

**MWP**

**Chapter 05 Biodiversity**  
**Newtown Transmission Gas Pipeline and  
Associated Above Ground Infrastructure**

**Gas Networks Ireland**

**November 2025**

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## 5. Biodiversity

### 5.1 Introduction

This chapter considers the potential effects on biodiversity arising from the proposed development. A full description of the proposed development, development lands and all associated project elements is provided in **Chapter 02 Description of the Proposed Development** of this **EIAR**. The nature and probability of effects on biodiversity arising from the overall project has been assessed. The assessment comprises:

- A review of the existing receiving environment;
- Prediction and characterisation of likely impacts;
- Evaluation of effects significance; and
- Consideration of mitigation measures, where appropriate.

#### 5.1.1 Competency of Assessor

The assessment was completed by Orla van der Noll (BSc, MSc). Orla is an Ecologist at MWP with experience in consultancy since 2021. She has completed numerous ecological reports including screening for AA reports, Natura Impact Statements (NIS), and Ecological Impact Assessments (EclAs) for a range of projects across Ireland. Orla has strong ecological field survey skills, particularly in ornithology, bats and aquatic ecology. In 2020 she qualified with a first-class honours master's degree in Marine Biology from Bangor University in Wales, after graduating from University College Cork in 2018 with a Bachelors (Hons) degree in Ecology and Environmental Biology. She also holds a T-permit under the British Trust for Ornithology (BTO) ringing scheme in Ireland since January 2022. Orla is registered with the Chartered Institute of Ecology and Environmental Management (CIEEM) as a Qualifying member, working towards an Associate membership.

This document was reviewed by Úna Williams (BSc., MSc.), Ecologist and Environmental Scientist at MWP. Úna has worked with MWP for nearly five years and is an experienced field ecologist. In 2018, she graduated from Queen's University, Belfast with a first-class honours Master's degree in Animal Behaviour and Welfare, after graduating from Trinity College, Dublin with an Environmental Science degree in 2008. She has worked on research teams both in Ireland and abroad and has undertaken assessments for a wide variety of projects including renewable energy developments, and infrastructural and coastal development projects. Úna has designed and carried out several Collision Risk Models for proposed wind farms and has authored many ecological reports and assessments.

Bat surveys were carried out by Rob Beer (BSC, MRSB). Rob is a Senior Ecologist with six years full-time experience, since graduating in 2017. Rob has recently joined MWP and had previously been working in the UK. Rob is experienced in a range of standard and complex ecological surveys in accordance with British standards, including but not limited to, UK habitat classification surveys and JNCC Phase 1 surveys, Biodiversity Net Gain (BNG) metric and reporting, bat surveys (stages 1 & 2), reptile surveys, badger surveys, & great crested newt (GCN) surveys. Rob is a holder of a Natural England bat license level 2, a holder of a Natural England GCN license level 1 and has a FISC level 2 certificate. Rob has also recently acquired a NPWS bat survey license (DER/BAT 2024-112). Rob also has extensive experience with ecological clerk of works (ECoW) for a range of species across diverse project types, from small householder projects to large infrastructure projects such as rail and road schemes. This includes conducting supervisions and overseeing licenced works in relation to bat, badger and GCN. Rob has extensive

experience in bat related work and historically volunteered with a number of different bat groups in the UK; this has enabled him to gain a vast amount of experience in all types of bat surveys and work. In addition to his experience with stage 1 and 2 surveys he has also been part of numerous hibernation roost surveys, and other roost counts/inspections where he is proficient in the use of endoscopes and hand netting, and the handling of bat species

### 5.1.2 Relevant Legislation

The legislation underpinning biodiversity and nature conservation in Ireland includes the following;

- EU Habitats Directive (92/43/EEC) as amended;
- EU Birds Directive (2009/147/EC) as amended;
- EU Water Framework Directive (WFD) (2000/60/EC);
- European Communities (Birds and Natural Habitats) Regulations 2011 to 2015 (S.I. 477/2011), as amended;
- Planning and Development Act (2000), as amended;
- Planning and Development Regulations 2001 to 2011, as amended;
- Wildlife Act 1976 to 2021, as amended;
- Flora (Protection) Order, 2022; and,
- European Communities (Quality of Salmonid Waters) Regulations, 1988.

This assessment was undertaken in accordance with the recent Environmental Protection Agency (EPA) best-practice guidance 'Guidelines on information to be contained in Environmental Impact Statements' (EPA, 2022).

The following other guidance documents and relevant publications were considered:

- 'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland' published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009a);
- Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.*, 2011);
- Bat mitigation guidelines for Ireland v2. Irish Wildlife Manuals, No. 134. (Marnell *et. al*, 2022);
- Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th Edition). (Collins, 2023); and
- Other information sources and reports footnoted in the course of the report.

### 5.1.3 Scope of Assessment

This assessment considers the potential effects with regard to each phase of the development: construction phase, operational phase and decommissioning phase. Appropriate mitigation measures are described to avoid, reduce or offset potential negative impact(s).

The specific objectives of the assessment were to:

- Identify and document protected habitats and species within the study area through a desk top study of available ecological data;

- Undertake baseline ecological surveys at the study area and evaluate the nature conservation importance of the ecological resources identified using a scientifically robust and objective methodology based on current National and International best practice;
- Predict the potential direct, indirect and cumulative effects of the project on Biodiversity;
- Prescribe measures to mitigate the potential negative effects of the project on Biodiversity; and
- Identify habitats within the study area that can benefit from ecological management for the purpose of local Biodiversity enhancement.

