; 5. Restoration of the site lands will be to a combination of beneficial agricultural and ecological after-uses; 6. All associated site works within an overall application area of c. 51.7 hectares. The proposed operational period is for 10 years plus 2 years to complete restoration (total duration sought 12 years); and 7. Provision is also made for 3 no. sections of road improvements (widening) along the haul route between the site entrance and the R148 regional road. The proposals at the identified locations include for works in the public road and verge that aim to achieve a consistent carriageway	Decision: Conditional Grant date: 05/08/2025

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	width of 6.0m along with provision of verge widening on the inside of the three bends to improve forward visibility and intervisibility for all opposed traffic including traffic generated by the proposed development. An Environmental Impact Assessment Report (EIAR) and Natura Impact Statement (NIS) have been prepared in respect of this planning application	
Ref: 201409 Applicant:Kilsaran Concrete (trading as Kilsaran Build) Location: Brackagh townland, Carbury, Co. Kildare	Planning permission duration of 9 years sought for sand and gravel extraction (dry working), associated processing plant and upgrade works to existing site entrance over an area 17 hectares with restoration back to an agricultural after use. Details of the application are as follows: Development within an overall application area of 17 hectares. Upgrading of the site entrance onto the R401 regional road, consisting of improvements to the surface to allow regular HGV traffic. Installation of all required site facilities, consisting of a prefabricated welfare facility (including a toilet facility with septic tank and percolation area), a double skinned fuel tank in a secure container, a weighbridge and a wheelwash. Installation of a processing plant and associated settlement lagoon (closed water system). Extraction of sand and gravel with processing that includes crushing, washing and screening, using the newly installed plant over an area of 9.2 hectares. The extraction works will take place in two phases (Extraction Phase 1: c. 4.9 hectares and Extraction Phase 2: c. 4.3 hectares). The sand and gravel extraction will be dry working above the water table. The remaining c. 7.8 hectares will consist of the processing area, a stockpile area, and overburden storage area and buffer zones to the site boundaries. Restoration of the site lands will be to a beneficial agricultural after-use. The proposed operational period is for 8 years plus 1 year to complete restoration (total duration sought 9 years). An Environmental Impact Assessment Report (EIAR) has been prepared in respect of this planning application. Revised by Significant Further Information which consists of updates to the EIAR and revised plans which include amendments to the proposed sand and gravel extraction depths within Phase 1 and Phase 2	Decision: Conditional Grant date: 22/08/2023
Ref: ABP-309686 Applicant: Cloncant Renewable Energy Ltd Location: Townlands of Ballykilleen, Cloncreen and Ballinowlart North, Co. Offaly. Grid Ref. (ITM) Easting = 660810, Northing = 726820.	Application for a ten year permission for a 110kV Air Insulated Switchgear (AIS) Loop Substation with 400m long overhead line grid connection and all associated site works. The substation will comprise: 1 No. 110kV Air Insulated Switchgear (AIS) Loop Substation including: an outdoor electrical yard including electrical equipment such as electrical pylons, over and underground ducting & cables, busbars, disconnects, breakers, sealing ends, lightning and lighting masts, single storey control building containing associated facilities (relay room, battery room, generator room, messroom, welfare facilities, workshop and office). Security fencing and all associated works. • 400m long overhead line (OHL) grid connection going south east from the substation and connecting into the adjacent existing Cushaling – Mount Lucas 110kv OHL. • 1 No. site entrance and 60m entrance road. •	Decision: Conditional Grant date:11/04/2022

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	1 No. temporary construction site compound (95m x 50m). • Associated surface water management systems. • All Associated site development works. This planning application is accompanied by a Natura Impact Statement and Environmental Impact Assessment Report.	
Ref: 22494 Applicant: Cloncant Renewable Energy Limited Location: Ballykilleen, Shean, Kilcumber and Ballinowlart North, County Offaly	The Development Of (a) Approximately 970m of new internal access roads for the permitted Cushaling Wind Farm (Planning Ref. PL2/19/606 and ABP 306924-20), (b) Upgrade of approximately 560m of an existing Bord na Móna bog access road, (c) Construction of a 1.6km double circuit 33kV underground collector cable from the permitted Cushaling Wind Farm to the permitted wind farm substation, (d) Demolition and replacement of a Bord na Móna bogland access bridge, and (e) Relocation of the permitted Cushaling Wind Farm substation 25 meters southwest. A Natura Impact Statement (NIS) will be submitted to the planning authority with the application.	Decision: Conditional Grant date: 04/05/2023
Ref: 21598 Applicant: KILCUSH SOLAR FARM LTD Location: Ballinowlart North, Ballykillen, Kilcumber, Cloncant, and Cushaling, Edenderry, County Offaly.	A period of 10 years is proposed to construct and complete a solar PV development with a total site area of approximately 117.47 hectares. The development will include PV panels mounted on metal frames, new access tracks, underground cabling, perimeter fencing with CCTV cameras, 22 medium-voltage (MV) power stations, temporary construction compounds, and all ancillary grid infrastructure and associated works. The solar farm will be operational for 40 years.	Decision: Conditional Grant date: 26/10/2022
Ref: 2152 Applicant: BORD NA MONA POWERGEN LTD	A modular Battery Energy Storage System (BESS) facility is proposed within the footprint of a previously consented construction compound (ABP Ref. PL19.PA0047). Planning permission is sought for a period of 10 years. The facility will consist of up to 28 battery storage modules (each up to 13 metres in length, 3 metres in width, and 3 metres in height), along with ancillary equipment including up to 28 step-up transformers, 28 air-handling units, and all other associated site development works and services. These include lightning protection monopoles, column lighting, and CCTV cameras; internal access roads linking the BESS facility to the	Decision: Conditional Grant date: 06/09/2021

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
Location:Ballykilleen Townland, County Offaly (located within the previously approved Cloncreen Wind Farm, ABP Reference PL19.PA0047).	consented Cloncreen Wind Farm road network; security fencing; site drainage amendments; and underground electrical cabling as required to facilitate the development. The proposal will involve the continued use of the previously consented construction compound. The BESS facility will be located entirely within the boundary of the consented Cloncreen Wind Farm and will use the existing access arrangements within the wind farm. The application is accompanied by a Natura Impact Statement (NIS).	
Ref: 2560087 Applicant: EirGrid plc Location: Ballykilleen (Edenderry Rural Electoral Division), Kilcumber, Cloncant, Ballydermot, Clonmel, Clonbrown, Clonroosk Little, Clonroosk Big, Coolygagan, Clonbrock Upper, Kilcloncorkry, Kilnantoge Lower, Kilnantoge Upper and Shean., Co. Offaly	EirGrid plc, with the consent and approval of the Electricity Supply Board (ESB) is applying to Offaly County Council for permission for works associated with the proposed uprate of the existing 110 kV Overhead Line (OHL) between the existing Cushaling 110 kV substation in the townland of Ballykilleen, Co. Offaly and the existing Portlaoise 110 kV substation in the townlands of Clonminam and Kylekiproe, Co. Laois. The Proposed Development works across the functional area of Co.Offaly will comprise: Replacement ("restringing") of the existing overhead line circuit conductor with a new higher capacity conductor including installation of a new fibre communication connection; replacement of the existing earthwire with new earthwire between structures 1 and 8; replacement of steel members at 3 no. towers; Full tower painting required at 3 no. locations; replacement of wooden poles only at 7 no. locations; replacement of wooden poles and crossarm at 2 no. locations; replacement of crossarm only at 3 no. locations; replacement of existing danger notices at various locations, as required; replacement of hardware and fittings, such as insulators, insulator hardware, earthwire hardware and anti-climbing guards at various locations, as required; replacement of suspension clamps, vibration dampers & compression assemblies at all locations, as required; All associated temporary site development works to gain access to the existing structures & other temporary associated & ancillary development works required for the purpose of the uprate of the existing circuit. No additional structures are proposed along the existing circuit. Structure 203 will be relocated approx. 101m back towards structure 202 due to its existing position on top of a gravel mound & the potential for subsidence of gravel in the long term. No alteration to the nature, extent, alignment, character or voltage of existing electricity infrastructure is proposed. A Natura Impact Statement (NIS) has been submitted with this application.	Decision: Conditional Grant date: 23/06/2025
Ref: 21291 Applicant: Edenderry Power Limited Location: Ballykilleen, Edenderry, County Offaly	Edenderry Power Limited currently has planning permission to operate Edenderry Power Plant as a peat and biomass co-fired power plant under grant of planning permission (Offaly County Council Register Reference - PL2/15/129, An Bord Pleanála Register Reference - PL 19.245295). The proposed development will consist of the continued operation of Edenderry Power Plant from the beginning of 2024 to the end of 2030 exclusively using sustainable biomass fuel. The applicant proposes to	Decision: Conditional Grant date: 05/05/2022

Planning Reference, Applicant & Location	Development Description	Decision & Decision Date
	increase the volume of biomass consumed at the facility from a current maximum of 300,000 to 530,000 tonnes per annum. It is proposed to utilise the existing permitted electricity generation station and infrastructure, including fuel handling systems, utilities, processing systems and ancillary structures as part of the proposed development. There will be no change to existing infrastructure present on-site. Site access and egress will use the existing permitted site entrances to the R401 public road. There will be no change to the permitted boundary of the facility. Edenderry Power Plant is licenced by the Environmental Protection Agency under an Industrial Emissions (IE) Licence [Ref. P0482-04]. Activities at the facility and associated environmental aspects and emissions will continue to be regulated and controlled by the EPA. The planning application is accompanied by an Environmental Impact Assessment Report (EIAR). The planning application is also accompanied by a Natura Impact Statement (NIS).	
Ref: ACP Ref: 307136 Applicant: Lightsource Renewable Energy Ireland Limited Location: Lands at Harristown, Castlejordan and Clongall, Co, Meath.	110kV substation with associated electrical plant, control buildings, welfare facilities, security fencing, additional internal access traces, 110kV overhead line grid connection to existing transmission line on site, which will consist of a 10 year permission.	Decision: Conditional Grant date: 18/12/2020

In relation to application reference number **PA92.323980,** a Natura Impact Statement was prepared by Jacobs TOBIN to accompany the application which concluded that:

'It has been objectively concluded by Jacobs TOBIN following an examination, analysis and evaluation of the relevant information, including in particular the nature of the predicted impacts from the Proposed Project and with the implementation of the mitigation measures proposed, that the Proposed Project would not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in-combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.'

In relation to application reference number **25/60500**, a Natura Impact Statement was prepared by AtkinsRéalis Ireland Limited to accompany the application which concluded that:

'*The NIS has examined the potential impacts of the proposed development on the integrity of Rye Water Valley/Carton SAC, River Boyne and River Blackwater SAC and River Boyne and River Blackwater SPA alone and in combination with other plans and projects, considering each European site's structure, function and conservation objectives. Where potential likely effects were identified, mitigation measures were identified to mitigate effects. Therefore, and in conclusion, following a comprehensive evaluation of the potential direct, indirect and in-combination effects on the qualifying interests of Rye Water Valley/Carton SAC, River Boyne and River Blackwater SAC and River Boyne and River Blackwater SPA and the implementation of the prescribed mitigation measures, it has been concluded by the authors of this report that there will no effects on the integrity of European sites as a result of the proposed development, either alone, or in combination with other plans or projects*.'

In relation to application reference number **2360266**, a Natura Impact Statement was prepared by SLR Consulting Limited to accompany the application which concluded that:

'Based on the information set out in this report we submit that the competent authority has sufficient information to allow it to determine beyond reasonable scientific doubt that the application for the proposed works at the existing hard rock quarry and sand and gravel pit, and all existing associated processing and welfare facilities, individually or in combination with other plans or projects, will not have an adverse effect on the integrity or pose a risk of likely significant effects on the Natura 2000 sites of the River Boyne and River Blackwater SAC, the River Boyne and River Blackwater SPA , or any other Natura 2000 site.'

In relation to application reference number **201409**, an Appropriate Assessment Screening Report was prepared by SLR Consulting Limited to accompany the application which concluded that:

'*This screening report, based on the available information including project details, demonstrates that the proposed project is not likely to cause significant effects on Natura 2000 sites*.'

In relation to application reference number **309686**, a Natura Impact Statement was prepared by Malachy Walsh and Partners Limited to accompany the application which concluded that:

'In conclusion, provided the recommended mitigation measures are implemented in full, it is not expected that the construction and operation of the proposed Kilcumber Bridge 110kV substation will result in adverse effects on the integrity of the Natura 2000 site considered in this NIS, namely: River Barrow and River Nore SAC (002162).'

In relation to application reference number **22494**, a Natura Impact Statement was prepared by Malachy Walsh and Partners Limited to accompany the application which concluded that:

'In conclusion, provided the recommended mitigation measures are implemented in full, it is not expected that to construct the new access route and underground collector cable at the permitted Cushaling Wind Farm and associated development will result in adverse effects on the integrity of the Natura 2000 site considered in this NIS, namely: River Barrow and River Nore SAC (002162).'

In relation to application reference number **21598**, a Natura Impact Statement was prepared by Neo Environmental to accompany the application which concluded that:

'*Connectivity exists between the Application Site and the River Barrow and River Nore SAC, providing a pathway for potential impacts. The main qualifying features of these designated sites have been outlined and assessed in full in this report. No significant effects are predicted for the River Barrow and River Nore SAC. The Proposed Development will not affect the integrity of any Natura 2000 designated sites*.'

In relation to application reference number 2152, a Natura Impact Statement was prepared by MKO to accompany the application which concluded that:

'Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction and operation of the proposed development does not adversely affect the integrity of European sites.

Therefore, it can be objectively concluded that the Proposed Development, individually or in combination with other plans and projects, will not adversely affect the integrity of any European Site.'

In relation to application reference number **2560087**, a Natura Impact Statement was prepared by WSP to accompany the application which concluded that:

'Specific mitigation has been proposed in response to the potential for significant effects to occur. With the incorporation of site-specific mitigation measures, the Proposed Development alone will have no adverse effect on the site integrity, in respect of the SAC's Conservation Objectives. This includes any potential interaction with other plans or projects leading to in-combination effects.

Therefore, it can be concluded beyond reasonable scientific doubt that there will no adverse effects on the integrity of European sites as a result of the Proposed Development, either alone, or in combination with other plans or projects.'

In relation to application reference number **21291**, a Natura Impact Statement was prepared by Fehily Timony to accompany the application which concluded that:

'Based on the assessment of the proposed continued operation of the Edenderry Power Plant…following the implementation of mitigation measures, it can be concluded that no adverse effects on the site's integrity will arise, in view of the site's conservation objectives.'

In relation to application reference number **ACP Ref: 307136**, a Natura Impact Statement was prepared by Neo Environmental to accompany the application which concluded that:

'The Application Site does not occur within or adjacent to any Natura 2000 sites with two out of the four Natura 2000 sites with a 15km ZOI identified as having hydrological connectivity with the Proposed Development; the River Boyne and River Blackwater SAC and SPA. Although, these designated sites were identified as having hydrological connectivity, it is concluded that there will be no significant affects to the integrity of these Natura 2000 sites.'

As part of the assessment of the impact of the proposed development, account has also been taken of cumulative projects, i.e. developments that are currently permitted or under construction within the surrounding area, including a future related development at Cushaling Peaker Plant at Bord na Móna's Edenderry site. The larger scale developments as listed above are, have been and will be subject to separate planning processes and are not foreseen to have significant in-combination effects with the proposed development, as the projects will be designed to ensure, and will not be consented unless, there are no significant likely significant effects on any European Sites.

The proposed development will not result in any residual adverse effects on any European Sites, their integrity or their conservation objectives when considered on its own. There is therefore no potential for the proposed development to contribute to any cumulative adverse effects on any European Site when

considered in-combination with other plans and projects. As specific mitigation measures will be implemented to prevent impacts on designated sites and no residual effects are foreseen with the implementation of such measures, it is considered that in-combination effects with other existing and proposed developments in proximity to the proposed development would be unlikely, neutral, not significant and localised.

It is concluded that there will be no adverse effect on the integrity of any European Site as a result of the proposed development, alone or in-combination with other plans or projects.

9 Adverse Effects on the conservation objectives of Natura 2000 sites likely to occur from the project (post mitigation)

A robust and effective series of mitigation measures that are listed within Table 30 above are proposed. These include the early implementation of ecological supervision on site prior to the initial mobilisation and enabling works. This is an important element to the project, particularly in relation to the implementation of dust mitigation strategies and prevention of sediment runoff into watercourses.

With the successful implementation of the mitigation measures outlined, no adverse effect on the integrity of European Sites in light of their conservation objectives are predicted as a result of the construction or operation of the proposed development. Residual impacts of the proposed project will be localised to the immediate vicinity of the proposed works and would not impact on any Natura 2000 sites.

This conclusion has been reached by reference to the conservation objectives of the European sites. With implementation of the mitigation measures outlined above, no significant or adverse effect is likely for those conservation objectives.

10 Conclusion

This report presents an Appropriate Assessment Screening and Natura Impact Statement for the proposed development. It outlines the information required for the competent authority to assess for appropriate assessment and to determine whether or not the proposed development, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European sites.

In a conservative application of the precautionary principle, it has been concluded that significant effects on Mount Hevey Bog SAC, River Barrow and River Nore SAC or the River Boyne and River Blackwater SAC & SPA could not be ruled out as a result of the proposed development in the absence of mitigation measures. These sites were "screened in" for Stage 2 Appropriate Assessment.

The potential impacts requiring mitigation measures identified in the Stage 1 Appropriate Assessment related to habitat degradation as a result of hydrological impacts, habitat degradation as a result of air quality impacts, habitat degradation as a result of the introduction and/or spread of invasive species, and the potential for disturbance and displacement impacts to Otter.

It has been determined that subject to the appropriate mitigation as outlined in this NIS being fully implemented and adhered to, which have been informed by associated specialist reports, it is considered that there is no potential for adverse effects on the integrity of the qualifying interests, special conservation interests and conservation objectives of the subject European Sites alone in combination with other plans and projects.

This report presents an Appropriate Assessment Screening and Natura Impact Statement for the proposed development. It outlines the information required for the competent authority to screen for appropriate assessment and to determine whether or not the proposed development, either alone or in combination with other plans or projects, in view of best scientific knowledge and in view of the sites' conservation objectives, will adversely affect the integrity of the European site.

No significant adverse effects are likely on Natura 2000 sites, their qualifying interests or conservation objectives. The proposed project will not will adversely affect the integrity of European sites.

11 Data used for the AA Screening/NIS Assessment

NPWS site synopses and Conservation objectives of sites within the zone of influence were examined. The most recent SAC and SPA boundary shapefiles were downloaded and overlaid on Bing maps and satellite imagery. The full suite of data and information used to inform the findings of this report is presented within Section 2.

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13 Appendix I – Invasive Species Management Plan

ALTEMAR
Marine & Environmental Consultancy

Invasive Species Management Plan for the proposed GNI143 Ballykilleen Pipeline

12th January 2026

Prepared by: Bryan Deegan of Altemar Ltd.

On behalf of: Gas Networks Ireland

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Document Control Sheet			
Client	Gas Networks Ireland		
Project	Invasive Species Management Plan for the proposed GNI143 Ballykilleen Pipeline.		
Report	Invasive Species Management Plan		
Date	12th January 2026		
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Draft	Bryan Deegan	Frank Spellman	7th January 2026
Final	Bryan Deegan	Frank Spellman	12th January 2026

13.1 Introduction

Planning permission is being sought by Gas Networks Ireland for a Proposed Development site and associated temporary working areas covers an area of approximately 243.4 hectares (ha) (the "Proposed Development Site") and encompasses all lands required for the construction and operation of the pipeline, including the Kilwarden Offtake Installation, the Ballykilleen AGI, temporary construction compounds, line pipe storage areas, and all associated ancillary works.

The Proposed Development Site comprises the c. 23.65 km linear route of the underground GNI 143 Ballykilleen Pipeline and its temporary working areas.

The proposed site outline is demonstrated in Figure 1. A site visit was carried out by Emma Peters and Frank Spellman on the 21st August 2025 and the presence and extent of invasive species on site was recorded. The location of Japanese knotweed is seen in Figure 2. Although Japanese knotweed was not recorded within the redline boundary, there is a risk of machinery movements indirectly/not related to the proposed works coming within proximity of this species. Areas requiring isolation and monitoring are demonstrated in Figure 3.

13.2 Invasive Species Assessment

The following management plan was compiled by Bryan Deegan MCIEEM of Altemar Ltd. Bryan is an ecologist with over 30 years survey experience and former project manager for the EU LIFE project CAISIE on invasive species. This was a €1.5 million EU project that carried out surveys and developed control tools for aquatic and riparian invasive species in Ireland.

The control of invasive species in Ireland comes under the Wildlife (Amendment) Act 2000 where it states that '*Any person who— [...] plants or otherwise causes to grow in a wild state in any place in the State any species of flora, or the flowers, roots, seeds or spores of flora,['refers only to exotic species thereof'][...] otherwise than under and in accordance with a licence granted in that behalf by the Minister shall be guilty of an offence*.'

Under the European legislation, the Birds and Natural Habitats Regulations 2011 (SI 477 of 2011), Section 49(2) prohibit the introduction and dispersal of species listed in the Third Schedule whereby "*any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow [….] shall be guilty of an offence."* Relevant species within this legislation include but, are not limited to (See Table 1):

Giant hogweed	*Heracleum mantegazzianum*	Throughout the State
Giant knotweed	*Fallopia sachalinensis*	Throughout the State
Giant-rhubarb	*Gunnera tinctoria*	Throughout the State
Himalayan balsam	*Impatiens glandulifera*	Throughout the State
Himalayan knotweed	*Persicaria wallichii*	Throughout the State
Japanese knotweed	*Reynoutria japonica*	Throughout the State
Rhododendron	*Rhododendron ponticum*	Throughout the State
Hottentot-fig	*Carpobrotus edulis*	Throughout the State
Sea-buckthorn	*Hippophae rhamnoides*	Throughout the State

This report applies the most relevant and current guidance in relation to non-native invasive plant species in construction projects. The following literature was referred to in preparation of this report.

- S.I. No. 477/2011 - European Communities (Birds and Natural Habitats) Regulations 2011. http://www.irishstatutebook.ie/eli/2011/si/477/made/en/pdf
- NRA Guidelines on The Management of Noxious Weeds and Non-Native
- Invasive Plant Species on National Roads

13.3 Site Survey

Walkover assessments of the development site were carried out by Emma Peters and Frank Spellman on the 21st August 2025. All areas were examined for Invasive species during the optimal survey season. Two stands of Japanese knotweed (*Reynoutria japonica*) were present to the northeast of the power station,

approximately 100m southeast of the proposed pipeline route and 62m southeast of the proposed works area, within grassland habitat, with the particular area bounding access roads showing evidence of recent use. This species is a third Schedule listed species under Regulations 49 & 50 in the European Communities (Birds and Natural Habitats) Regulations 2011. No other non-native invasive species listed in the third schedule of (SI 477 of 2011) were noted on site (Plants Table 1 & and Animals Table 2). This invasive species management plan deals specifically with those species covered under SI 477 of 2011 i.e. Japanese knotweed.

The location of species covered under SI 477 of 2011 is seen in Figure 2. As can be seen from Figure 2 the location of the Japanese knotweed stand is located within grassland habitat bounding an access road to the northeast of the power plant and southeast of the proposed pipeline route. It must be assumed that root rhizomes from specimens in this area extend into the access road, soil and any other substrates within 7 metres of the stands.

As part of surveys associated with the proposed project, lands at Bord na Móna's Edenderry Power Station comprising the southernmost portion of the proposed project were included. During site assessments Japanese knotweed was noted within the vicinity of the proposed pipeline route, approximately 100m southeast of the proposed route point (62m from proposed works area), immediately adjacent to service roads to the northeast of the power plant within Edenderry Renewable Energy Complex. An Invasive Species Management Plan has been prepared to outline the extent of the infestation and the measures that will be in place to mitigate the potential impact and prevent spread of the invasive species during works in line with National and international legislation.

Given the historical and current nature of the site, and recent earth, machinery and materials movements within the site, there are a number of potential internal and external sources of the specimens on site. There is therefore a risk of Japanese knotweed spreading elsewhere in the vicinity of the subject area prior to initiation of works either from root rhizomes or through natural or unnatural (e.g. maintenance, vehicular movements, vegetation control etc.) spread from within the site elsewhere within and areas surrounding the Bord na Móna site. The current extent of Japanese knotweed is located in an area that has received previous disturbance, and is bounding a road which contained evidence of recent vehicular movements.

It should be noted that no other Japanese knotweed specimens were recorded within, along or adjacent to the proposed redline boundary, and no other specimens were present within the Bord na Móna lands surveyed. The current specimens appear to be established but isolated at the time of survey. However, saplings in other areas may have been obscured by other vegetation and it is likely that other specimens/stands will establish adjacent to and/or elsewhere from the current stand.

Table 1. Plant species listed in the Third Schedule of SI 477 of 2011

Common Name	**Species**	**Location**	**Present on site**
American skunk-cabbage	*Lysichiton americanus*	Throughout the State	Not observed
A red alga	*Grateloupia doryphora*	Throughout the State	Not observed
Brazilian giant-rhubarb	*Gunnera manicata*	Throughout the State	Not observed
Broad-leaved rush	*Juncus planifolius*	Throughout the State	Not observed
Cape pondweed	Aponogeton distachyos	Throughout the State	Not observed
Cord-grasses Spartina	*(all species and hybrids)*	Throughout the State	Not observed
Curly waterweed	*Lagarosiphon major*	Throughout the State	Not observed
Dwarf eel-grass	*Zostera japonica*	Throughout the State	Not observed
Fanwort	*Cabomba caroliniana*	Throughout the State	Not observed
Floating pennywort	*Hydrocotyle ranunculoides*	Throughout the State	Not observed
Fringed water-lily	*Nymphoides peltata*	Throughout the State	Not observed
Giant hogweed	*Heracleum mantegazzianum*	Throughout the State	Not observed
Giant knotweed	*Fallopia sachalinensis*	Throughout the State	Not observed

Common Name	Species	Location	Present on site
Giant-rhubarb	*Gunnera tinctoria*	Throughout the State	Not observed
Giant salvinia	*Salvinia molesta*	Throughout the State	Not observed
Himalayan balsam	*Impatiens glandulifera*	Throughout the State	Not observed
Himalayan knotweed	*Persicaria wallichii*	Throughout the State	Not observed
Hottentot-fig	*Carpobrotus edulis*	Throughout the State	Not observed
Japanese knotweed	***Fallopia japonica***	**Throughout the State**	**Observed**
Large-flowered waterweed	*Egeria densa*	Throughout the State	Not observed
Mile-a-minute weed	*Persicaria perfoliata*	Throughout the State	Not observed
New Zealand pigmyweed	*Crassula helmsii*	Throughout the State	Not observed
Parrot's feather	*Myriophyllum aquaticum*	Throughout the State	Not observed
Rhododendron	*Rhododendron ponticum*	Throughout the State	Not observed
Salmonberry	*Rubus spectabilis*	Throughout the State	Not observed
Sea-buckthorn	*Hippophae rhamnoides*	Throughout the State	Not observed
Spanish bluebell	*Hyacinthoides hispanica*	Throughout the State	Not observed
Three-cornered leek	*Allium triquetrum*	Throughout the State	Not observed
Wakame	*Undaria pinnatifida*	Throughout the State	Not observed
Water chestnut	*Trapa natans*	Throughout the State	Not observed
Water fern	*Azolla filiculoides*	Throughout the State	Not observed
Water lettuce	*Pistia stratiotes*	Throughout the State	Not observed
Water-primrose	*Ludwigia (all* species)	Throughout the State	Not observed
Waterweeds	*Elodea* (all species)	Throughout the State	Not observed
Wireweed	*Sargassum muticum*	Throughout the State	Not observed

Table 2. Animal species listed in the Third Schedule of SI 477 of 2011

Common Name	Species	Location	Present on site
A colonial seasquirt	*Didemnum spp.*	Throughout the State	Not observed
A colonial seasquirt	Perophora japonica	Throughout the State	Not observed
All freshwater crayfish except *Austropotamobius pallipes*	All Freshwater crayfish except *Austropotamobius pallipes*	Throughout the State	Not observed
American bullfrog	*Rana catesbeiana*	Throughout the State	Not observed
American mink	*Neovison vison*	Throughout the State	Not observed
American oyster drill	*Urosalpinx cinerea*	Throughout the State	Not observed
Asian oyster drill	*Ceratostoma inornatum*	Throughout the State	Not observed
Asian rapa whelk	*Rapana venosa*	Throughout the State	Not observed
Asian river clam	*Corbicula fluminea*	Throughout the State	Not observed
Bay barnacle	*Balanus improvisus*	Throughout the State	Not observed
Black rat	*Rattus rattus*	Offshore islands only	N/A
Brown hare	*Lepus europaeus*	Throughout the State	Not observed
Brown rat	*Rattus norvegicus*	Offshore islands only	N/A
Canada goose	*Branta canadensis*	Throughout the State	Not observed
Carp	*Cyprinus carpio*	Throughout the State	Not observed
Chinese mitten crab	*Eriocheir sinensis*	Throughout the State	Not observed
Chinese water deer	*Hydropotes inermis*	Throughout the State	Not observed
Chub	*Leuciscus cephalus*	Throughout the State	Not observed
Common toad	*Bufo bufo*	Throughout the State	Not observed
Coypu	*Myocastor coypus*	Throughout the State	Not observed
Dace	*Leuciscus leuciscus*	Throughout the State	Not observed
Freshwater shrimp	*Dikerogammarus villosus*	Throughout the State	Not observed
Fox	*Vulpes vulpes*	Offshore islands only	N/A
Grey squirrel	*Sciurus carolinensis*	Throughout the State	Not observed
Greylag goose	*Anser anser*	Throughout the State	Not observed
Harlequin Ladybird	*Harmonia axyridis*	Throughout the State	Not observed
Hedgehog	*Erinaceus europaeus*	Offshore islands only	N/A
Irish stoat	*Mustela erminea hibernicus*	Offshore islands only	N/A
Japanese skeleton shrimp	*Caprella mutica*	Throughout the State	Not observed
Muntjac deer	*Muntiacus reevesi*	Throughout the State	Not observed
Muskrat	*Ondatra zibethicus*	Throughout the State	Not observed
Quagga Mussel	*Dreissena rostriformis*	Throughout the State	Not observed
Roach	*Rutilus rutilus*	Throughout the State	Not observed
Roe deer	*Capreolus capreolus*	Throughout the State	Not observed
Ruddy duck	*Oxyura jamaicensis*	Throughout the State	Not observed
Siberian chipmunk	*Tamias sibiricus*	Throughout the State	Not observed
Slipper limpet	*Crepidula fornicata*	Throughout the State	Not observed
Stalked sea squirt	*Styela clava*	Throughout the State	Not observed
Tawny owl	*Strix aluco*	Throughout the State	Not observed
Wild boar	*Sus scrofa*	Throughout the State	Not observed
Zebra mussel	*Dreissena polymorpha*	Throughout the State	Not observed

Plate 1. Japanese knotweed infested area within Bord na Móna site (facing south).

Plate 2. Close-up of Japanese knotweed specimens.

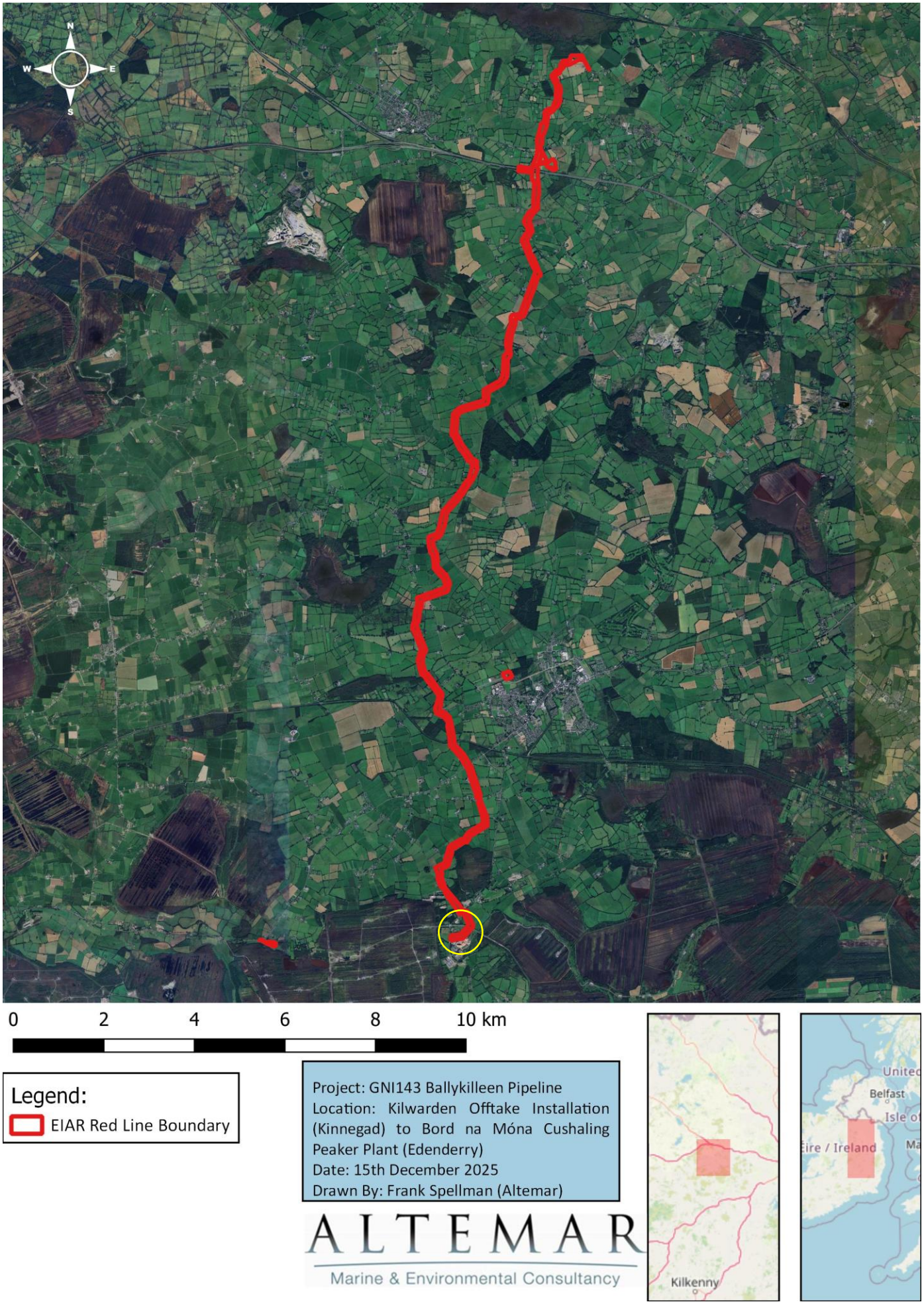


Figure 1. EIAR assessment area (general location of Japanese knotweed in yellow).