## 5.2 Methodology

### 5.2.1 Desktop Study

The desk studies undertaken for this assessment included reviews of available published data on designated conservation sites, and other ecologically sensitive sites, habitats and species of interest in the vicinity of the proposed development. A review was carried out of relevant publications, data and datasets from the following sources:

- Ordnance Survey Ireland (OSI) aerial photography and 1:50000 mapping, and other mapping sources (online);
- National Parks and Wildlife Service (NPWS) online mapping and datasets, including EU Habitats Directive Article 17 spatial mapping for habitats and species<sup>1</sup>;
- Heritage Maps online mapping;
- National Biodiversity Data Centre (NBDC) online mapping and datasets;
- Environmental Protection Agency (EPA) online mapping and datasets;
- Geological Survey of Ireland (GSI) online mapping;
- Fingal County Development Plan (2023-2029)<sup>2</sup>;
- National Biodiversity Action Plan 2023–2030<sup>3</sup> and the Fingal Biodiversity Action Plan (2022-2030)<sup>4</sup>;
- Bat Conservation Ireland – <http://www.batconservationireland.org>;
- Invasive Species Ireland - <http://www.invasivespeciesireland.com/>;
- Review of records of plant species protected under the Flora (Protection) Order (2022);
- Irish Red Data Book for Vascular Plants (Wyse et al. 2016);
- Review of the most recent Bird Atlas (2007-2011)( Balmer et al., 2013);
- Review of Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert et al., 2021);
- Review of BirdWatch Ireland I-WeBS (Irish Wetland Bird Surveys) site information;
- Checklists of Protected and Threatened Species in Ireland. (Nelson, et al., 2019);

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<sup>1</sup> Available at: <https://www.npws.ie/maps-and-data/habitat-and-species-data/article-17>

<sup>2</sup> Available at: [Fingal Development Plan 2023-2029 | Fingal County Council](#)

<sup>3</sup> Available at: [4th National Biodiversity Action Plan.pdf \(npws.ie\)](#)

<sup>4</sup> Available at: [Fingal County Council - 'Fingal Biodiversity Action Plan 2023-2030' Report](#)

- Review of requested records from NPWS Rare and Protected Species database, and BCI bat records/roost database; and
- Other information sources and reports footnoted or referenced throughout the report.

The study area lies within Ordnance Survey (OSI) National Grid hectad (10km square) O14 and species records for this hectad were downloaded from the NBDC on-line database. The results of the database search for records of fauna and flora previously recorded from hectad O14 are provided below in the relevant sections.

With regard to bats, the NBDC's Bat Habitat Suitability Index (BHSI), available on the NBDC on-line mapping tool<sup>5</sup>, derived from an analysis of the habitat and landscape associations of Irish bats compiled in Lundy *et al.* (2011), was reviewed. The index evaluation ratings range from 0 to 100 with 0 being the least favourable, and 100 the most favourable, for bats. Index evaluations are available for each species and an overall rating is also available for all species in combination.

## 5.2.2 Data Requests

Information received via the NPWS and the NBDC in response to the data requests and database searches was used to help inform the baseline surveys and impact assessment in relation to the proposal.

Concise and site-specific information on species records available in the hectad O14 was retrieved from the National Biodiversity Data Centre (NBDC) online database and reviewed.

On the 23<sup>rd</sup> of February 2024, a request was made to NPWS for Sensitive Data Access for hectad O14. Data for species records within the hectad was received from the NPWS on the 26<sup>th</sup> February 2024.

Following a data request to Bat Conservation Ireland (BCI) for all bat data available within a 10 km radius of the approximate centre point of the proposed development site, records were provided by BCI on the 27<sup>th</sup> March 2024. This provision of bat records by BCI does not constitute as a consultation with BCI regarding the proposal.

To confirm there have been no changes to the BCI data or sensitive species within hectad O14 in the intervening period, additional requests to BCI and the NPWS have been made in November 2025. Any changes will be updated accordingly once the new data has been received.

## 5.2.3 Field Surveys

A multi-disciplinary ecological walkover survey was completed on the 30<sup>th</sup> of January 2024 and 17<sup>th</sup> September 2025 by MWP ecologists to provide a comprehensive overview of the baseline ecology in the study area and to identify any ecological features and resources that may potentially be impacted by the proposed development. The site visit and walkover survey was carried out in suitable weather conditions following best practice and in the expert opinion of the author, are considered sufficient to assess all potential significant ecological effects associated with the project.

### 5.2.3.1 Habitats

Habitats were classified in-field following the Heritage Council Publication A Guide to Habitats in Ireland (Fossitt, 2000). Given that the habitats potentially affected by the proposed development are commonly occurring with a broad geographic distribution, specific detailed surveys for particular plant groups were not considered necessary.

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<sup>5</sup> [Maps - Biodiversity Maps \(biodiversityireland.ie\)](https://biodiversityireland.ie)

### 5.2.3.2 Bats

A preliminary survey of the trees onsite was undertaken to identify any actual or potential bat roosts which could be either directly or indirectly impacted by proposed arboriculture works. The Preliminary Bat Roost Assessment (PBRA) was conducted on the 4th of July 2024 and the 17th September 2025 by an experienced surveyor (DER/BAT 2024-112 Irish bat license number and Natural England bat survey licence number 2022-10295-CL18-BAT).

A visual inspection was carried out of any trees and/or structures within the proposed development site that may provide suitable locations for bat roosts and areas potentially suitable bat foraging habitat (Collins, 2023). The site survey was supplemented by a review of Bat Conservation Ireland’s (BCI) National Bat Records Database.

The criteria set out in **Table 5-1** were used to classify the potential of the trees to support roosting bats.

**Table 5-1: Classification criteria for bat roosting potential**

Category	Description
Confirmed	Tree with features confirmed to be used by roosting bats either by historic records (verified appropriately), or evidence recorded during survey.
High	Tree with highly suitable features capable of supporting larger roosts, and/or multiple roost locations. Generally, these trees are located in proximity to highly suitable foraging/commuting habitat such that the presence of a roost is considered highly probable.
Moderate	Tree exhibiting features with definite bat roost suitability, but with only one or two suitable features suitable for larger roosts, or multiple features with the suitability to be used by individual/small numbers of bats. Surrounding area includes good quality foraging habitat for bats e.g. broadleaved woodland, tree-lined watercourses and grazed parkland such that the presence of a roost is considered probable.
Low	Tree with single, or few features capable of supporting individual/small numbers of bats e.g. external roosting features such as flaking bark or knot holes, in which bats are considered less likely to be present. Or a greater number or variety of features located in sub-optimal habitat such that bats would be less likely to use it e.g. isolated from foraging or commuting habitats.
Negligible	Tree with no suitable opportunities for roosting bats, or very few or minor features in an isolated/unsuitable location such that the presence of a roost is considered highly improbable. e.g. isolated from suitable foraging or commuting habitats.

The search covered potential roosting features (PRFs) and areas where bat droppings may collect. Signs indicating possible use by bats include:

- Scratches and staining around an entry point;
- Bat droppings in, around or below an entry point;
- Squeaking noises;
- Flies around an entry point;
- A distinctive smell of bats; and
- Smoothing of surfaces around a cavity.

The survey was conducted in July when the trees were in full leaf, which may mean that some PRFs were present but not visible. There were no other limitations to the survey. All the trees could be assessed from the ground and the survey was conducted during suitable weather conditions in accordance with current guidelines.