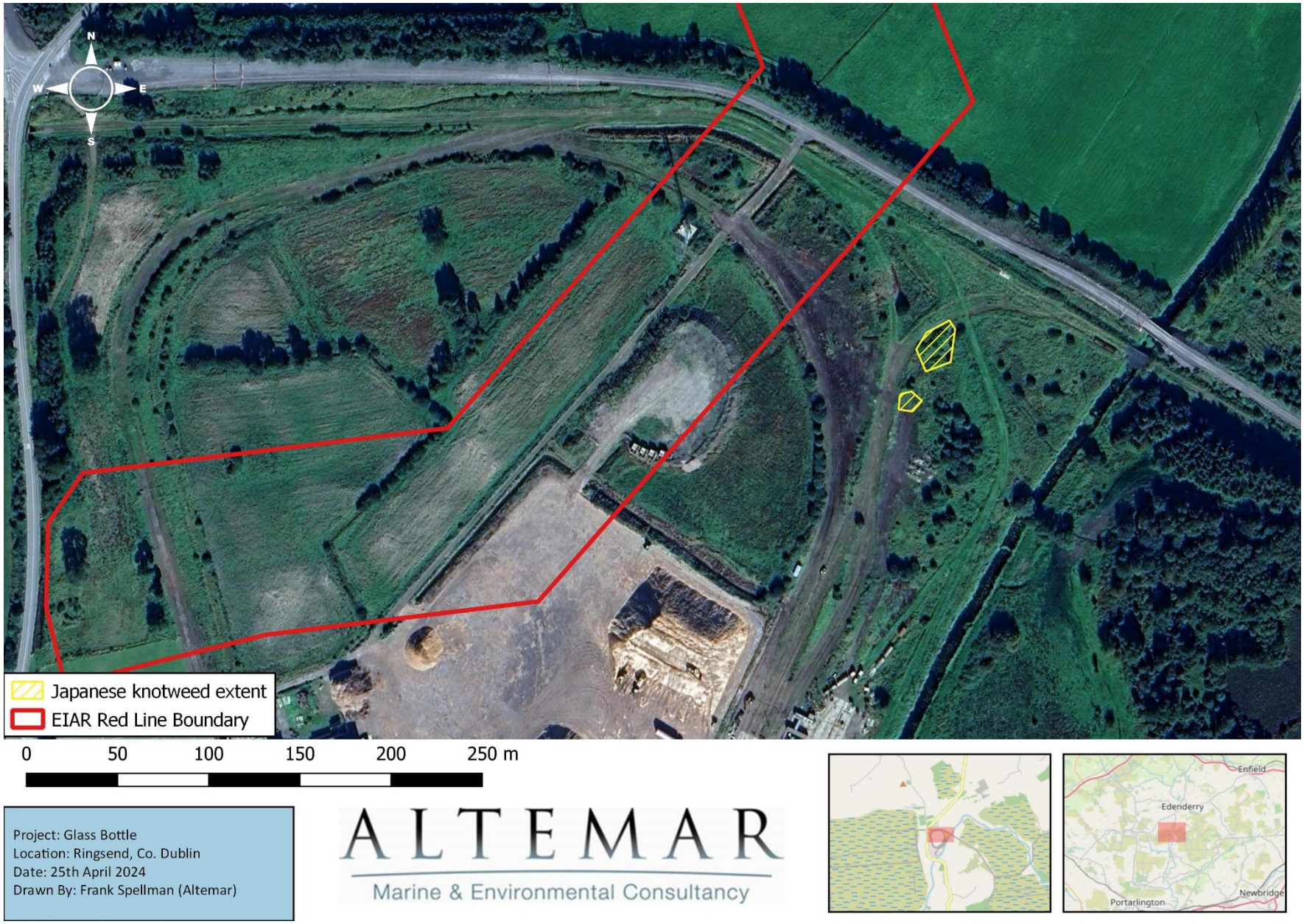


Figure 2. Extent of Japanese knotweed monitoring.

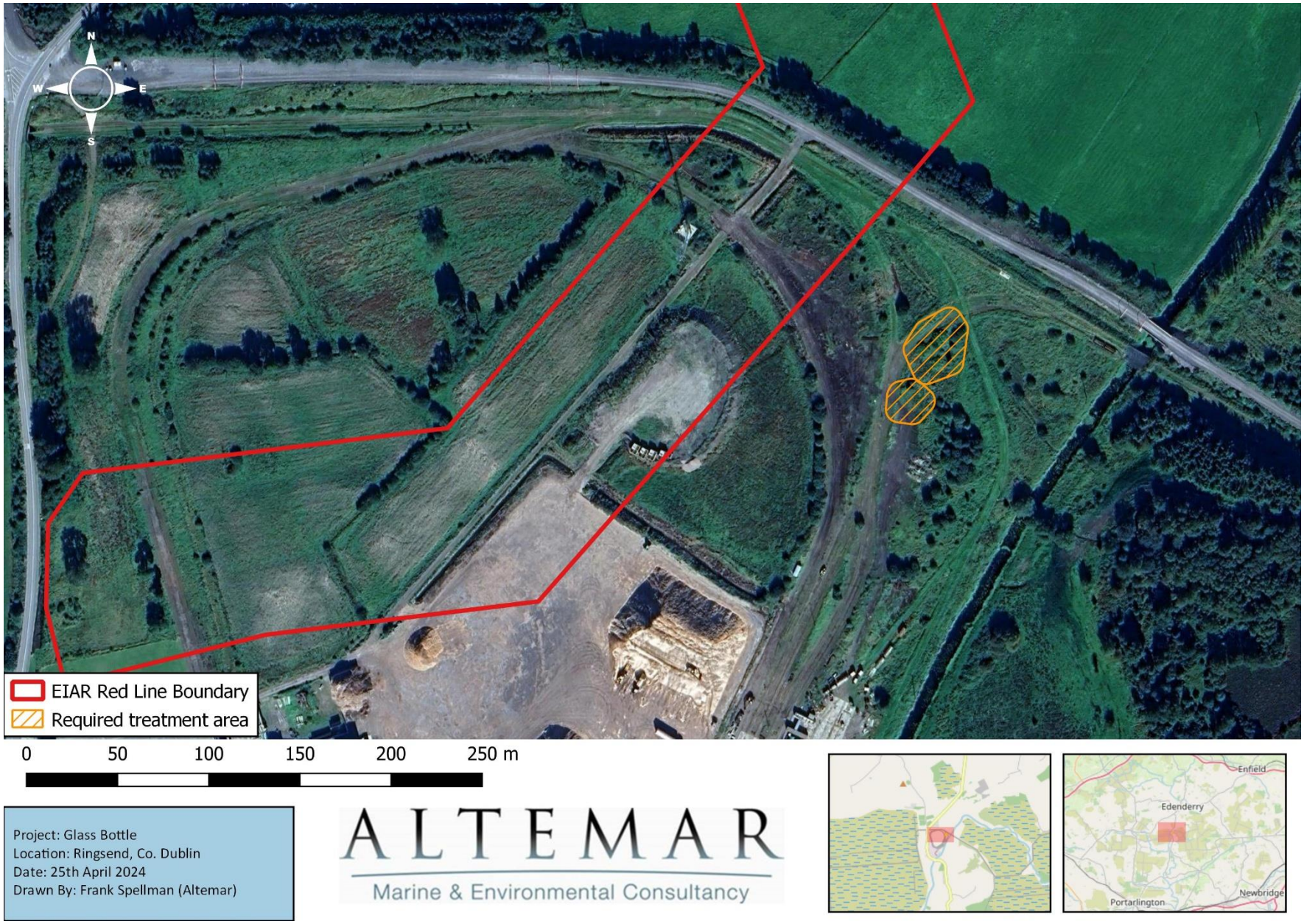


Figure 3. Areas requiring exclusion and post-treatment monitoring.

13.3.1 Proposed Management of Japanese knotweed

The key objective of the Invasive Species Management Plan is to develop a safe and biosecure approach to the long-term control of invasive species in the site and to remove the risk of spread and future. The successful implementation of the Plan will prevent the further spread of Japanese knotweed as a result of the proposed project. The Management Plan describes procedures that will ensure the effective control of the specific invasive species.

It is recommended that all control methods follow the TII 4 phase approach to control of Invasive species as outlined in TII (2020)[27]:

Phase 1 − Site assessment − Mapping − Description of site − Habitat mapping − Presence of IAPS − Sensitive receptors − Proximity to designated sites − Topographical survey

Phase 2 − IAPS Management Plan − Costing − Site management objectives − Treatment required − Risk of re-infestation − Costings of appropriate control strategies − Acquisition of land/Compulsory Purchase Order (CPO) if necessary

Phase 3 − Implement control methods − Treatment reporting − IAPS control (chemical, physical or a combination of both) − Biosecurity measures − Documentation of method of treatment

Phase 4 − Re-growth monitoring − Re-growth reporting − Survey re-growth − Report on re-growth − Make provisions for site protection to prevent future IAPS infestations

One invasive species (SI 49 of 2011) was noted within the proposed development area (Figure 2).

13.3.1.1 Japanese knotweed

The Transport Infrastructure Ireland "The Management of Invasive Alien Plant Species on National Roads – Technical Guidance"[28] will be followed. As outlined in this guidance in relation to Japanese knotweed:

"*As highlighted in GE-ENV-01104, it is vital to accurately map the detailed distribution of all IAPS. This is particularly important when managing Japanese knotweed as areas of infestation can extend 7m horizontally (and up to 2m in depth) from the nearest above-ground plant. When managing areas infested with Japanese knotweed, the management phases outlined in Figure 5 must be followed.*

6.1.3.1 Chemical control

While a number of chemicals are effective in controlling Japanese knotweed, many of these are undesirable due to their non-selective nature, persistence or toxicity to aquatic ecosystems. Care is required in the selection of the appropriate PPP and method of application. In making this selection, regard should be had to the abundance of Japanese knotweed, the location of the stand, the proximity and nature of sensitive receptors, and the season. Only certain PPPs are approved for use in or near water. Not all PPPs are selective in nature and the persistency of PPPs varies. The method of application should be as targeted as possible, having regard to all other factors. PPPs must be used in compliance with the product label and in accordance with the legislation regulating their use and the sustainable use of pesticides. With all forms of chemical control in relation to Japanese knotweed, follow-up treatment will be required in subsequent years.

The current most widely recommended active ingredient for Japanese knotweed control is glyphosate, which breaks down in the soil relatively quickly. Glyphosate is a broad spectrum herbicide and, as such, is potentially damaging to non-target plants. Great care is, therefore, necessary when applying this herbicide and it may be appropriate to seek advice from a Registered Pesticide Advisor. A recent study has demonstrated that effective control of Japanese knotweed may be achieved by biannual (summer and autumn) foliar glyphosate applications

[27] TII (2020) The Management of Invasive Alien Plant Species on National Roads – Standard. GE-ENV-01104 https://www.tiipublications.ie/library/GE-ENV-01104-01.pdf

[28] https://www.tiipublications.ie/library/GE-ENV-01105-01.pdf

or by annual application of glyphosate in autumn (after the flowering period but prior to senescence) using stem injection (at high concentrations) or foliar spray (Jones, et al., 2018).

Selective herbicides containing the active ingredients aminopyralid and fluroxypyr are increasingly being used to chemically control Japanese knotweed. However, these products are toxic to aquatic life and must not be used in or near water. They also cannot be used on land that will be grazed by livestock. Aminopyralid and fluroxypyr have a low to moderate persistence in soil (this can be up to 35 days in the case of aminopyralid). Products containing these active ingredients should not be used on or adjacent to soil that may be used as garden top-soil, for potting or used on grass that may be cut and used as mulch or for compost for horticultural or garden crops.

Products containing the active ingredients aminopyralid and triclopyr are also increasingly being trialled in Japanese knotweed control. Products containing these active ingredients are selective, but they are highly toxic to aquatic life and deemed slightly toxic to birds, on an acute basis. These herbicides are more persistent, with an average persistency of ≤ six weeks. Products containing these active ingredients should not be used on or adjacent to soil that may be used as garden top-soil, for potting or used on grass that may be cut and used as mulch or for compost for horticultural or garden crops.

6.1.3.2 Physical control

Where feasible, preference should be given to treating Japanese knotweed in its original location to limit the risk of further spread of the plant. A number of physical control methods have been developed to deal with Japanese knotweed, which are all based on the mechanical excavation of the rhizome material and its subsequent containment either at depth, within an impermeable membrane, or its disposal off-site. Sections 2.3.2 and 2.3.3 of GE-ENV-01104 The Management of Invasive Alien Planet Species on National Roads – Standard outline the appropriate physical methods of excavation, disposal and biosecurity measures that should be followed when physical control of Japanese knotweed is conducted."

On site Management

Japanese knotweed was not recorded within or immediately adjacent to the proposed works outline. Therefore, there is no requirement for treatment or removal of the current extent of Japanese knotweed as part of the proposed development. However, Japanese knotweed is a highly invasive plant species and can unwittingly be transferred easily into/across a development site. The management of this species in relation to the proposed development will focus on isolation to avoid inadvertent contact and transfer of live plant material.

The first stage of management of the species will be to mark out all stands/specimens with a 7m buffer of tape or fencing prior to works commencing to ensure that no machinery or personnel come within close proximity to the plants. Failure to do this could result in the transfer of knotweed particularly in the tracks/tyres of machinery/vehicles. No vehicles associated with the proposed development will be permitted to use the access road adjacent to the current Japanese knotweed stands under any circumstances. All isolation and marking/sign-posting measures in this area must be approved and carried out in consultation with a suitably qualified ecologist or invasive species specialist. Prior to works commencing an updated survey will be carried out and 7m buffer adjusted respective of any changes in distribution. If any Japanese knotweed specimens are identified within or immediately adjacent to the proposed development boundary, an updated Invasive Species Management Plan will be prepared.

A Guide to Landscape Treatments for National Road Schemes in Ireland (TII)). As outlined in TII "The Management of Invasive Alien Plant Species on National Roads – Standard"[29] "*Areas infested with IAPS must be clearly identified and the specific sites of infestation isolated with fencing or warning tape. 'Biosecure zone' signs must be erected at each contaminated site to alert workers that IAPS are present and to avoid entering or interfering with these sites. Likewise, any stockpiles of soil that are or could be contaminated with IAPS must be clearly marked. Designated and clearly marked cleaning and/or disinfection stations should be strategically*

[29] https://www.tiipublications.ie/library/GE-ENV-01104-01.pdf

placed within the work site for use by staff, vehicles and machinery. Where it is necessary to work in contaminated areas, every effort should be made not to use vehicles with caterpillar tracks.

All vehicles and equipment that have been used in IAPS control operations must be thoroughly pressure-washed in a designated wash-down area each time they leave the works site and once work in that area has been completed. This also includes footwear, personal protective equipment (PPE), tools, and other light equipment. It is important to remove soil that may contain seeds or plant fragments, which otherwise could be transported along the road corridor as works are being undertaken. Vehicles leaving contaminated area(s) should either be confined to marked haulage routes protected by root barrier membranes, or be pressure-washed before leaving the area. Only vehicles that are deemed to be biosecure (i.e. sealed so that no soil can escape) shall be used to transport contaminated soil and all must be thoroughly pressure-washed in the designated wash-down area before exiting the infested area."

No physical or chemical treatment of the current Japanese knotweed extent identified is required as part of the proposed development. However, the final measures are subject to the findings of a pre-construction invasive species survey, and any subsequent consultation (if required) between the project ecologist, invasive species specialist, Gas Networks Ireland and Bord na Móna. All measures will be carried out in line with legislative requirements.

General Procedures for Construction

Biosecurity of both plant and animal species will be employed pre and post works and will form part of the Appointed Contractor's CEMP. The biosecurity protocols will include:

- Implement Check–Clean–Dry procedures for all plant, equipment and PPE before entering and leaving site.
- Restrict machinery movement and use designated access routes to protect the riparian zones.
- Identify and demarcate any invasive species areas to prevent disturbance.
- Inspect, segregate and appropriately manage excavated soils to avoid spread of invasive plant material.
- Follow IFI field work protocol for field survey work (2010) aquatic biosecurity protocols for all works near watercourses
- Deliver toolbox talks to all personnel on invasive species awareness and biosecurity requirements.
- Maintain ongoing environmental supervision to ensure compliance and address issues promptly.