### 5.2.3.3 Mammals (excluding Bats)

Non-volant mammals and/or evidence of their activity such as prints, faecal pellets/droppings, burrow-holes/dens and food caches, activity trails and disturbed vegetation were looked for during the walkover survey.

Surveys had regard to the following guidance/literature:

- *'Animal Tracks and Signs'* (Bang and Dahlstrom, 2004);
- *'How to Find and Identify Mammals'* (Muir et al., 2013);
- *'Surveying for Badgers: Good Practice Guidelines'* (Scottish Badgers, 2018);
- *'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes'* (NRA, 2009b);
- *'Monitoring the Otter Lutra lutra'* (Chanin, 2003a); and
- *'Ecology of the European Otter'* Chanin (2003b).

### 5.2.3.4 Invasives

The presence of any Invasive Alien Species (IAS) was documented, including GPS location, and size and area of infestation. During surveys particular focus was given to species listed on the Third Schedule of the of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended).

### 5.2.3.5 Arboriculture survey

Arbor-Care Ltd (Professional Consulting Tree Service) was retained by Fingleton White to undertake an Arboriculture impact Assessment, identifying the trees, groups of trees that may be impacted on by the proposed works. The surveyed trees surveyed for this assessment are located along Bay Lane and Kilshane Road. The objective of the impact assessment was to survey the trees and determine the approximate tree and vegetation loss the proposed works may have.

The survey is based on the British standard BS 5837:2012 *Trees in relation to design, demolition and construction recommendations*. This standard gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with structures. It sets out to assist those concerned with trees in relation to construction to form balanced judgements.

The tree survey and visual condition assessment was carried out on the 24th of April 2024. According to best practice, trees forming obvious groups are assessed and recorded as groups, and only trees with diameters of 75mm or greater were surveyed.

The objective of this survey was to gather information regarding the trees within or adjacent to the works area and the impact the proposed works may have on the trees. The survey concentrated primarily on the trees/groups located along the gas pipeline route at Bay Lane and Kilshane road. On Kilshane road the survey concentrated on the trees along the north side of the road. Significant trees can be equated as those trees whose visual importance to the surrounding area are sufficient to justify special efforts to protect/preserve them and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the trees' age, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or

context and thus provides a special contribution as a landmark or landscape feature. All above parts of the trees were visually examined. Tree diameters (DBH) were estimated at 1.5 meter above ground level as per standard arboriculture practice. A generalised system was employed to describe the overall health of the trees. The system uses a three tier rating scale with the following descriptors:

Specimen condition 3-tier rating system

1. Poor- 1-30%
2. Fair- 31-60%
3. Good- 61-100%

### 5.2.3.6 Incidental sightings

Incidental sightings of birds, mammals or amphibians were noted during the field surveys.

## 5.2.4 Ecological Value

The value of the ecological receptors identified was determined using the ecological evaluation guidance given in the National Roads Authority (NRA – now TII) ecological assessment guidelines '*Guidelines for Assessment of Ecological Impacts of National Roads Schemes*' (NRA, 2009a). This evaluation scheme seeks to provide value ratings for ecological receptors and sets out the context for the determination of value on a geographical basis with a hierarchy (International through to Local) assigned based on the importance of any particular ecological receptor.

The NRA criteria are specific to circumstances in Ireland and, therefore, have been used in this report to assess the value of individual ecological features within the proposed development site and its ZOI. The NRA (2009a) guidelines provide a basis for determination of whether any particular site, habitat or species is of importance on the following scale:

- International;
- National;
- County;
- Local Importance (higher value); and
- Local Importance (lower value).

The NRA (2009a) guidelines clearly set out the criteria by which each geographic level of importance can be assigned. At the lowest end of the scale, Locally Important (lower value) receptors contain habitats and species that are widespread, of low ecological significance, and are of importance only in the local area. In contrast, Internationally Important receptors can comprise sites designated for conservation at an international level as part of the Natura 2000 Network (SAC or SPA) or which provide the best examples of habitats, or internationally important populations of protected flora and fauna.

The function of this evaluation scheme is primarily to assess the value of a site. In this case, the scheme has been adapted to assess the value of habitats and species. The value of habitats is assessed based on habitat condition, size, rarity, conservation and legal status. The value of species is assessed on its biodiversity value, legal status and conservation status. Biodiversity value is based on its national distribution, abundance or rarity, and associated trends.

Important Ecological Features (IEFs) are ecological features (*i.e.* sites designated for nature conservation, habitats and/or species) which are evaluated as Locally Important (higher value) or higher and which are likely to be impacted significantly by the proposed development. All features that were evaluated as being of Local Importance (higher value) and higher were selected as IEFs, and the significance of impacts arising on these features as a result of the proposed development was assessed.

The NRA (2009a) criterion used to evaluate the value of ecological resources has been included in **Appendix 2**.

In relation to bats, other guidance, specific to bats and bat impact assessment, namely Marnell *et al.*, (2022), has been used to determine the significance of any potential impacts on bats.

## 5.2.5 Scope of Assessment

### 5.2.5.1 Study Area and Zone of Influence (ZOI) of the Proposed Project

The zone of influence (ZOI) for the proposed development is the geographical area over which construction and/or operation of the proposed development has the potential to affect the receiving environment in such a manner as to significantly affect IEFs. The area over which ecological features may be affected by biophysical changes because of the proposed project and associated activities is likely to extend beyond the project site where, for example, there are ecological or hydrological links beyond the site boundaries (CIEEM, 2018). Consequently, and to ensure completion of an integrated assessment, the study area for this project included the entire proposed development site, adjoining habitats, and ecologically and hydrologically connected habitats and species.

The following were considered when identifying the potential ZOI at the initial stages of the project:

- The nature, size and location of the project;
- Identification of potential effect pathways to key ecological receptors;
- The sensitivities of the relevant key ecological receptors;
- Identification of suitable habitats for high conservation value species; and
- Ecological connectivity between the development site and the wider landscape.

The Source-Pathway-Receptor (SPR) model is used to determine which IEF's are further assessed. The SPR model considers the nature, size and location of the proposed development and identified characteristics that may provide a source of direct (e.g. water, habitat loss) or indirect (e.g. impact to prey species) ecological impacts. Secondly, any pathways (e.g. watercourses) linking the proposed development site to IEF's such as European sites. Finally, 'the location, nature and sensitivities of the qualifying species/habitats, the ecological conditions underpinning their survival, and the conservation objectives specified to maintain or restore favourable conservation status' were established (OPR, 2021).

The identification of IEF's within the ZOI of the proposed development are discussed in **Section 5.4**.

### 5.2.5.2 Assessment Criteria

Determination of the significance of an effect will be made in accordance with the terminology outlined in the EPA guidance document '*Guidelines on Information to be contained in Environmental Impact Assessment Reports*' (EPA, 2022) (as set out in **Table 5-2** below).

**Table 5-2: Summary of criteria for assessing impacts based on EPA (2022)**

Parameter	Term	Description
Quality of Effects	Positive	A change which improves the quality of the environment
	Neutral	No effects or effects that are imperceptible, within normal bounds of variation or within the margin of forecasting error
	Negative /adverse	A change which reduces the quality of the environment
Significance of Effects	Imperceptible	An effect capable of measurement but without significant consequence
	Not significant	An effect which causes noticeable changes in the character of the environment but without significant consequences
	Slight	An effect which causes noticeable changes in the character of the environment without affecting its sensitivities
	Moderate	An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends
	Significant	An effect which, by its character, magnitude duration or intensity alters a sensitive aspect of the environment
	Very Significant	An effect which, by its character, magnitude duration or intensity alters most of a sensitive aspect of the environment
	Profound	An impact which obliterates sensitive characteristics
Extent and Context of Effect	Extent	Describe size of area, number of sites, proportion of a population affect by an effect
	Context	Describe the extent, duration, frequency will conform or contrast with baseline conditions (is it the biggest, longest effect ever?)
	Likely Effects	The effects can be reasonably expected to occur because of the planned project if all mitigation measures are properly implemented
	Unlikely Effects	The effect that can reasonably be expected not to occur because of the planned project if all mitigation measures are properly implemented
Duration of Effect	Momentary	Effects lasting from seconds to minutes
	Brief	Effects lasting less than a day
	Temporary	Effects lasting less than a year
	Short-term	Effects lasting one to seven years
	Medium-term	Effects lasting seven to fifteen years
	Long-term	Effects lasting fifteen to sixty years
	Permanent	Effects lasting over sixty years
	Reversible	Effects than can be undone e.g. through remediation or restoration
Types of Effects	Frequency	How often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, monthly, annually)
	Indirect	Impacts on the environment, which are not a direct result of the project, often produced away from the project site or because of a complex pathway.
	Cumulative	The addition of many minor or significant effects, including effects of other projects, to create a larger, more significant effect.
	Do Nothing	The environment as it would be in the future should the subject project not be carried out.
	Worst case	The effects arising from a project in the case where mitigation measures substantially fail.

Parameter	Term	Description
	Indeterminable	When the full consequences of a change in the environment cannot be described.
	Irreversible	When the character, distinctiveness, diversity or reproductive capacity of an environment is permanently lost.
	Residual	The degree of environmental change that will occur after the proposed mitigation measures have taken effect.
	Synergistic	Where the resultant effect is of greater significance than the sum of its constituents, (e.g. combination of SO <sub>x</sub> and NO <sub>x</sub> to produce smog).

### 5.2.6 Statement on Limitations and Difficulties Encountered

The ecological walkover of the site was conducted outside of the optimum time for botanical surveys. However, given the current nature of the site and the nature of the proposed development, the survey effort and assessment are considered sufficient.

## 5.3 Baseline Environment of Proposed Development Site

### 5.3.1 Site Location and Description

The proposed development is located on lands at Kilshane Road (L3120), Kilshane, Finglas, Dublin 11. The area of the proposed development within the designated boundary extends to c. 3.14Ha. The proposed development is located northwest of the M50 motorway and on the western side of the N2 national road and the R135 regional road. The surrounding area is characterised by agricultural fields and industrial uses such as logistics, power stations, and additional business park operations. Roadstone Huntstown Quarry and Huntstown Power Station are located on lands to the south of the proposed development and the site is located to the east and north of Ballycoolin and Rosemount Industrial Estates..

### 5.3.2 Hydrology and Hydrogeology<sup>6</sup>

The site lies within the Broadmeadow\_SC\_010 Water Framework Directive (WFD) Sub-Catchment (ID: 08\_3) which is within the Nanny-Delvin WFD Catchment (ID: 08). There are no recorded EPA watercourses running through the proposed development site (see **Figure 5-1** below). A review of the historical mapping records provided within the GeoHive website do not indicate any watercourses within the site. Less than 400m to the south of the proposed development runs the closest watercourse, namely Huntstown\_08 (EPA Code 08H02). Huntstown\_08 (Order 1) is part of the Ward\_030 River Waterbody<sup>7</sup> and drains into Broadmeadow Water Transitional Waterbody<sup>8</sup> and Malahide Bay ca. 15km downstream of the proposed development. The footprint of the permitted Kilshane Power Station will overlap with the proposed development. A topographic survey completed as part of the EIAR for Kilshane Power Station (Environmental Impact Services, 2023) has confirmed that the internal and boundary hedgerows contain a drainage ditch which conveys flow to the Huntstown\_08 Stream during heavier rainfall events. The Ward\_030 River Waterbody is under pressure from urban wastewater

<sup>6</sup> All data relating to water features was obtained from the Environmental Protection Agency (EPA) interactive map viewer.

<sup>7</sup> EPA River Waterbody Code: IE\_EA\_08W010300

<sup>8</sup> EPA Transitional Waterbody Code: IE\_EA\_060\_0100

sewer overflows, golf courses, and channelisation. The River Waterbody WFD status of the Ward\_030 for the 2016-2021 period was classified as 'Moderate'<sup>9</sup>.

The nearest EPA river water quality monitoring station with the most recent (2020) biological water quality evaluation is the 'Br N of Killeek' (Station ID: RS08W010300). It is located approximately 7km downstream of the proposed development on the River Ward. The biological water quality evaluation for this station was Q3-4, or 'Moderate status'. This evaluation is based on the composition and abundance of the invertebrate community in the stream at this location.

The proposed development lies within the Swords (code: IE\_EA\_G\_011) groundwater-body (GWB) and is considered 'Not at risk' under the WFD. The groundwater vulnerability of aquifers at the proposed development site is recorded as 'Moderate Vulnerability' and 'High Vulnerability'. Geological Survey Ireland (GSI) define groundwater vulnerability as "a term used to represent the intrinsic geological and hydrogeological characteristics that determine the ease with which groundwater may be contaminated by human activities".