Specific Procedures for Construction

- All existing areas containing Japanese knotweed will be marked with tape/fenced to create a 7m exclusion zone.
- No machinery/personnel will be permitted to enter the Japanese knotweed exclusion zone without prior consultation and supervision by a qualified ecologist or invasive species specialist.
- No machinery or personnel involved with the subject development will be permitted to utilise the access road adjacent to the current extent of Japanese knotweed.
- A pre-construction assessment for invasive species will be carried out prior to construction and an updated Invasive Species Management Plan provided.

In addition to these measures, watching brief will be maintained throughout all site preparation and construction activities to ensure that any invasive species encountered during the works are identified and correctly managed. If any suspected invasive species is observed the Ecological Clerk of Works (ECoW) will be notified immediately so that they can attend the location, confirm identification, and implement appropriate containment measures. Until the ECoW has assessed the finding and provided direction, no soil, vegetation, or equipment within the affected area will be moved or disturbed. This approach ensures that any new or previously unrecorded invasive species are addressed and that robust biosecurity controls are maintained throughout the construction phase to prevent accidental spread.

13.3.2 Conclusion

An area of mature Japanese knotweed was identified within grassland approximately 100 m southeast of the proposed Ballykilleen pipeline route (62m southeast of development boundary) and northeast of the Bord na Móna Edenderry power plant. Although the area of infestation is not incorporated with the proposed pipeline works, its proximity to an access road and general presence poses a high risk of spread of this species via movement of machinery and personnel within the vicinity of the stands, as well as natural processes. There is the potential that this species spreads to other areas within the Bord na Móna site, including the area proposed for the Ballykilleen pipeline route and associated works area. It is proposed to initially mark out the areas containing live specimens and prevent access within 7m of these areas (including the access road). No machinery or personnel associated with the proposed works will be permitted to utilise the access road adjacent to Japanese knotweed stands. Any deviation of these measures will only be undertaken following consultation and under supervision be a qualified ecologist/ECoW/invasive species specialist with full biosecurity measures in place. If during pre-construction surveys it is determined that Japanese knotweed specimens are identified within the proposed works area, an updated Invasive Species Management Plan will be commissioned to determine the necessary course of action in line with TII guidelines. All measures will be carried out in line with legislative requirements.

14 Appendix II – Breeding Bird Report

ALTEMAR
Marine & Environmental Consultancy

Breeding Bird Assessment for the Proposed GNI 143 Ballykilleen Pipeline

30th April 2026

Prepared by: Frank Spellman of Altemar Ltd.
On behalf of: Gas Networks Ireland

Document Control Sheet			
Client	Gas Networks Ireland		
Project	Breeding Bird Assessment for the proposed GNI 143 Ballykilleen Pipeline		
Report	Breeding Bird Assessment		
Date	30th April 2026		
Version	Author	Reviewed	Date
Draft	Frank Spellman	Bryan Deegan	17th April 2026
Final	Frank Spellman	Bryan Deegan	30th April 2026

15 Contents

Summary

Structure/features:	No existing structures are present within the Proposed Development. The proposed development area consists mainly of agricultural grassland, hedgerows, treelines, standalone trees, ditches, watercourses, the Grand Canal, and road crossings.
Location:	Kilwarden Offtake Installation (Kilwarden, Co, Meath) to Bord na Móna Cushaling Peaker Plant (Kilcumber, Co. Offaly).
Bird species breeding (survey area):	Goldcrest, house martin, mallard, starling, swallow, blackbird, blackcap, blue tit, buzzard, chaffinch, chiffchaff, dunnock, goldfinch, great tit, jay, long-tailed tit, robin, siskin, woodpigeon, wren, song thrush, yellowhammer.
Proposed work:	Gas pipeline installation and associated above and below-ground works.
Surveys by:	Frank Spellman & Emma Peters
Survey dates:	9th – 12th June 2025.

16 Receiving environment

Description of the Proposed Project

The Proposed Development site and associated temporary working areas covers an area of approximately 243.4 hectares (ha) (the “Proposed Development Site”) and encompasses all lands required for the construction and operation of the pipeline, including the Kilwarden Offtake Installation, the Ballykilleen AGI, temporary construction compounds, line-pipe storage areas, and all associated ancillary works.

The Proposed Development Site comprises the c. 23.65 km linear route of the underground GNI 143 Ballykilleen Pipeline and its temporary working areas.

The Proposed Development site outline and location are demonstrated in figures 1 & 2.

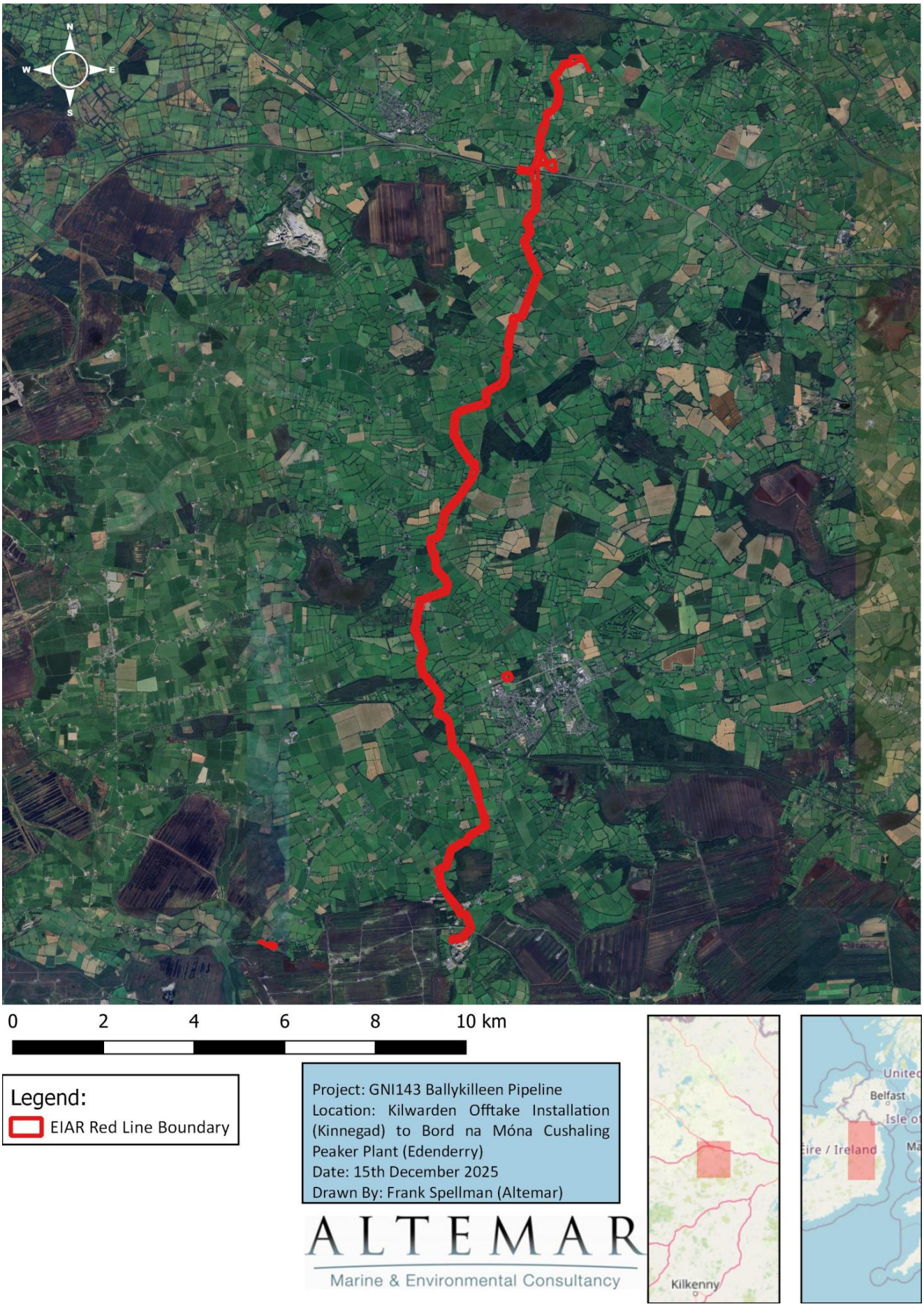


Figure 1. Proposed Development site.

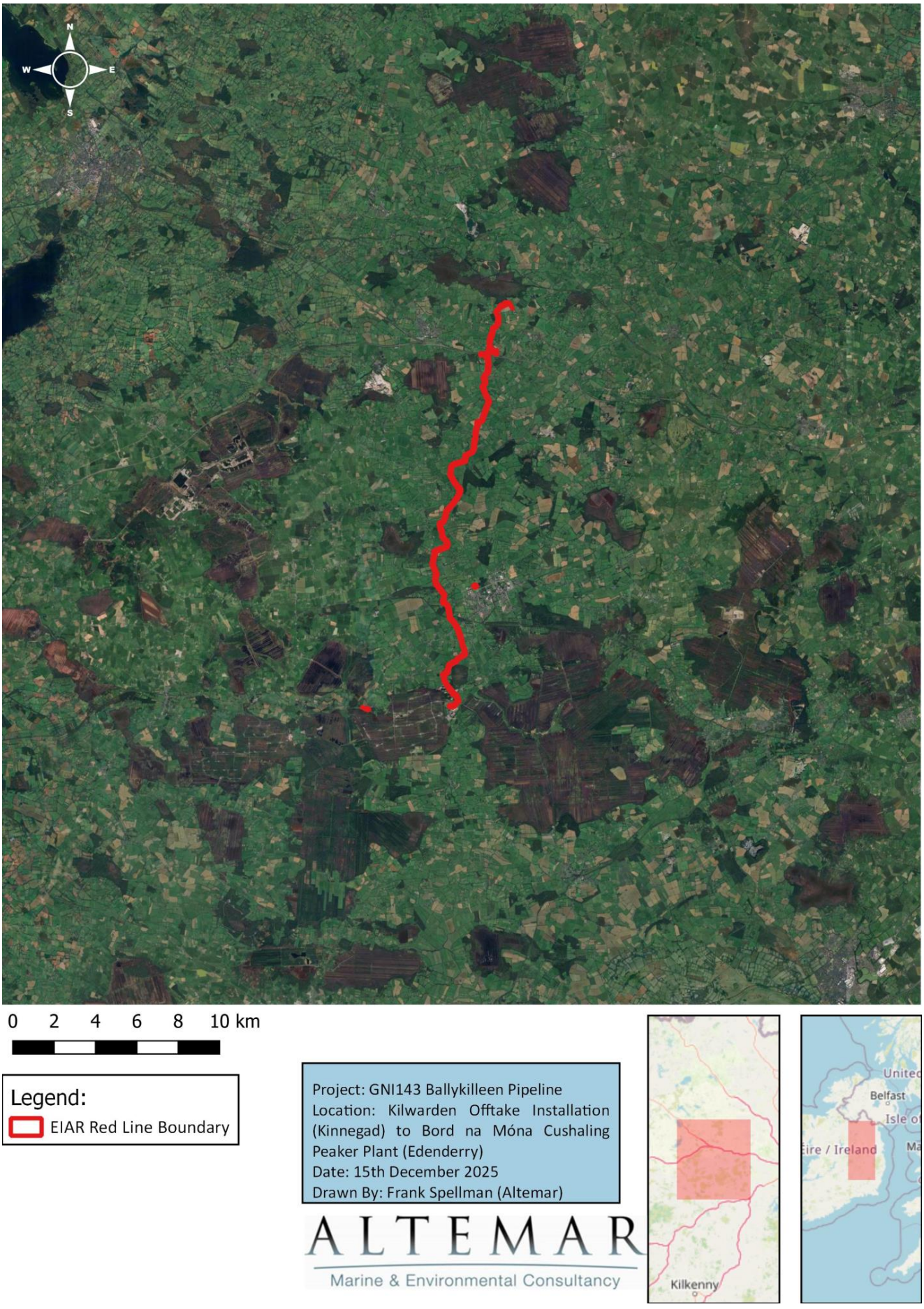


Figure 2. Proposed Development location.

17 Competency of assessor

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments.

This report and associated surveys were carried out by Frank Spellman (MSc (Ind) Zoology, BSc Zoology). Frank has extensive experience in carrying out a wide range of ecological surveys as both a sub-contractor and employee for environmental consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, terrestrial non-avian mammal surveys, breeding/wintering bird surveys, freshwater ecology surveys as well as flora/invasive plant surveys. Frank has been lead surveyor on numerous development projects within Ireland carrying out full avian/non-avian mammal, wintering bird, breeding bird, Fossitt and invasive species assessments.

This report and associated surveys were carried out by Emma Peters (BSc Environmental science). Emma has carried out a diverse array of fauna and flora surveys as an employee of Altemar Ltd. These include terrestrial flora, breeding bird, bat (emergent, detector, static, foraging, potential bat roost, internal building roost inspection and ground level tree assessments), mammal, predatory bird, reptile, amphibian and over- wintering bird assessments. Emma has been lead ecologist on multiple projects in Altemar. Emma administers surveys according to techniques approved and recommended by CIEEM.

18 Legislative context

The Wildlife Act 1976 protects wild birds in Ireland. Based on this legislation it is an offence to wilfully interfere with or destroy wild birds and their nests and eggs (other than the wild species mentioned in the Third Schedule of this Act). Under this legislation it is an offence for any person who "*wilfully takes or removes the eggs or nest of a protected wild bird otherwise than under and in accordance with such a licence, wilfully destroys, injures or mutilates the eggs or nest of a protected wild bird, wilfully disturbs a protected wild bird on or near a nest containing eggs or unflown young.*"

Habitats Directive- Council Directive 92/43/EEC 1992 on the conservation of natural habitats and of wild fauna and flora has been transposed into Irish Law, including, via, *inter alia*, the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended).

Council Directive 2009/147/EC 2010 on the conservation of wild birds provides for the conservation of wild birds by, among other things, classifying important ornithological sites as Special Protection Areas. The Directive relates to the conservation of all species of naturally occurring birds in the wild state, their eggs, nests and habitats in the European territory of the Member States. The Directive prohibits in particular:

- deliberate killing or capture by any method;
- deliberate destruction of, or damage to, their nests and eggs or removal of their nests;
- taking their eggs in the wild and keeping these eggs even if empty;
- deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of this Directive;
- keeping birds of species, the hunting and capture of which is prohibited.

Under the European Communities (Birds and Natural Habitats) Regulations 2011 (as amended), notwithstanding any consent, statutory or otherwise, given to a person by a public authority or held by a person, except in accordance with a licence granted by the Minister under Regulation 54, a person who in respect of the species referred to in Part 1 of the First Schedule:

- deliberately captures or kills any specimen of these species in the wild,
- deliberately disturbs these species particularly during the period of breeding, rearing, hibernation and migration,
- deliberately takes or destroys eggs of those species from the wild,
- damages or destroys a breeding site or resting place of such an animal, or
- keeps, transports, sells, exchanges, offers for sale or offers for exchange any specimen of these species taken in the wild, other than those taken legally as referred to in Article 12(2) of the Habitats Directive,

shall be guilty of an offence.

19 Breeding bird survey

This report presents the results of four site visits by Frank Spellman and Emma Peters on the 9th, 10th, 11th and 12th June 2025. A breeding bird transect survey was carried out on each occasion.

19.1 Survey methodology

This Breeding bird survey was carried out based on the BTO Common Bird Census (Bibby *et al.*, 2000 and Gilbert *et al.*, 1998) and following CIEEM guidelines.

A 15-minute settlement period was given following arrival to allow resumption of bird activity after any possible disturbance caused by arrival on site. Various features and habitats such as scrub, treelines, standalone trees, hedgerows, watercourses, ditches, a canal and grassland were present throughout the survey area. A single transect following the full assessment corridor of the proposed pipeline was carried out across four survey days by two surveyors, covering all areas and features available for breeding activity within and adjacent to the survey area. Surveys began at the north end of the survey area and ending at the southern end. Proposed compound areas were also assessed.

The survey was carried out over 8 hours on 4 occasions, beginning at dawn and ending by mid-day. All internal and adjacent features to the Proposed Development site were assessed. Care was taken not to double count any observations. Weather conditions were suitable on each occasion. Heavy rainfall during the 12th of June may have reduced bird activity and inhibited the ability of surveyors to hear bird calls at distance. However, the southern portion of the survey area contained little habitat of breeding value for birds (lack of hedgerows/treelines between fields), and compound areas contained little habitat of breeding value that would be impacted by the proposed project.

20 Survey results

20.1.1 Habitats of breeding bird potential

A desk and ground level breeding habitat assessment were carried and used to examine the structures and vegetation within the survey area for features that could provide breeding habitat. Potential nesting features include scrub, treelines, mature conifer/deciduous canopies, ivy, grassland, reeds, artificial structures, waterbodies, grassland etc. All features within the assessment area were assessed for breeding bird potential.