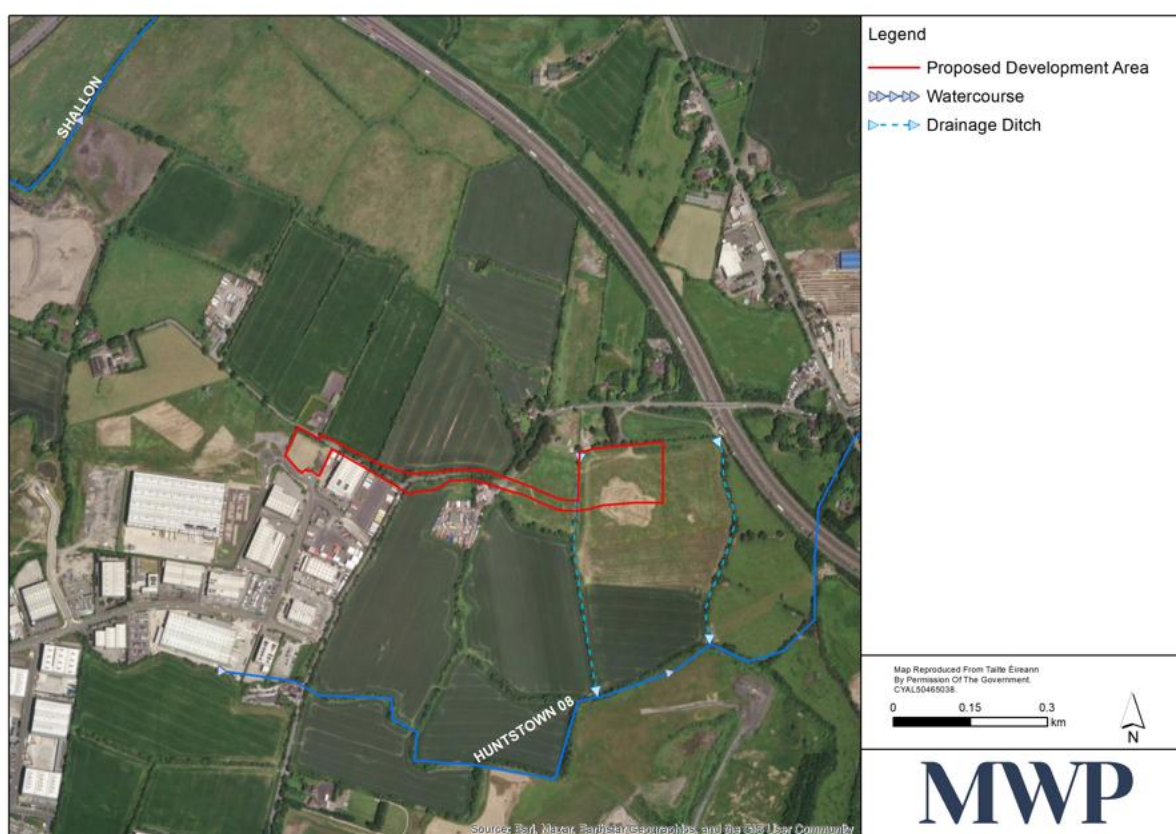


Figure 5-1: Watercourses within the vicinity of the proposed development Area

### 5.3.3 Designated Sites

#### 5.3.3.1 Natura 2000 Sites

A screening for Appropriate Assessment (AA) report has been prepared in relation to the proposed development. For further information, please see the standalone AA Screening report (AASR) which accompanies this

<sup>9</sup>[https://catchments.ie/wp-content/files/subcatchmentassessments/08\\_3%20Broadmeadow\\_SC\\_010%20Subcatchment%20Assessment%20WFD%20Cycle%202.pdf](https://catchments.ie/wp-content/files/subcatchmentassessments/08_3%20Broadmeadow_SC_010%20Subcatchment%20Assessment%20WFD%20Cycle%202.pdf)

application. The AASR identified two Natura 2000 sites within the ZOI of the proposed development site (see **Figure 5-2**, and **Table 5-3**, below).

Designated Natura 2000 sites, classified as either Special Areas of Conservation (SACs) or Special Protection Areas (SPAs) are identified and discussed in the following sections.