Areas of high breeding bird potential included hedgerows, treelines, mature trees, scrub, riparian/drainage ditch vegetation and grassland present throughout and adjacent to the assessment area. Grassland throughout the assessment area was primarily agricultural (grazing), short, and of limited value for ground-nesting birds.

20.1.2 Breeding activity survey

A total of 35 species were recorded within the survey area across four surveys (table 2). Of these species, goldcrest, greenfinch, house martin, house sparrow, mallard, spotted flycatcher, starling, and swallow are considered amber-listed Bird of Conservation Concern in Ireland (BoCCI). Meadow pipit and yellowhammer were also recorded on site and are both red-listed BoCCI. The remaining species are green-listed BoCCI.

22 species were recorded breeding or displaying behaviour indicative of breeding within and/or adjacent to the assessment area (table 1). Five breeding species are amber-listed BoCCI: goldcrest, house martin, mallard, starling and swallow. One breeding species (yellowhammer) is a red-listed BoCCI. At chainage 13,300 m yellowhammer breeding behaviour was recorded within hedgerow directly adjacent to the proposed pipeline route, which would be directly impacted by the proposed project.

The remainder of breeding species are green-listed BoCCI. Locations of breeding evidence recorded are demonstrated in Volume IV of the associated EIAR. No breeding activity was recorded at either of the compound locations.

Breeding activity was found throughout the survey area. No particular areas held higher concentrations of breeding activity than others or would be considered of greater importance for breeding by birds in general or species of conservation importance than others. The primary habitat supporting breeding within the

assessment area is hedgerow and heavily ivy-clad trees/treelines, which are widespread throughout the assessment area.

There was a notable reduction in breeding activity from chainage 18,300 m southwards, along which only two breeding observations were recorded. Agricultural fields from this point south were primarily devoid of hedgerow and/or treeline habitat with most fields solely divided by single wire electric fences and ditches along the assessment area. Locations of breeding behaviour are demonstrated in the associated maps for this report located in Volume IV of the EIAR.

Table 1. Species confirmed breeding within and adjacent to the assessment area.

Common name	BTO	Latin name	BoCCI
Blackbird	B.	*Turdus merula*	Green
Blackcap	BC	*Sylvia atricapilla*	Green
Blue Tit	BT	*Cyanistes caeruleus*	Green
Buzzard	BZ	*Buteo buteo*	Green
Chaffinch	CH	*Fringilla coelebs*	Green
Chiffchaff	CC	*Phylloscopus collybita*	Green
Dunnock	D.	*Prunella modularis*	Green
Goldcrest	GC	*Regulus regulus*	Amber
Goldfinch	GO	*Carduelis carduelis*	Green
Great Tit	GT	*Parus major*	Green
House Martin	HM	*Delichon urbicum*	Amber
Jay	J.	*Garrulus glandarius*	Green
Long-tailed Tit	LT	*Aegithalus caudatus*	Green
Mallard	MA	*Anas platyrhynchos*	Amber
Robin	R.	*Erithacus rubecula*	Green
Siskin	SK	*Spinus spinus*	Green
Song Thrush	ST	*Turdus philomelos*	Green
Starling	SG	*Sturnus vulgaris*	Amber
Swallow	SL	*Hirundo rustica*	Amber
Woodpigeon	WP	*Columba palumbus*	Green
Wren	WR	*Troglodytes troglodytes*	Green
Yellowhammer	Y.	*Emberiza citrinella*	Red

Table 2. Total species recorded within and immediately adjacent to the assessment area.

Common name	BTO	Latin name	BoCCI
Blackbird	B.	*Turdus merula*	Green
Blackcap	BC	*Sylvia atricapilla*	Green
Blue Tit	BT	*Cyanistes caeruleus*	Green
Bullfinch	BF	*Pyrrhula pyrrhula*	Green
Buzzard	BZ	*Buteo buteo*	Green
Chaffinch	CH	*Fringilla coelebs*	Green
Chiffchaff	CC	*Phylloscopus collybita*	Green
Dunnock	D.	*Prunella modularis*	Green
Goldcrest	GC	*Regulus regulus*	Amber
Goldfinch	GO	*Carduelis carduelis*	Green
Great Tit	GT	*Parus major*	Green
Greenfinch	GR	*Chloris chloris*	Amber

Common name	BTO	Latin name	BoCCI
Hooded Crow	HC	*Corvus cornix*	Green
House Martin	HM	*Delichon urbicum*	Amber
House Sparrow	HS	*Passer domesticus*	Amber
Jackdaw	JD	*Corvus monedula*	Green
Jay	J.	*Garrulus glandarius*	Green
Long-eared Owl	LE	*Asio otus*	Green
Long-tailed Tit	LT	*Aegithalus caudatus*	Green
Magpie	MG	*Pica pica*	Green
Mallard	MA	*Anas platyrhynchos*	Amber
Meadow Pipit	MP	*Anthus pratensis*	Red
Pheasant	PH	*Phasianus colchicus*	Green
Pied Wagtail	PW	*Motacilla alba yarrellii*	Green
Raven	RN	*Corvus corax*	Green
Robin	R.	*Erithacus rubecula*	Green
Rook	RO	*Corvus frugilegus*	Green
Siskin	SK	*Spinus spinus*	Green
Song Thrush	ST	*Turdus philomelos*	Green
Spotted Flycatcher	SF	*Musciapa striata*	Amber
Starling	SG	*Sturnus vulgaris*	Amber
Swallow	SL	*Hirundo rustica*	Amber
Woodpigeon	WP	*Columba palumbus*	Green
Wren	WR	*Troglodytes troglodytes*	Green
Yellowhammer	Y.	*Emberiza citrinella*	Red

21 Breeding bird assessment findings

21.1 Review of local bird records

The review of existing bird records (sourced from NBDC Database) within five 10km^2 grid (Reference grid N52, N53, N62, N63, N64) encompassing the study area reveals that 66 known bird species have previously been observed and recorded locally (*Table 3*).

Table 3: Status of bird species within a 50 km^2 area (Reference grids N52, N53, N62, N63, N64)

Species Name	Date of Last Record	Dataset	BoCCI Status
Barn Owl (*Tyto alba*)	12/07/2017	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Black-headed Gull (*Chroicocephalus ridibundus*)	11/04/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Brambling (*Fringilla montifringilla*)	19/03/2022	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Sandpiper (*Actitis hypoleucos*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Sandpiper (*Actitis hypoleucos*)	11/04/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Coot (*Fulica atra*)	05/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Cormorant (*Phalacrocorax carbo*)	31/03/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Corncrake (*Crex crex*)	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Curlew (*Numenius arquata*)	19/09/2020	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Goldcrest (*Regulus regulus*)	15/02/2023	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Golden Plover (*Pluvialis apricaria*)	09/12/2019	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Goldeneye (*Bucephala clangula*)	25/10/2020	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Great Spotted Woodpecker (*Dendrocopos major*)	03/09/2023	Birds of Ireland	Protected Species: Wildlife Acts

Species Name	Date of Last Record	Dataset	BoCCI Status
Greenfinch (*Chloris chloris*)	07/04/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Grey Partridge (*Perdix perdix*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Grey Wagtail (*Motacilla cinerea*)	21/05/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Hen Harrier (*Circus cyaneus*)	08/04/2018	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Herring Gull (*Larus argentatus*)	29/02/1984	The First Atlas of Wintering Birds in Britain and Ireland: 1981/82-1983/84.	Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Martin (*Delichon urbicum*)	07/04/2019	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
House Sparrow (*Passer domesticus*)	07/04/2024	Birds of Ireland	Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Jack Snipe (*Lymnocryptes minimus*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species
Kestrel (*Falco tinnunculus*)	23/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Kingfisher (*Alcedo atthis*)	08/05/2025	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Lapwing (*Vanellus vanellus*)	25/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Lesser Black-backed Gull (*Larus fuscus*)	16/10/2010	Birds of Ireland	Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Linnet (*Linaria cannabina*)	11/08/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Little Egret (*Egretta garzetta*)	25/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species
Little Grebe (*Tachybaptus ruficollis*)	03/05/2025	Birds of Ireland	Protected Species: Wildlife Acts
Little Ringed Plover (*Charadrius dubius*)	22/04/2019	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mallard (*Anas platyrhynchos*)	14/06/2024	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species || Threatened Species: Birds of Conservation

Species Name	Date of Last Record	Dataset	BoCCI Status
			Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Marsh Harrier (*Circus aeruginosus*)	01/05/2010	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Meadow Pipit (*Anthus pratensis*)	31/03/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Merlin (*Falco columbarius*)	24/02/2021	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Mistle Thrush (*Turdus viscivorus*)	31/03/2024	Birds of Ireland	Protected Species: Wildlife Acts
Mute Swan (*Cygnus olor*)	02/01/2025	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Nightjar (*Caprimulgus europaeus*)	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Peregrine (*Falco peregrinus*)	15/03/2021	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species
Pheasant (*Phasianus colchicus*)	27/09/2024	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section I Bird Species
Pink-footed Goose (*Anser brachyrhynchus*)	25/10/2020	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species
Quail (*Coturnix coturnix*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Redshank (*Tringa totanus*)	25/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Redwing (*Turdus iliacus*)	21/11/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Ringed Plover (*Charadrius hiaticula*)	17/06/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Robin (*Erithacus rubecula*)	28/12/2024	Birds of Ireland	Protected Species: Wildlife Acts
Rock Dove (*Columba livia*)	04/09/2022	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species
Sand Martin (*Riparia riparia*)	19/06/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Skylark (*Alauda arvensis*)	08/05/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Snipe (*Gallinago gallinago*)	31/03/2024	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List

Species Name	Date of Last Record	Dataset	BoCCI Status
Sparrowhawk (*Accipiter nisus*)	27/10/2024	Birds of Ireland	Protected Species: Wildlife Acts
Spotted Crake (*Porzana porzana*)	02/07/1993	Rare birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Spotted Flycatcher (*Muscicapa striata*)	14/07/2019	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Starling (*Sturnus vulgaris*)	02/01/2025	Birds of Ireland	Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Stock Dove (*Columba oenas*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Stonechat (*Saxicola rubicola*)	31/03/2024	Birds of Ireland	Protected Species: Wildlife Acts
Swallow (*Hirundo rustica*)	01/09/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Swift (*Apus apus*)	28/06/2020	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Teal (*Anas crecca*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Tree Sparrow (*Passer montanus*)	22/04/2018	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Tufted Duck (*Aythya fuligula*)	01/08/2022	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Wheatear (*Oenanthe oenanthe*)	21/04/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Whinchat (*Saxicola rubetra*)	30/05/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Whooper Swan (*Cygnus cygnus*)	25/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Wigeon (*Mareca penelope*)	22/12/2018	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Willow Warbler (*Phylloscopus trochilus*)	10/05/2025	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Woodcock (*Scolopax rusticola*)	19/04/2019	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section III Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List

Species Name	Date of Last Record	Dataset	BoCCI Status
Yellowhammer (*Emberiza citrinella*)	18/07/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Barn Owl (*Tyto alba*)	12/07/2017	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Black-headed Gull (*Chroicocephalus ridibundus*)	11/04/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Brambling (*Fringilla montifringilla*)	19/03/2022	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Sandpiper (*Actitis hypoleucos*)	31/12/2011	Bird Atlas 2007 - 2011	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Common Sandpiper (*Actitis hypoleucos*)	11/04/2021	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Coot (*Fulica atra*)	05/03/2023	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section I Bird Species || Protected Species: EU Birds Directive >> Annex III, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Cormorant (*Phalacrocorax carbo*)	31/03/2024	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List
Corncrake (*Crex crex*)	31/07/1972	The First Atlas of Breeding Birds in Britain and Ireland: 1968-1972.	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex I Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Curlew (*Numenius arquata*)	19/09/2020	Birds of Ireland	Protected Species: Wildlife Acts || Protected Species: EU Birds Directive || Protected Species: EU Birds Directive >> Annex II, Section II Bird Species || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Red List
Goldcrest (*Regulus regulus*)	15/02/2023	Birds of Ireland	Protected Species: Wildlife Acts || Threatened Species: Birds of Conservation Concern || Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern - Amber List

22 Mitigation

Habitats within the assessment area are not of significant importance to the local breeding bird population overall. However, the impact of the development during construction phase will be a loss of existing habitats and species. The proposed development is also likely to disturb habitat used by red-listed Yellowhammer during construction. The following mitigation measures relevant to birds, as well as those outlined within the accompanying NIS and EIAR, shall be implemented to minimise any potential negative impact on biodiversity:

- An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity in neighbouring areas including birds will not be impacted.
- All hedgerows requiring removal will be re-planted with a hedgerow mix of similar species composition following construction.
- No removal of ivy from trees within or adjacent to the works area will take place.
- All mitigation measures outlined in the EIAR Chapters and Natura Impact Statement (NIS) that pertain to the construction stage of the proposed development will be implemented by the Contractor.

- The effectiveness of the proposed mitigation will be monitored throughout the construction period.
- The construction corridor will be marked out prior to the commencement of construction.
- All construction work will be confined strictly to the construction corridor. Any construction works required outside the construction corridor will require prior approval from the appointed ecologist.
- Lighting during construction should not spill outside the proposed development site.
- Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will need be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). Should this not be possible a pre-clearance inspection will be carried out by an ecologist and clearance will not take place if nests are present.

23 Conclusion

This report presents the results of four surveys carried out by Frank Spellman and Emma Peters from 9th – 12th June 2025. A breeding bird transect survey was carried out on each occasion. The surveys comply with bird survey guidance documentation including BTO Common Bird Census (Bibby *et al.*, 2000 and Gilbert *et al.*, 1998) following CIEEM guidelines. Weather conditions were suitable on each occasion, apart from when heavy rainfall occurred during the 12th June. However, areas covered on 12th June contained considerably less suitable nesting habitat than other areas along the Proposed Development site.

A total of 35 species were recorded within and adjacent to the overall assessment area. 22 species were recorded breeding or displaying behaviour indicative of breeding.

16 green-listed bird species of conservation concern were recorded breeding within and/or adjacent to the assessment area.

Five amber-listed bird species of conservation concern were recorded breeding within and/or adjacent to the assessment area: goldcrest, house martin, mallard, starling and swallow.

One red-listed bird species of conservation concern was recorded breeding within and adjacent to the survey area; yellowhammer.

The primary habitats of nesting value are hedgerows, and heavily ivy-clad trees and treelines.

The proposed development is predicted to have a short/medium-term low adverse effect on breeding birds within the proposed area due to the removal of sections of hedgerow habitat and potential impact on trees within the assessment area. However, retention of all vegetation outside of the finalised construction corridor and reinstatement of sections of removed hedgerow will result in similar levels and type of currently available breeding habitat long-term. Trenchless crossings of watercourses and the Grand Canal will preserve breeding habitat for waterfowl and reed-nesting birds in these areas. As re-planted hedgerow sections mature, following full implementation of mitigation measures, the overall impact of the proposed development will be a long-term neutral/negligible effect on breeding birds within the assessment area.

Mitigation measures are proposed.

24 References

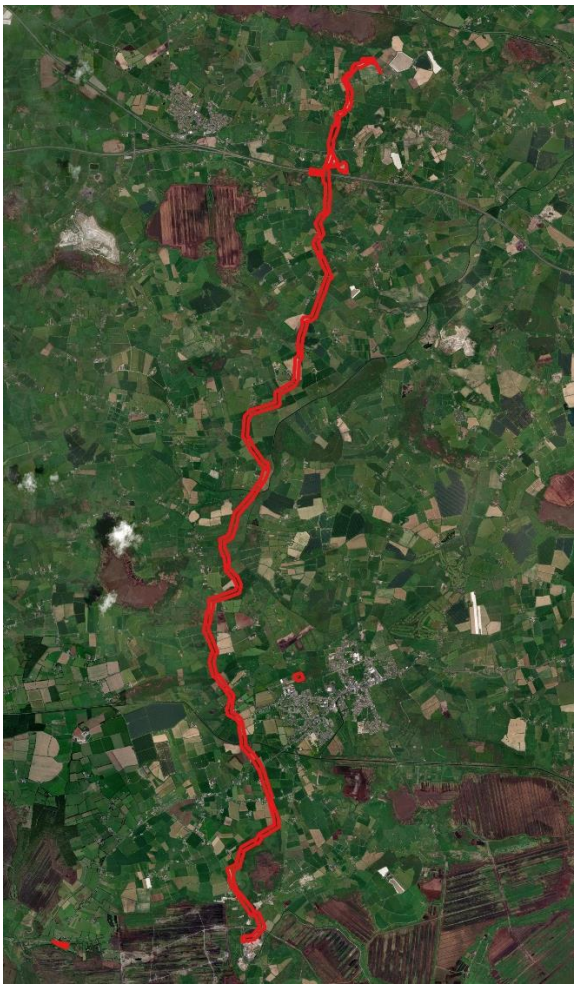
1. **Bibby, C.J., Burgess, N.D., Hill, D.A. & Mustoe, S.H. (2000)** Bird Census Techniques. Academic Press, London
2. **Bird Survey & Assessment Steering Group. (2022)**. Bird Survey Guidelines for assessing ecological impacts, v.1.0.0. https://birdsurveyguidelines.org [15/05/2023]

3. **Chartered Institute of Ecology and Environmental Management (2018).** *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal, and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.
4. **Collated by the National Biodiversity Data Centre from different sources, General Biodiversity Records from Ireland**, National Biodiversity Data Centre, Ireland, accessed 17 October 2023, <https://maps.biodiversityireland.ie/Dataset/7>
5. **Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) 1982**
6. **Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) 1979**
7. **Department of Housing, Planning and Local Government (December, 2018).** *Urban Development and Building Heights Guidelines for Planning Authorities***.**
8. **EC Directive on The Conservation of Natural habitats and of Wild Fauna and Flora (Habitats Directive) 1992**
9. **EU Directive on the Conservation of Wild Birds 2009**
10. **Gilbert, G., Gibbons, D.W., & Evans, J. (1998)** Bird Monitoring Methods: A Manual of Techniques for UK Key Species. The Royal Society for the protection of Birds, Sandy, Bedfordshire, England.
11. **Gilbert G, Stanbury A and Lewis L (2021)**, "Birds of Conservation Concern in Ireland 2020 –2026". Irish Birds 9: 523—544
12. **Wildlife Act 1976 and Wildlife [Amendment] Act 2000**. Government of Ireland.

25 Appendix III – Mammal Impact Assessment

ALTEMAR
Marine & Environmental Consultancy

Non-volant terrestrial mammal impact assessment for a proposed Gas to Bord na Mona, Edenderry Pipeline, new Ballykilleen AGI and Kilwarden Offtake Installation.



30th April 2026

Prepared by: Emma Peters of Altemar Ltd.
On behalf of: Gas Networks Ireland

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Document Control Sheet			
Client	Gas Networks Ireland		
Project	Non-volant terrestrial mammal impact assessment for a proposed Gas to Bord na Mona, Edenderry Pipeline, new Ballykilleen AGI and Kilwarden Offtake Installation.		
Report	Non-volant terrestrial mammal impact assessment		
Date	30th April 2026		
Version	Author	Reviewed	Date
Draft	Emma Peters	Bryan Deegan	31st March 2026
Final	Emma Peters	Frank Spellman	30th April 2026

26 Contents

27 Summary

Structure/features:	The survey area is a proposed gas pipeline route through mainly agricultural land. The habitats within the pipeline route consists primarily of grassland, scrub, treelines and hedgerows with roadways, watercourse, drainage ditches, woodland, recolonised bare ground, bare ground and loose gravel paths.
Location:	Kilwarden Offtake Installation (Kilwarden, Co, Meath) to Bord na Móna Cushaling Peaker Plant (Kilcumber, Co. Offaly).
Fauna species present:	Badger (*Meles meles*), fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus*), pine marten (*Martes martes*), wood mouse (*Apodemus sylvaticus*), otter (*Lutra lutra*), deer (species unknow) and hare (*Lepus timidus hibernicus*).
Proposed work:	Gas pipeline installation and associated above and below-ground works.
Survey by:	Emma Peters and Frank Spellman.
Survey date:	14th of October 2024, 9th, 17th of December 2024, the 20th,21st, 29th and 30th of January, the 4th,5th,10th,14th and 18th of February and the 11th and 18th of March 2025. Also, The 13th, 14th,15th, 20th, 21st, 22nd of January of 2026 and the 12th and 13th of March 2026.

28 Receiving environment

28.1 Background

The Proposed Development site and associated temporary working areas covers an area of approximately 243.4 hectares (ha) (the “Proposed Development Site”) and encompasses all lands required for the construction and operation of the pipeline, including the Kilwarden Offtake Installation, the Ballykilleen AGI, temporary construction compounds, line-pipe storage areas, and all associated ancillary works.

The Proposed Development Site comprises the c. 23.65 km linear route of the underground GNI 143 Ballykilleen Pipeline and its temporary working areas.

The Proposed Development site outline and location are demonstrated in figures 1 & 2.

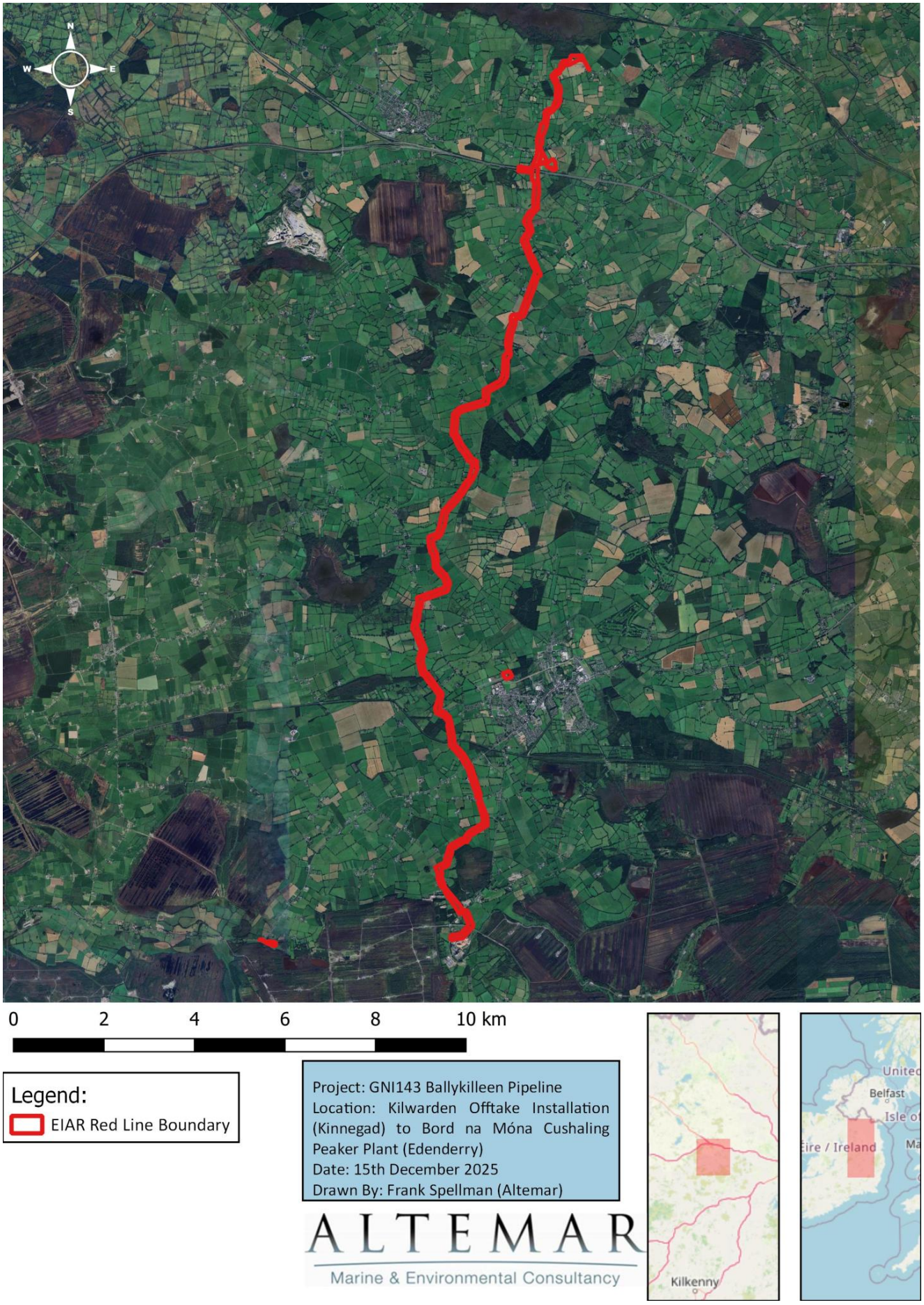

Figure 1. Proposed Development site outline.

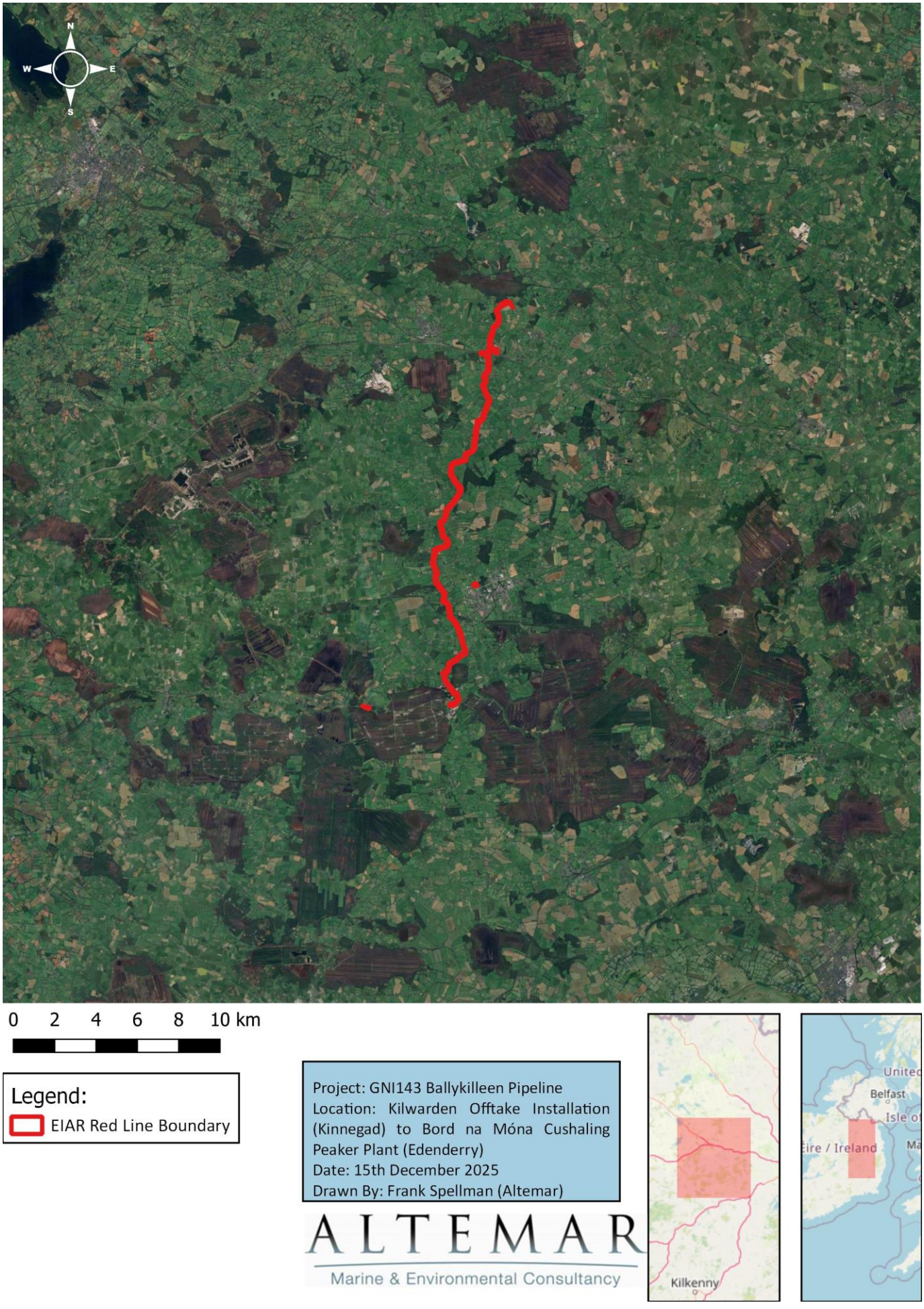

Figure 2. Proposed Development location.

29 Competency of assessor

Since its inception in 2001, Altemar has been delivering ecological and environmental services to a broad range of clients. Operational areas include: residential; infrastructural; renewable; oil & gas; private industry; Local Authorities; EC projects; and, State/semi-State Departments.

Frank Spellman (BSc Zoology, MSc Zoology).

This report and associated surveys were carried out by Frank Spellman (MSc (Ind) Zoology, BSc Zoology). Frank has extensive experience in carrying out a wide range of ecological surveys as both a sub-contractor and employee for environmental consultancies and organisations in Ireland and the US. These include both roving and static acoustic bat surveys, terrestrial non-volant mammal surveys, breeding/wintering bird surveys, freshwater ecology surveys as well as flora/invasive plant surveys. Frank has been lead surveyor on numerous development projects within Ireland carrying out full avian/non-volant mammal, wintering bird, breeding bird, Fossitt and invasive species assessments.

Emma Peters (BSc Environmental Science).

This report and associated surveys was carried out by Emma Peters (BSc Environmental Science). Emma is a skilled ecological assessor with an aptitude for flora identification, invasive species and bat detection through static detector surveys, dusk emergence, and dawn re-entry surveys. Emma has been the lead ecologist in 40+ projects responsible for mammal tracking, camera trapping, wintering bird, breeding bird, bat surveys, flora and habitat mapping.

Bryan Deegan (MCIEEM, BSc Applied Marine Biology, MSc Environmental Science)

Bryan Deegan, the managing director of Altemar, is an Environmental Scientist and Marine Biologist with 30 years' experience working in Irish terrestrial and aquatic environments, providing services to the State, Semi-State and industry. He is currently lead project ecologist for Project Pembroke and was contracted to Inland Fisheries Ireland as the sole "External Expert" to environmentally assess internal and external projects. He is also chair of an internal IFI working group on environmental assessment. Bryan Deegan (MCIEEM) holds a MSc in Environmental Science, BSc (Hons.) in Applied Marine Biology, NCEA National Diploma in Applied Aquatic Science and a NCEA National Certificate in Science (Aquaculture).

30 Legislative context

A number of non-volant terrestrial mammal species are protected under the Wildlife Act (1976), Wildlife [Amendment] Acts (2000 to 2012), and Annex IV of the Habitats Directive (transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations, 2011-2021. These include species such as badger, Irish stoat, Irish hare, brown hare, pine marten, red squirrel, otter, hedgehog, all deer species, and pygmy shrew.

The badger is also a Red Data Book species, but it is a relatively common species and ubiquitous through much of the Irish countryside (Smal, 1995).

It is standard best practice to make special provisions for badgers affected by development. Whilst the species is common in much of the Irish landscape, badgers are notable for their practice of constructing large underground tunnel and chamber systems (setts). Provisions are made for their humane removal or for their conservation on site where feasible or practicable. The Wildlife [Amendment] Act (2000-2012) protects all resting places of protected species.

Otters are protected under the Irish Wildlife Acts and are also listed under Annex II and Annex IV of the EU Habitats Directive.

Otters are relatively common in Ireland, and they do occur on most rivers in this country. Protection of this species is important, and provisions are made to ensure that holts are not interfered with except under especial circumstances and to ensure the quality of their foraging habitat.

31 Non-volant mammal survey

This report presents the results of site visits by Frank Spellman and Emma Peters from December 2024 to March 2026. A badger/mammal transect survey was carried out on each occasion. Mammal observations recorded during breeding bird surveys from June 2025 by Emma Peters & Frank Spellman were included in this assessment. Surveys were carried out using techniques approved and recommended by CIEEM.

31.1 Survey methodology

These non-volant mammal surveys were carried out based on techniques approved and recommended by CIEEM.

The survey area for the Proposed Development consists of a proposed gas pipeline route and associated above and below-ground structures through mainly agricultural land. The habitats within the Proposed Development area consist primarily of grassland, scrub, treelines and hedgerows with roadways, watercourse, drainage ditches, woodland, recolonised bare ground, bare ground and loose gravel paths. Due to the expansive nature of the survey area, multiple site visits were made along the route in accordance with permission to access the lands by the various landowners. Fields within the proposed route, and additional fields within a 50-meter radius of the proposed pipeline route were surveyed for presence of mammals. A radius of 150m either side of the Proposed Development area at waterbody crossings was surveyed for otter holts.

A single roving transects following the full perimeter and circumnavigating all habitats and features within the survey area was carried out on each visit. Trail cameras were placed on major waterbodies, and burrows which the status could not be ascertained.

Movements were carried out slowly, with pauses to observe open spaces, further following trails to determine their direction and investigate recipient areas for potential dens/setts/holts/scatt/prints/scrapes/latrines etc. Camera traps were placed in areas where high evidence of mammal activity and/or an active den/sett was likely. Camera traps were set on suspected badger setts by both Emma Peters and Frank Spellman in 31 locations across the route during the 2024/25 surveys. During the 2026 surveys, an additional seven cameras were deployed to determine the use/activity of the burrows/dens/setts.

32 Survey results

32.1 Habitats of non-volant terrestrial fauna potential

A ground level habitat assessment was carried out and used to examine the structures and vegetation on site for features that could facilitate non-volant terrestrial mammals. Potential features include heavy scrub, piles of vegetative/construction debris, grassland etc. All areas on site were assessed for evidence of non-volant mammals.

Areas of high non-volant mammal potential in the survey area included the scrub, drainage ditches, grassland hedgerows and treelines throughout the survey area.

32.2 Non-volant terrestrial fauna surveys.

A total of eight fauna species were confirmed within the survey area by visual confirmation and behavioural evidence: badger (*Meles meles*), fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus*), pine

marten (*Martes martes*), wood mouse (*Apodemus sylvaticus*), otter (*Lutra lutra*), deer (species unknow) and hare (*Lepus timidus hibernicus*).