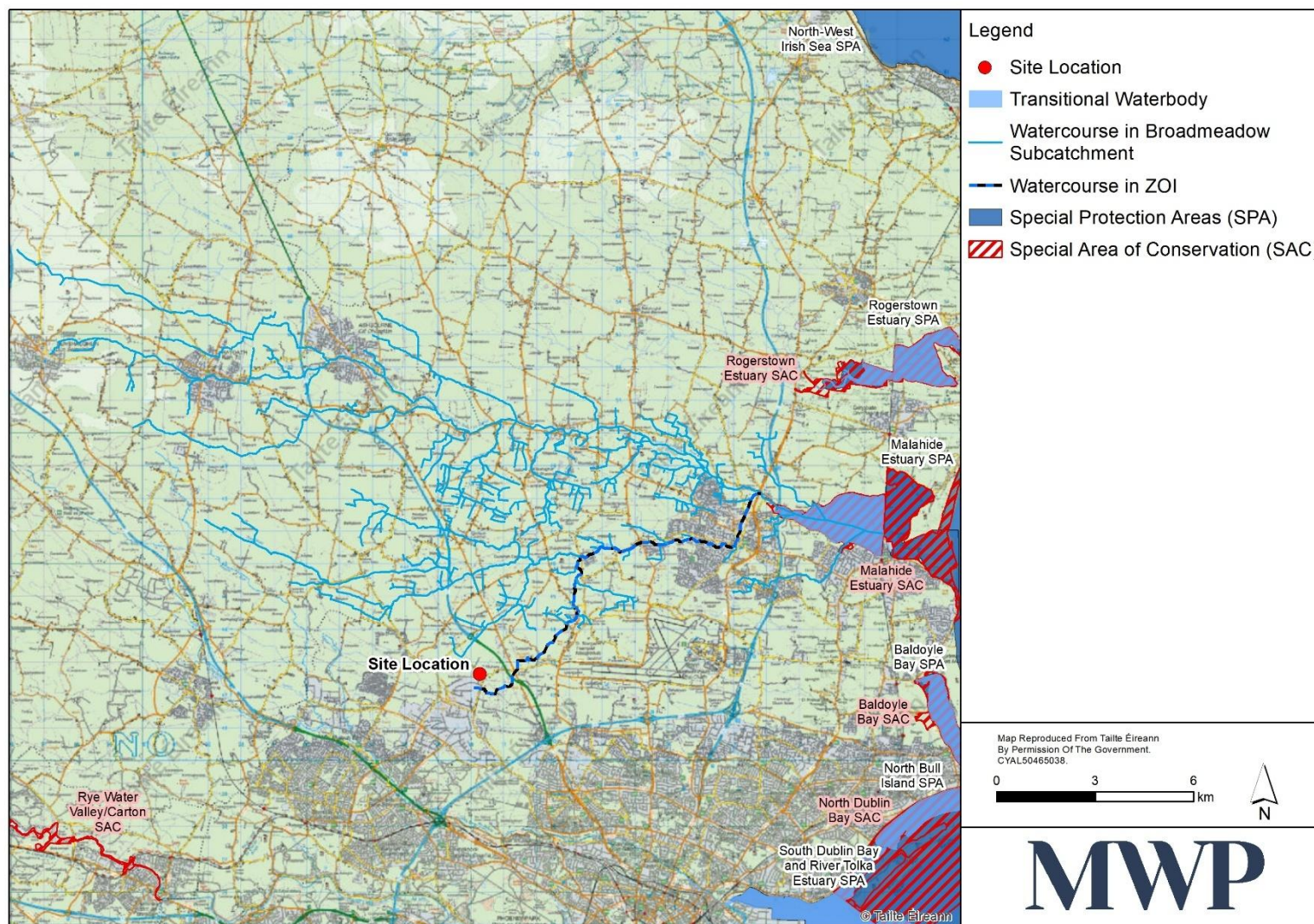


Figure 5-2: Malahide Estuary SPA and Malahide Estuary SAC are within the ZOI of the proposed development site via a hydrological connection.

**Table 5-3: Natura 2000 sites within the potential ZOI of the proposed development site**

Designated Site	Approximate Distance from the development site	Qualifying features of conservation interest
Malahide Estuary SAC (000205)	10.2km	<ul style="list-style-type: none"> <li>• Mudflats and sandflats not covered by seawater at low tide [1140]</li> <li>• Salicornia and other annuals colonising mud and sand [1310]</li> <li>• Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330]</li> <li>• Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410]</li> <li>• Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120]</li> <li>• Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]</li> </ul>
Malahide Estuary SPA (004025)	10.4km	<ul style="list-style-type: none"> <li>• Great Crested Grebe (<i>Podiceps cristatus</i>) [A005]</li> <li>• Light-bellied Brent Goose (<i>Branta bernicla hrota</i>) [A046]</li> <li>• Shelduck (<i>Tadorna tadorna</i>) [A048]</li> <li>• Pintail (<i>Anas acuta</i>) [A054]</li> <li>• Goldeneye (<i>Bucephala clangula</i>) [A067]</li> <li>• Red-breasted Merganser (<i>Mergus serrator</i>) [A069]</li> <li>• Oystercatcher (<i>Haematopus ostralegus</i>) [A130]</li> <li>• Golden Plover (<i>Pluvialis apricaria</i>) [A140]</li> <li>• Grey Plover (<i>Pluvialis squatarola</i>) [A141]</li> <li>• Knot (<i>Calidris canutus</i>) [A143]</li> <li>• Dunlin (<i>Calidris alpina</i>) [A149]</li> <li>• Black-tailed Godwit (<i>Limosa limosa</i>) [A156]</li> <li>• Bar-tailed Godwit (<i>Limosa lapponica</i>) [A157]</li> <li>• Redshank (<i>Tringa totanus</i>) [A162]</li> <li>• Wetland and Waterbirds [A999]</li> </ul>

### 5.3.3.2 Sites of National Importance

In Ireland, sites of national importance for nature conservation are designated as Natural Heritage Areas (NHAs) or proposed Natural Heritage Areas (pNHAs) under the Wildlife Act 1976, as amended. NHAs are areas considered important for the habitats present or which hold species of plants and animals whose habitat needs protection. A list of pNHAs was published on a non-statutory basis in 1995, but these have not since been statutorily designated. Prior to statutory designation, pNHAs are subject to limited protection; relative to this assessment of the proposed development, pNHAs are protected in the form of ‘Recognition of ecological value of pNHAs by planning and Licencing Authorities’<sup>10</sup>.

Sites of national importance within the ZOI of the proposed development have been identified and are listed in **Table 5-4**, below. A total of one pNHA and no NHAs have been identified within the ZOI of the proposed development. This pNHA overlaps with two Natura 2000 sites; Malahide Estuary SPA and SAC.

<sup>10</sup> <https://www.npws.ie/protected-sites/nha>

**Table 5-4: pNHA sites nearby the proposed development site**

Designated Site	Site Code	Features of Interest <sup>11</sup>	Proximity to study area	Overlap with Natura 2000 site	Hydrological/ecological connection to the proposed development
Malahide Estuary pNHA	000205	Internationally important site for the conservation of bird species and various coastal habitats (e.g. dunes, mudflats, sandflats, salt meadows). Important breeding site for ringed plover, shelduck and suitable breeding habitat for tern species.  This pNHA shares more or less the same footprint as the Malahide Estuary SAC (see <b>Figure 5-2</b> above).	10.2km	Yes	<b>Yes</b>

### 5.3.3.3 Additional Sites

#### 5.3.3.3.1 Ramsar Sites

The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat, is an international treaty that was established for the conservation and sustainable use of wetlands. The Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. A key commitment of Ramsar Contracting Parties is to identify and place suitable wetlands onto the List of Wetlands of International Importance. Ireland presently has 45 sites designated as Wetlands of International Importance.

An on-line search for Ramsar sites potentially located within the ZOI of the proposed development found one Ramsar sites<sup>12</sup> (**Table 5-5**). The Ramsar site identified within the ZOI overlaps with two Natura 2000 sites; Malahide Estuary SPA and SAC.

**Table 5-5: Ramsar sites within the ZOI**

Ramsar Site	Site Code	Features of Interest <sup>13</sup>	Proximity to study area
The Broadmeadow Estuary	833	Provides important habitat for feeding and roosting wintering waterbirds E.g. the site supports >1% of the flyway population of the Light-bellied Brent Goose.	10.4km

#### 5.3.3.3.2 Important Bird and Biodiversity Areas (IBAs)

Important Bird and Biodiversity Areas (IBAs) are sites selected as important for bird conservation because they regularly hold significant populations of one or more globally or regionally threatened, endemic or congregator bird species or highly representative bird assemblages. The European IBA programme aims to identify, monitor and protect key sites for birds all over the continent. It aims to ensure that the conservation value of IBAs in Europe (now numbering more than 5,000 sites or about 40% of all IBAs identified globally to date) is maintained, and where possible enhanced. The programme aims to guide the implementation of national conservation strategies, through the promotion and development of national protected-area programmes.