The mammal survey primarily aimed to identify active badger (*Meles meles*) setts to inform the final alignment of the proposed gas pipeline and thereby avoid disturbance to badgers. A total of 31 active setts (Table. 1) were recorded within the survey area in the 2025 surveys. An additional ten active setts were noted in 2026 (Table 2.). Setts were identified based on their characteristic size and shape, in conjunction with field indicators such as the presence of bedding material, fresh spoil heaps, and proximity to badger signs including footprints, latrines, and well-used trails.

Where physical and behavioural evidence was insufficient to confirm sett status, motion-activated wildlife cameras were deployed to verify activity. Review of the camera footage and observational evidence confirmed that sixteen of the recorded setts were being utilised as breeding setts. Breeding setts were defined as those occupied by sexually mature pairs (as observed on camera footage) or those of substantial size located in favourable conditions, displaying signs of frequent use such as extensive fresh spoil, well-defined trails, and proximity to latrines and footprints.

Out of an abundance of caution, motion-activated camera traps were deployed at fox (*Vulpes vulpes*) dens that had the potential to be misidentified as badger (*Meles meles*) setts. Sixteen fox dens were recorded within the survey area in 2024/5 and approximately 7 in the 2026 surveys. In addition, camera traps were installed at river crossings that could support otters, to determine whether otters (*Lutra lutra*) were utilising these areas. No otters were captured on camera during the monitoring period, and no spraints or holts were identified during mammal surveys. However, a single otter footprint was observed at river crossing WCX4 - Knockerasally or Colehill River, Ballyboggan during the aquatic baseline survey undertaken by Triturus Environmental Ltd. for AWN Consulting Ltd.

A total of eleven rabbit (*Oryctolagus cuniculus*) warrens or burrow systems were recorded throughout the survey area and were frequently encountered during the course of the survey. A hare (*Lepus timidus hibernicus*) form was noted at the southern end of the survey area close so the Edenderry power plant. Deer (exact species unknown) droppings and tracks were noted primarily to the north of the site.

Table 1 . Badger setts recorded in 2025 listed with assigned number, chainage, activity status, exclusion zone and fencing requirements.

Sett No	Chainage (m)	Status	Exclusion zone (m)	Fencing Needed
1	0 (North)	Active	30	No
2	200 (North)	Active	30	No
3	1100 (East)	Breeding	50	No
4	2000 (East)	Active	30	**Yes**
5	4100 (West)	Active	30	**Yes**
6	4100 (West)	Active	30	**Yes**
7	5400 (East)	Active	30	**Yes**
8	5800 (East)	Breeding	50	No
10	6700(West)	Breeding	50	**Yes**
12	7400 (East)	Active	30	**Yes**
13	9300 (North)	Active	30	**Yes**
14	9900 (West)	Active	30	No
15	10000(East)	Breeding	50	No
16	10000(East)	Breeding	50	No
17	10000 (West)	Active	30	No
18	10500 (East)	Breeding	50	No

19	10600 (East)	Breeding	50	No
21	11000 (West)	Breeding	50	No
22	11000 (West)	Breeding	50	No
25	15100 (West)	Breeding	50	No
26	15400 (West)	Breeding	50	No
28	16900 (East)	Active	30	No
29	18500(West)	Breeding	50	No
31	19800(West)	Breeding	50	No
32	19800 (West)	Active	30	**Yes**
33	20500 (Southeast)	Breeding	50	No
34	21000 (East)	Breeding	50	No
37	22000 (East)	Active	30	**Yes**
38	22200 (East)	Breeding	50	**Yes**
39	22800 (North)	Active	30	No
41	N/A	Active	30	**Yes**

Table 2 . Badger setts recorded in 2026 listed with assigned number, chainage, activity status, exclusion zone and fencing requirements.

Sett no.	Chainage (m)	Status	Exclusion zone (m)	Fencing needed
9	6600	Active	30	**Yes**
11	7000	Breeding	50	**Yes**
20	10500	Active	30	**Yes**
23	12400	Active	30	**Yes**
24	13600	Active	30	**Yes**
27	15600	Active	30	**No**
30	19600	Active	30	**Yes**
35	21800	Active	30	**Yes**
36	21800	Active	30	**Yes**
40	23400	Breeding	50	**Yes**

32.3 Description of Setts

Sett 1 is located at **chainage 0 m** (approximately 85m north of the Proposed Development). The sett occurs within a woodland habitat situated outside the Proposed Development boundary. It is classified as an active, non-breeding sett; therefore, a exclusion zone of 30 m has been applied.

Plate 1. Sett one.

Sett 2 is at **chainage 200 m** (approximately 100m north of the Proposed Development boundary). The sett occurs within a woodland habitat situated outside the Proposed Development boundary. It is classified as an active, non-breeding sett; therefore, an exclusion zone of 30 m has been applied. A small fresh spoil heap was noted at the entrance to this sett.

Plate 2. Sett two.

Sett 3 is located at **chainage 1100m** (approximately 338m east from the Proposed Development boundary). The sett had three entrances (two on the east site, one on the west side), set into a soil bank within a double beech treeline that divided agricultural fields. On the west side of this double treeline was a drainage ditch which led into the Kilwarden River. The three entrances had disturbed

soil. On the far side drainage ditch , from the embankment, an additional entrance had a small spoil heap and was likely a subsidiary sett. Leaf litter accumulation at the edge of the entrance was light, indicating occasional activity but not high-frequency traffic. The location, size, presence of multiple entrances and signs of active use identified this sett as a possible breeding sett ; therefore, an exclusion zone of 50m has been applied. A camera trap was deployed at the central sett entrance; Badgers were noted at this sett along with a fox and wood mouse.

Plate 3. One entrance to sett 3. Machete placed at entrace for scale.

Plate 4. Additional entrance to sett 3.

Plate 5. Subsidiary sett and small spoil head within the yellow ring.

Sett 4 was located at **chainage 2000m** (Approximately 45m east of the Proposed Development boundary). This sett was located within a scrubby ditch comprised of mainly bramble. A mammal trap

camera was deployed along a well-established mammal trail which indicated at badger use. The camera revealed two badgers (possibly siblings) using the sett on one occasion. This sett was likely a rest place for badgers. This sett was given a 30m exclusion zone as it did not have attributes aligning with a breeding sett. Any resting place of a badger must be protected from disturbance. This sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 6. Photo captured from camera trap footage of pair of badgers.

Plate 7. Screen grab taken from video captured in camera trap footage.

Sett 5 was located at **chainage 4100m** (approximately 60m west of the Proposed Development boundary). The sett was situated within a drainage ditch beneath a mature tree line and positioned directly adjacent to Sett 6. The sizeable spoil heap suggested the presence of a deep tunnel system; however, the extent of moss growth indicated that the sett had been in place for a considerable period. Several trails were observed leading to the sett, though the presence of cobwebs and accumulated leaf litter within the entrance suggested only semi-active use. Based on these observations, the sett was not classified as a breeding sett, and a precautionary 30m exclusion zone was applied. This sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 8.The entrance to sett 5 .

Sett 6 was located at **chainage 4100m** (Approximately 55m from the Proposed Development boundary). This sett was positioned directly adjacent to sett 5. The sett entrance appeared semi-active as there was a lack of fresh digging however, vegetation had been kept back. There were also trails leading to this sett. Based on these observations, the sett was not classified as a breeding sett, and a precautionary 30m exclusion zone was applied. This sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 9.The entrance to sett 6.

Sett 7 was located at **chainage 5400m** (Approximately 45m for the Proposed Development boundary The sett entrance had a large spoil heap indicating a deep sett. Mammal trap camera footage revealed that a single male badger was using the sett occasionally. This sett is meters out from the Proposed Development boundary so it is imperative that protective fencing with signage must be erected in a 30 meter radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 10. The entrance to Sett 7.

Plate 11. The single male badger entering the sett.

Sett 8 was located at **chainage 5800m** (Approximately 588m east of the Proposed Development boundary). The sett entrance was concealed, and a photo was not possible, however, camera trap footage revealed that this sett was being used by a breeding pair and were actively maintaining the

sett in the camera footage. Many trails and snuffle holes were noted in this area. For these reasons, the sett has been given a 50m exclusion zone. As the sett is located far beyond the Proposed Development boundary, no protective fencing will be required.

Plate 12. *Badger leaving sett 8.*

Sett 9 was located at chainage 6600m (within the Proposed Development boundary This sett had a large amount of fresh bedding with a fresh spoil heap and clean entrance. Strong trails leaded to and from this sett. The sett was classified as a breeding sett and awarded a 50m exclusion zone. The sett itself and the exclusion zone is within the Proposed Development boundary.

Sett 10 is located at **chainage 6700m** (approximately 100m west of the Proposed Development boundary). The sett contained two entrances, on the bank of the KNOCKERSALLY_or_COLEHILL river. There were large fresh spoil heaps on each entrance. The sett was classified as a breeding sett, and a precautionary 50m exclusion zone was applied. The sett itself is over 50m from the Proposed Development boundary with 6m of clearance between the 50m exclusion zone and the Proposed Development boundary so, it is imperative that protective fencing with signage must be erected in a 50m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 13. *Largest entrance to sett 10 on the riverbank.*

Sett 11 was located at chainage 7000 (within the Proposed Development boundary). The sett had two entrance and a large clean entrance directly under tree against trunk with moderate spoil heap. This sett was confirmed as a breeding sett as two cubs and sow observed during emergent survey summer 2025.

Plate 14. *North entrance to sett 11.*

Sett 12 was located at **chainage 7400m** (Approximately 97m southeast of the Proposed Development boundary). The sett was situated in an earthen bank within a deciduous patch of woodland. The sett was used regularly by one badger. Based on these observations, the sett was not classified as a breeding sett, and a precautionary 30m exclusion zone was applied. There is less than a meter of clearance between the 30m exclusion zone and the Proposed Development boundary so, it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 15. *Entrance to sett 12.*

Sett 13 was located at **chainage 9300m** (Approximately 51m north of the Proposed Development boundary). Fresh bedding was noted at this location multiple times however its small size ruled it out as a breeding sett, and a precautionary 30m exclusion zone was applied. The sett itself is located a mere 5m from the Proposed Development boundary so, it is imperative that protective fencing with signage must be erected in a 30m radius around the sett before commencement of any works to avoid disturbing the badgers or collapsing the sett.

Plate 16. Entrance to sett 13.

Sett 14 was at **chainage 9900m** (Approximately 140 meters west of the Proposed Development boundary). This sett had a large spoil heap indicating a deep sett with fresh badger prints at the entrance. Despite its active use, camera trap footage revealed it was not a breeding sett. No fencing or signage is required as it is approximately 90m from the Proposed Development boundary.

Plate 17. *Entrance to sett 14.*

Sett 15 was at **chainage 10000m** (approximately 370m east of the Proposed Development boundary). This sett is one of the largest noted during this mammal survey. It backed out from the field into a drainage ditch with the height of the spoil heap being approximately 1.5m. A large boar badger was noted digging out this sett night after night in preparation for mating. Due to these observations, this sett was classified as a breeding sett. The exclusion zone of 50m as a clearance of approximately 210m from the Proposed Development boundary so, no fencing or signage will be necessary for this sett.

Plate 18. *Spoil heap at the rear side of sett 15.*

Plate 19. *Boar badger doing maintenance digging, pictured at sett entrance.*

Sett 16 was located at **chainage 10000m** (approximately 326m east from the Proposed Development boundary). This sett was adjacent (12.5 meters south) to sett 15 and is believed to hold the same family of badgers. This sett has two additional entrances. The sett entrance displayed fresh bedding and a large spoil heap. The features and badger use of this sett have had it classified as a breeding sett with an exclusion zone of 50m. Similar to sett 15, the sett is far away from the Proposed Development boundary so no fencing and signage is required.

Plate 20. *Entrance to sett 16.*

Plate 21. *Screengrab from camera trap video, depicting badger entering sett 16.*

Sett 17 was at **chainage 10000m** (approximately 525 meters west of the Proposed Development boundary). The sett was located on the banks of the river Boyne. The sett was active with a small and fresh spoil heap however, the sett was quite small and was classified a subsidiary sett with an exclusion zone of 30m. The sett is well away from the Proposed Development boundary and will not require any signage or fencing.

Plate 22. *Entrance to sett 17.*

Sett 18 was at **chainage 10500m** (approximately 550m east of the Proposed Development boundary). This sett was in an area of lots of badger activity. Camera trap footage revealed a male and female badger repeatedly entering the sett. A pine martin was also noted in this footage, traversing across the sett entrance. The sett has been classified as a breeding sett and given a 50m exclusion zone. There is approximately 19m clearance between the exclusion zone and Proposed Development boundary. There will be no need for fencing or signage here. It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.

Plate 23. *Entrance to sett 18.*

Sett 19 was at **chainage 10600m** (approximately 117m northeast of the Proposed Development boundary). This sett was in an area of high mammal activity. The sett has four clear entrances, three of which were fresh spoil and tracks. Camera trap footage revealed two adults and at least one, possibly two adolescents using the sett. Due to these observations, this sett was classified as a breeding sett with a 50 meter exclusion zone. There is approximately 17 meter clearance between the exclusion zone and the Proposed Development boundary. There will be no need for fencing or signage here. It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.

Plate 24. *Main entrance to sett 19 with machete at opening for scale.*

Plate 25. *Second entrance to sett 19.*

Plate 26. *Third entrance to sett 19.*

Plate 27. *Fourth entrance to sett 19.*

Sett 20 was located at **chainage 10500m** (within the Proposed Development boundary). This sett was proximate to two breeding setts and in an area of badger activity. A camera trap was deployed in January of 2026 and found badgers using both entrances of the sett. It was not classified as a breeding sett and awarded a 30m exclusion zone.

Sett 21 was located at **chainage 10900m** (approximately 400m west of the Proposed Development boundary). The sett had two entrances with snuffle holes and latrines in its proximity. This sett was used regularly, had a large entrance and fresh bedding was noted here on multiple occasions. For these observations, the sett was classified as a breeding sett and given a 50m exclusion zone. The sett is well away from the Proposed Development boundary so this sett does not need any fencing or signage.

Plate 28. *Largest entrance to sett 21.*

Plate 29. *Second entrance to sett 21.*

Sett 22 was located at **chainage 11000m** (approximately 105 meters west from the Proposed Development boundary). The sett has two entrances, One in the treeline and another on the flat ground. Camera trap footage revealed that a male and female badger were using the sett. Based on these observations, the sett was classified as a breeding sett and given a 50 meter exclusion zone. There is 15m of clearance between the exclusion zone and the Proposed Development boundary No fencing or signage will be need at this sett however; It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.

Plate 30. *Main entrance to sett 22.*

Plate 31. *Second entrance on flat ground to sett 22.*

Sett 23 was located at **chainage 12400m** (western edge of Proposed Development boundary). This sett had a large spoil heap and appeared in use. A camera trap was deployed in January of 2026 which revealed it was not a breeding sett and awarded a 30m exclusion zone. The exclusion zone extended into the Proposed Development boundary therefore protective fencing and signage will be required to prevent collapsing the sett.

Plate 32. *Second entrance on flat ground to sett 23.*

Sett 24 was located at **chainage 13600m** (within Proposed Development boundary). Fresh latrines were found in the boundaries of the fields of sett. There was some bedding noted however, this sett was not classified as a breeding sett and awarded a 30m exclusion zone. The sett is within the Proposed Development boundary and will require protective fencing and signage.

Plate 33. *Second entrance on flat ground to sett 24.*

Sett 25 was at **chainage 15100m** (approximately 250 meters west from the Proposed Development boundary). The sett had three entrances with fresh excavations and bedding. Due to the freshness of the spoil heap, its shape and size, this sett was classified as a breeding sett and was given a 50m exclusion zone. There is a 125m clearance between the exclusion zone and the Proposed Development boundary, so, there will be no need for protective fencing and signage around this sett.

Plate 34. *Main entrance to sett 25.*

Sett 26 was located at entrance **chainage 15400m** (approximately 125 meters west of the Proposed Development boundary). The area around this sett had indicators such as snuffle holes and latrines which indicated mammal activity. The sett was located outside the accessible area of the mammal survey; however, visibility of the entrance way was possible. The size and activity of the sett classified it as a breeding sett giving it a 50m exclusion zone. There is approximately 25m clearance between the exclusion zone and the Proposed Development boundary so fencing and signage will not be necessary around this set. However, It is imperative that all works and machinery stay within the confines of the Proposed Development boundary.

Plate 35. *Entrance to sett 26.*

Sett 27 was located at **chainage 15600** (just east of the Proposed Development boundary).Sett 27 was located proximate to two large breeding setts, had a fresh spoil and a clean entrance. It was classified as a subsidiary sett and awarded a 30m exclusion zone. The exclusion zone does not extended into the Proposed Development boundary therefore not fencing will be required.

Plate 36. *Entrance to sett 27.*

Sett 28 was located at **chainage 16900m** (approximately 144m east of the Proposed Development boundary). This sett was located on a slope of a drainage ditched at the bottom of a shrubby treeline. Camera trap footage revealed one badger using the sett regularly. This sett was classified as an active, non- breeding sett giving it a 30m exclusion zone. There is approximately 60m of clearance between the exclusion zone and the Proposed Development boundary so, No fencing or signage will be necessary for this sett.