<sup>11</sup> Description of sites taken from pNHA Site Synopses  
 [https://www.npws.ie/sites/default/files/general/pNHA\_Site\_Synopsis\_Portfolio.pdf]

<sup>12</sup> https://rsis.ramsar.org/

<sup>13</sup> Description of sites taken from pNHA Site Synopses  
 [https://www.npws.ie/sites/default/files/general/pNHA\_Site\_Synopsis\_Portfolio.pdf]

An on-line search identified one IBA site located within the ZOI of the proposed development (see **Table 5-6**, below). The IBA identified within the ZOI overlaps with two Natura 2000 sites; Malahide Estuary SPA and SAC.

**Table 5-6: Important Bird Areas (IBAs) within the ZOI**

Designated Site	Site Code	Features of Interest <sup>14</sup>	Proximity to study area
Malahide/ Broadmeadow Estuary	IE113	Provides important habitat for feeding and roosting wintering waterbirds E.g. the site supports >1% of the flyway population of the Light-bellied Brent Goose.	10.4km

### 5.3.3.3 *Salmonid Rivers*

Water channels in Ireland may be designated as a Salmonid River in line with the European Communities (Quality of Salmonid Waters) Regulations, 1988. None of the watercourses within the vicinity of the proposed development site are designated as Salmonid Rivers<sup>15</sup>.

## 5.3.4 Habitats within the Study Area

### 5.3.4.1 Desk Study

A review of the CORINE<sup>16</sup> (2018) landcover data series (available on EPA's interactive map viewer) indicates that landcover at the proposed development site is classified as 'Artificial Surfaces, Industrial, commercial and transport units' (Code: 121). The land to the immediate east is classified as 'Agricultural Areas, Arable land, Non-irrigated arable land' (Code: 211).

The NPWS Article 17 spatial datasets for Annex I habitats were accessed and reviewed via the NPWS interactive map-viewer<sup>17</sup>. These datasets document the occurrence of Annex I habitats in Ireland. A review of the terrestrial habitat spatial dataset determined that the proposed development site lies within habitat mapped as 'Atlantic Salt Meadows [1330]'. This distribution mapping is based on the results of the Saltmarsh Monitoring Project (2017-2018)<sup>18</sup>, a project carried out on behalf of NPWS to meet Ireland's obligations under Article 17 of the EU Habitats Directive in relation to reporting on the conservation status of Annex I saltmarsh habitats in Ireland.

### 5.3.4.2 Field Surveys

In general, the study area is located within an area typically dominated by artificial surfaces and agricultural landcover. Habitats within the overall study area were classified according to Fossitt (2000). Habitats identified include Arable Land (BC1), Improved Grassland (GA1), Treelines (WL2), Hedgerows (WL1), Buildings and Artificial Surfaces (BL3), Drainage Ditches (FW4), Spoil and Bare Ground (ED2), and Scrub (WS1). There is no overlap between the works footprint and any Natura 2000 sites. A habitat map is available in **Appendix 5-1**.

### 5.3.4.3 Arable Land (BC1)

Arable land (BC1) is agricultural land that is cultivated and managed for the production of arable crops, including cereals (wheat, barley, oats, maize), and root, leaf, energy or fibre crops such as sugar beet, turnips, rape and flax. This habitat occurs in the fields either side of bay lane.

<sup>14</sup> Description of sites taken from datazone.birdlife.org

<sup>15</sup> <https://gis.epa.ie/EPAMaps/Water>

<sup>16</sup> Co-ORDinated INformation on the Environment – data series initiated in 1985 by the European Commission to gather environmental data.

<sup>17</sup> <https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a>

<sup>18</sup> <https://www.npws.ie/sites/default/files/publications/pdf/IWM108.pdf>

#### 5.3.4.4 Improved Grassland (GA1)

A small patch of Improved Grassland (GA1) occurs next to the existing BV. The field where the proposed pipeline enters from the Kilshane road through the hedgerow is 'Improved grassland (GA1)'. It appears this field has been artificially improved for grazing livestock. Species found within this habitat include various grasses such as perennial ryegrass (*Lolium perenne*), false oat grass (*Arrhenatherum elatius*) and various herbaceous plants associated with this habitat type.

#### 5.3.4.5 Buildings and artificial surfaces (BL3)

This broad category includes artificial surfaces and structures within the proposed development, including areas of land that are covered with artificial surfaces of tarmac, cement, paving stones, bricks, blocks or astroturf (e.g., roads, car parks, pavements, yards). The existing BV and public roads are included in this category (see **Plate 5-1**, below).



Plate 5-1: Buildings and artificial surfaces (BL3) habitats include the existing BV and public road surfaces.

#### 5.3.4.6 Drainage ditches (FW4)

This category includes artificially constructed linear waterbodies or wet channels, and some sections of natural watercourses that have been excavated or modified to enhance drainage and control the flow of water. Drainage ditches should either contain water (flowing or stagnant) or be wet enough to support wetland vegetation. Water levels typically undergo seasonal fluctuations. Drainage ditches may be associated with hedgerows which are recorded as a separate habitat. A drainage ditch was recorded within the proposed development site running along the western boundary of the field in which the proposed AGI will be situated. To carry out the construction of the proposed gas pipeline, crossing this drainage ditch is required.

#### 5.3.4.7 Hedgerows (WL1)

Hedgerows (WL1) occur throughout the proposed development site. Hedgerows located along the public road are quite poor in structure and condition and are relatively low in species. Hedgerows were dominated by bramble (*Rubus fruticosus*) and hawthorn (*Crataegus* spp.). Other species included ivy (*Hedera helix*), ash (*Fraxinus excelsior*) and several common herbaceous species.

#### 5.3.4.8 Treelines (WL2)

A treeline of mostly immature ash trees runs either side of Bay Lane. A treeline of mature cypress (*Cupressus sempervirens*) trees with ivy and elder (*Sambucus nigra*) runs along the field boundary where the proposed development leaves Kilshane road to enter the field in which the proposed AGI will be situated. This treeline is in

poor condition and is of low ecological value to the site. A few semi-mature and mature trees are dotted along the field boundary where the proposed gas pipeline crosses the drainage ditch to enter the arable land (BC1).



Plate 5-2. Treeline on Bay Lane (left) and cypress treeline (right).