Plate 37. *Entrance to sett 28.*

Plate 38. *Badger leaving sett 28.*

Sett 29 was located at **chainage 18500m** (Approximately 120m west of the Proposed Development boundary). This sett was located on a country lane. It was a new dig with a large spoil heap and fresh bedding. Based on these observations, the sett was classified as a breeding sett with a 50m exclusion zone. There is a clearance of 20m between the exclusion zone and the Proposed Development boundary so protective signage and fencing will not be necessary.

Plate 39. *Entrance to sett 29 with large spoil heap.*

Sett 30 was located at chainage 19600m (just west of the Proposed Development boundary).The sett had two entrances, fresh spoil and a clean entrance. The spoil heap was limited and there was very little fresh bedding. The sett was classified as active an awarded a 30m exclusion zone. The exclusion zone of the most est of the two entranced dose extend into the Proposed Development boundary by approximately 5.5m. Protective fencing and signage must be erected here.

Plate 40. *Entrance to sett 30 with large spoil heap.*

Sett 31 was located at **chainage 19800m** (approximately 163m west of the Proposed Development boundary). This sett was not a new dig, however it was evident that the bedding was fresh. The sett was in an area of high mammal activity. Camera trap footage revealed that two badgers and a possible third, were using the sett on a consistent basis. Based on these observations, the sett was classified as a breeding sett with a 50m exclusion zone. There is approximately 65m of clearance between the exclusion zone and the Proposed Development boundary route so protective fencing and signage will not be necessary.

Plate 41. *Entrance to sett 31.*

Plate 42. *Two badgers emerging from sett 31.*

Sett 32 was located at **chainage 19800m** (approximately 58m west of the Proposed Development boundary). The sett was located in a scrubby hedgerow and had signs of active use. It was quite close to sett 32 and in an area of high mammal activity. Camera trap footage revealed that one badger was using the sett regularly. Based on these observations, it was classified as an active subsidiary sett with a 30m exclusion zone. As there is no clearance between the exclusion zone and the Proposed Development boundary and the sett itself being approximately 7m from the Proposed Development boundary, protective fencing and signage will be necessary to outline the exclusion zone.

Plate 43. *Sett 32 entrance (behind scrub).*

Sett 33 was located at **chainage 20500m** (approximately 232m southeast of the Proposed Development boundary). Was located on the bank of a wet drainage ditch. No camera trap was deployed here however, due to its size, shape and indicators of active use it cannot be ruled out as breeding sett. As per breeding sett classification, a 50m exclusion zone has been awarded to this sett. There is approximately 122m clearance between the protective exclusion zone and the Proposed Development boundary route boundary so no protective fencing or signage will not be necessary.

Plate 44. *Sett 33 entrance.*

Sett 34 was located at **chainage 21000m** (Approximately 155m east of the Proposed Development boundary). The sett is located on the bank of a wet drainage ditch. No camera trap was deployed here however, due to its size, shape and indicators of active use it cannot be ruled out as breeding sett. As per breeding sett classification, a 50m exclusion zone has been awarded to this sett. There is approximately 55m clearance between the protective exclusion zone and the Proposed Development boundary boundary so no protective fencing or signage will be necessary.

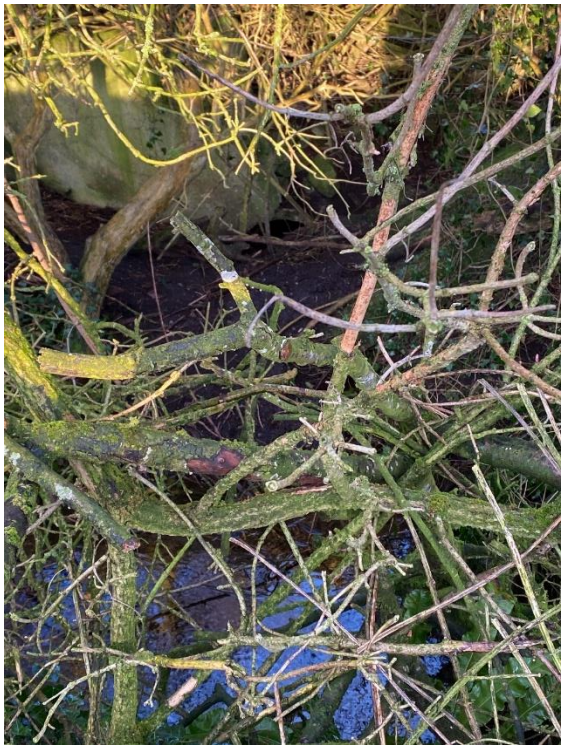

Plate 45. *Sett 34 entrance.*

Sett 35 was located at chainage 21800m (just east of the Proposed Development boundary). The sett had fresh spoil however, it was small and classified as a subsidiary sett. There were strong tracks leading to this sett. An active sett is awarded a 30m exclusion zone and will require protective fencing and signage as the sett is located at the edge of the Proposed Development boundary.

Plate 46. *Sett 35 entrance.*

Sett 36 was located at chainage 21800m (just east of the Proposed Development boundary). The sett had an entrance on each side of hedgerow/fence. A small spoil heap was noted on east side with Clean

entrance. This, with the light trails leading to the sett indicated the set was likely a subsidiary sett. Sett 36 was awarded an 30m exclusion zone and will require protective fencing and signage as the sett is located at the edge of the Proposed Development boundary.

Plate 47. *Sett 36 entrance.*

Sett 37 was located at **chainage 22000m** (approximately 43m east of the Proposed Development boundary). The sett showed signs of active use but was consider too small for a breeding sett classification. As an active subsidiary sett, it was awarded a 30m exclusion zone. As there is no clearance between the exclusion zone and the Proposed Development boundary and 17m between sett itself and the Proposed Development boundary, protective fencing and signage will be needed around the exclusion zone.

Sett 38 was located at **chainage 22200m** (approximately 63m east from the proposed route.) This sett was close to sett 38 and had four entrances, three of which had fresh spoil. Badger hair was found on the barbed wire quite close to one of the entrances. Based on these observations, the sett was classified as a breeding sett and awarded a 50m exclusion zone. As there is no clearance between the exclusion zone and the Proposed Development boundary and the sett itself being approximately 18m from the Proposed Development boundary, protective fencing and signage will be necessary to outline the exclusion zone.

Plate 48. *Entrance 1 to sett 38.*

Plate 49. *Entrance 2 to sett 38.*

Plate 50. *Entrance 3 to sett 38.*

Sett 39 was located at **chainage 22700m** (Approximately 143m north from the Proposed Development boundary). There are four entrances noted in total, three of which were old with no fresh bedding. The fourth entrance showed signs of active use with fresh spoil and bedding. Based on these observations the sett was classified as an active subsidiary sett and was awarded a 30m exclusion zone. As there is approximately 46m of clearance between the exclusion zone and the Proposed Development boundary, fencing and signage around the exclusion zone will not be necessary.

Plate 50. *Entrance 3 to sett 39.*

Sett 40 was located at chainage 23200 (just northwest of the Proposed Development boundary). The set had a double entrance with fresh digging, large spoil, fresh bedding and in an area of mammal activity with latrines noted in the area. For this reason sett 40 classified as a breeding sett and awarded a 50m exclusion zone. The exclusion zone extends into the Proposed Development boundary by approximately 30m therefore protective fencing and signage must be erected.

Plate 51. *East entrance to sett 40.*

Plate 52. *West entrance to sett 40.*

Sett 41 was located off the chainage path. Its coordinates are as follows 53°17'31.7"N 7°08'49.6"W. This sett was classified an active subsidiary sett due it its small size and fresh bedding.

Plate 53. *Entrance to sett 41 with a machete for scale.*

33 Non-volant mammal assessment findings

33.1 Review of local mammal records

The review of existing terrestrial mammal records (sourced from NBDC Database) within a 10km^2 grid (Reference grid N52, N53, N62,N63,N64) encompassing the study area reveals that twelve known Irish species have been observed locally (Table 3.)

Table 3: Status of non-volant mammal species within the 10km^2 grid (N52).

Species name	Date of last record	Title of dataset	Designation
American Mink (*Neovison vison*)	15/03/2017	National Invasive Species Database	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 || Invasive Species: Regulation S.I. 477/2011 (Ireland) || Invasive Species: High Risk Invasive Species (2013 Report) || Invasive Species: Regulation S.I. 374/2024 (Ireland) || Invasive Species: The Wildlife (Northern Ireland) Order 1985
Badger *(Meles meles)*	09/05/2018	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Brown Long-eared Bat *(Plecotus auritus)*	22/06/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Brown Rat *(Rattus norvegicus)*	15/05/2017	National Invasive Species Database	Invasive Species: High Risk Invasive Species (2013 Report)
Common Pipistrelle *(Pipistrellus pipistrellus sensu stricto)*	30/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Daubenton's Bat *(Myotis daubentonii)*	31/08/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Fallow Deer *(Dama dama)*	13/03/2015	General Biodiversity Records from Ireland	Invasive Species: Regulation S.I. 477/2011 (Ireland) || Invasive Species: High Risk Invasive Species (2013 Report) || Invasive Species: Regulation S.I. 374/2024 (Ireland) || Protected Species: Wildlife Acts
Greater White-toothed Shrew *(Crocidura russula)*	17/10/2020	Mammals of Ireland 2016-2025	Invasive Species: Medium Risk Invasive Species (2013 Report)
Grey Squirrel *(Sciurus carolinensis)*	31/12/2012	Irish Squirrel Survey 2012	Invasive Species: EU Invasive Alien Species Regulation No. 1143/2014 || Invasive Species: Regulation S.I. 477/2011 (Ireland) || Invasive Species: High Risk Invasive Species (2013 Report) || Invasive Species: Regulation S.I. 374/2024 (Ireland)
Hedgehog *(Erinaceus europaeus)*	23/07/2023	Hedgehogs of Ireland	Protected Species: Wildlife Acts

Leisler's Bat *(Nyctalus leisleri)*	18/05/2019	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Natterer's Bat *(Myotis nattereri)*	18/05/2009	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Otter *(Lutra lutra)*	22/12/2018	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex II || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Pine Marten *(Martes martes)*	15/06/2021	Mammals of Ireland 2016-2025	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex V || Protected Species: Wildlife Acts
Pipistrelle *(Pipistrellus pipistrellus sensu lato)*	21/10/2008	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts
Pygmy Shrew *(Sorex minutus)*	21/05/2019	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Rabbit *(Oryctolagus cuniculus)*	29/10/2014	General Biodiversity Records from Ireland	Invasive Species: Medium Risk Invasive Species (2013 Report)
Red Squirrel (Sciurus vulgaris)	04/04/2023	Mammals of Ireland 2016-2025	Protected Species: Wildlife Acts
Soprano Pipistrelle *(Pipistrellus pygmaeus)*	10/06/2021	National Bat Database of Ireland	Protected Species: EU Habitats Directive || Protected Species: EU Habitats Directive >> Annex IV || Protected Species: Wildlife Acts

34 Evaluation of results

The mammal surveys comply with CIEEM guidelines.

A total of six terrestrial mammal species were confirmed within the survey area by visual confirmation and behavioural evidence: badger (*Meles meles*), fox (*Vulpes vulpes*), rabbit (*Oryctolagus cuniculus*), pine Marten (*Martes martes*), wood mouse (*Apodemus sylvaticus*), hare (*Lepus timidus hibernicus*) and unconfirmed deer species.

During the 2025 survey, 31 active badger setts were identified. During the 2026 surveys, 10 active badger setts were identified. A total of 41 active badger sets were noted within the survey area. Numerous sightings of foxes and rabbits in addition to their dens and warrens were made during the survey. The active setts noted along the pipeline route and the associated compound areas are listed in table 1 & 2 along with the sett number, chainage, fencing requirements and exclusion zone. The required exclusion zone has been placed around each of the badger setts, its distance is depending on each setts activity level (50m for a breeding sett (during breeding season from December to June inclusive) and 30m for all other active setts) in line with the National Roads Authority (NRA) Guidelines (2005).

A review of existing records revealed that eleven additional species, west European hedgehog (*Erinaceus europaeus*), pine marten (*Martes martes*), brown rat (*Rattus norvegicus*), grey squirrel (*Sciurus carolinensis*), red squirrel (*Sciurus vulgaris*), pygmy shrew (*Sorex minutus*), greater white – toothed shrew (*Crocidura russula*), American mink (*Neogale vision*), ferret (*Mustela putorius furo*),

fallow deer (*Dama dama*) and feral goat (*Capra hircus*) have been recorded in the vicinity of the survey area.

Mammal surveys were conducted on the 9th, 17th of December 2024, the 20th,21st, 29thand 30th of January, the 4th,5th,10th, 14th and 18th of February and the 11th and 18th of March 2025. The survey areas encompassed the entirety of each field that was the proposed route and the proposed development boundary passed through, as well as those adjacent again where required. The surveys in 2026 were conducted on the 13th, 14th,15th, 20th, 21st, 22nd of January of 2026 and the 12th and 13th of March 2026. Surveys in 2026 were confined to the 50m either side of the Proposed Development boundary and 150m out at water crossings.

Overall, considering the scale of the site, the survey area is of moderate to high importance to mammal species, particularly badgers. Forty- one active setts (eighteen of which are classified as breeding setts) were noted within or in relative proximity to the proposed 23km pipeline route and compound areas. The badger is a protected species under the Wildlife Act. It is standard best practice to make special provisions for badgers affected by development, specifically the implementation of exclusion zones around setts in line with the National Roads Authority (NRA) Guidelines(2005). The required exclusion zones of 20 of the setts cross over into, or border, the Proposed Development site. Protective fencing and signage must be placed along the perimeter of exclusion zones of these setts. In relation to badger sett 41 in the O'Gradys Option 2 compound area, a preconstructions activity assessment is required to determine activity of the sett. An appropriate exclusion zone will be determined by a mammal specialist prior to this site compound being used by machinery.

Otters are known to utilize watercourses that the proposed development route traverses. Throughout the survey, evidence of otter activity was actively sought; however, a single otter footprint was noted at watercourse WCX4. Camera traps were deployed along the watercourses, but no otter activity was captured. It is considered likely that otters use these watercourses; however, due to their secretive and elusive nature, the absence of recorded evidence does not negate their presence or use of the watercourses.

35 Potential impact of the development on non-volant fauna

Due to the high levels of mammal activity within the survey area, and considering the overall size of the survey area, a short-term moderate adverse impact on protected non-volant terrestrial mammals is foreseen as a result of the proposed development in the absence of mitigation. Mitigation measures are necessary to protect the badger setts and there foraging areas.

36 Limitations

There were minimal limitations in relation to the surveys associated with this report. Suitable habitat exists on site for pine marten which has previously been recorded in the surrounding area. Additional surveys may have been required to detect transient use of this species on site; however, no scat of this species was observed. Weather conditions had minimal impact on the execution of the survey.

37 Mitigation measures

Overall, proposed site outline within the survey area is of moderate to high importance to the local non-volant terrestrial mammal population. However, the impact of the development during construction phase will be a loss of existing habitats and species. The following mitigation measures relevant to mammals, as well as those outlined within the accompanying NIS and EIAR, shall be implemented to minimise any potential negative impact on biodiversity:

- An Ecological Clerk of Works (ECoW) will be appointed to oversee the construction phase and to oversee the implementation of all mitigation including compliance with Wildlife Acts and Water Pollution Acts and ensure that biodiversity in neighbouring areas including birds will not be impacted.
- All mitigation measures outlined in the EIAR Chapters and Natura Impact Statement (NIS) that pertain to the construction stage of the proposed development will be implemented by the Contractor.
- Preconstruction surveys for mammals will be carried out along the full route given the time between the original surveys and possible site clearance.
- In the vicinity of badger setts, no construction operations will take place only during daylight hours.
- To prevent badgers from climbing into pipes, gas pipes arriving onsite will be clean and sealed. Pipes in storage will be sealed. Open-cut trenches will have sloped face at the end of each of working day to allow badgers to exit.
- Fencing outlining the site boundary is planned to be erected for the entirety of the project. As directed by the ECoW mammal access points will be placed and monitored along the pipeline route. In areas of fencing close to known badger setts, access points will be made along existing tracks. Additional, access points will be made close to ecological corridors such as hedgerows, treelines, watercourses and drainage ditches.
- The effectiveness of the proposed mitigation will be monitored by the ECoW throughout the works.
- Where the required exclusion zone of badger setts encroach into the proposed construction corridor, protective fencing and signage will be put in place to maintain the integrity of the exclusion zones.

Any construction works required outside the construction corridor will require prior approval from the project ECoW.

38 Predicted residual impact of development.

Following mitigation, the overall impact on the ecology of the proposed development will result in a short-term minor adverse, not significant, residual impact on the ecology of the site and locality overall.

A pre-construction survey will be carried out for terrestrial mammals of conservation importance. It is imperative that all works are carried out within the construction corridor and that fencing is erected before the commencement of works. A NPWS derogation licence is not required for the proposed development.

39 References

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