#### 5.3.4.9 Spoil and Bare Ground (ED2)

An area of the proposed AGI was excavated for an archaeological study turning parts of the agricultural land into 'Spoil and bare ground (ED2)'. This habitat was almost entirely devoid of vegetation. See Plate 5-3, below. This habitat presents an opportunity for a diverse range of native plant species to recolonise the area and increase its biodiversity.



Plate 5-3: Spoil and Bare ground habitat as a result of an archaeological excavation

#### 5.3.4.10 Scrub (WS1)

The existing BV had patches of scrub dominated by bramble with some dog-rose (*Rosa canina*) and the invasive species buddleia (*Buddleja davidii*). Scrub was also present at the temporary works area directly west of the BV, along the drainage ditches found throughout the proposed development site and at the proposed AGI, where scrub has colonised the spoil and bare ground habitat since January 2024. Dominant species for this habitat were bramble, nettle (*Urtica dioica*) and rosebay willowherb (*Chamaenerion angustifolium*).



Plate 5-4. Scrub habitat next to the existing block valve (top right and left). Scrub at the proposed AGI (bottom left and right).

### 5.3.5 Rare and Protected Flora within the Study Area

The desktop study included a review of species data held by the NBDC and data on rare and protected species provided by NPWS following an information request for the hectad O14, and EU Habitats Directive Article 17 spatial data for annexed terrestrial species. The search targeted plant species listed in Annex II of the EU Habitats Directive, Flora Protection Order species (FPO) (2022)<sup>19</sup>, and species listed in The Irish Red Data Book (Wyse Jackson, *et al.* 2016). Previous species records for rare and protected flora are listed in **Table 5-7** below.

During the MWP multi-disciplinary ecological walkover of the site, no rare and protected flora within the study area were recorded.

<sup>19</sup> <https://heritagedata.maps.arcgis.com/apps/webappviewer/index.html?id=a41ef4e10227499d8de17a8abe42bd1e>

**Table 5-7: Documented records of protected flora species within hectad O14 and results of field surveys**

Species	Designations and Status	Record Date(s)	Record Source	Nearest Record to Proposed Development Site	Habitat Requirements <sup>20,21</sup>	Suitability of site to support this species
Meadow Barley ( <i>Hordeum secalinum</i> )	Flora Protection Order (2022); Irish Red List: Vulnerable	1898 1903 1904 1948 1955	NPWS	2.6km to the south	Damp grassland  Annex I habitat: Lowland hay meadows [6510]	Key habitats not identified within the study area during site surveys.
Green-winged Orchid ( <i>Orchis morio</i> )	Irish Red List: Vulnerable	1932	NPWS	In hectad O14	Damp to dry unimproved grassland on base-poor to base-rich soils	Key habitats not identified within the study area during site surveys.
Hairy St John's-wort ( <i>Hypericum hirsutum</i> )	Flora Protection Order (2022); Irish Red List: Vulnerable	1833 1939 1989 1991	NPWS	5.9km to the south-east	Unimproved hay meadows and pastures, unimproved coastal grassland mosaics, as well as on the thin soils of restored gravel pits and quarries, and unimproved grassland of churchyards, roadside verges and lawns	Key habitats not identified within the study area during site surveys.
Red Hemp-nettle ( <i>Galeopsis angustifolia</i> )	Flora Protection Order (2022); Irish Red List: Vulnerable	1836	NPWS	In hectad O14	An annual herb of arable land, waste places and open ground on calcareous substrates, including disturbed track edges, chalk heaps and pits, quarries, limestone pavements, scree; also found on eskers and on coastal sand and shingle.	Not identified within the study area during site surveys.
Smooth Brome ( <i>Bromus racemosus</i> )	Irish Red List: Near Threatened	1990 2014	NPWS NBDC	2.4km to the east	Unimproved hay- and water-meadows, usually on damp, periodically flooded alluvial soils. Frequent on the drier margins of fields. An increasingly persistent weed of arable land, especially winter wheat.	Not identified within the study area during site surveys.
Upright Brome ( <i>Bromopsis erecta</i> )	Irish Red List: Near Threatened	1980	NPWS	In hectad O14	Dry, relatively infertile calcareous soils, growing in chalk and limestone grasslands. Avoids wet or arable sites	Site not suitable

### 5.3.6 Arboricultural Impact Assessment

The trees surveyed on Bay Lane were growing along a ditch above the level of the road, with a drainage ditch separating the trees from the road. Due to the drainage ditch separating the trees and the road, no impact to the trees is suspected. The lowest limbs are 4m from ground so therefore there will be ample head clearance for passing vehicles.

When considering planning applications, the Local Planning Authorities (Fingal County Council) have a statutory duty to consider both the protection and planting of trees. The potential impact of a development on all trees

<sup>20</sup> <https://www.irishwildflowers.ie/habitats.html>

<sup>21</sup> <https://bsbi.org/species-accounts>

(including those not protected by a Tree Preservation Order or other statutory designation) is therefore a material consideration. The *Fingal County Development Plan 2022-2028 Tree Preservation Orders (TPO's)* was reviewed and there are no TPO's identified within the development site.

The majority of the trees will be retained, with the exception of four early mature ash trees of low quality (category C) to accommodate the proposed design. Category C signifies those trees/hedgerows of “a low quality and value that are currently in an adequate condition to remain until new planting could be established (a minimum life expectancy of 10yrs is suggested).” A breakdown of tree categories within the proposed development site are available in **Table 5-8** below and the full Arboricultural Impact Assessment is included as **Appendix 5-4**.

**Table 5-8: Tree Categories within the proposed development site as per British Standards 5837 (2012).**

Category	Quantity	Category %
A (Tree of high quality)	0	0%
B (trees of good quality)	13	25%
C (Low quality)	34	65%
U (of poor condition)	5	9.6%
Total trees	52	100%

### 5.3.7 Invasive Alien Plant Species (IAPS) within the Study Area

Documented NBDC records of high/medium impact invasive plant species listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended) exist within the hectad O14 encompassing the study area (See **Table 5-9**). Hectad records exist for four high-impact IAPS and eight medium-impact IAPS. Five IAPS are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended).

During the MWP multi-disciplinary ecological field survey of the site, no invasive plant species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015) were recorded onsite. Stands of buddleia *Buddleja davidii*, a medium impact invasive plant species, was recorded at the location of the existing Kilshane BV (see **Plate 5-5**, below).



**Plate 5-5:** View of the existing Kilshane BV with specimens of buddleia *Buddleja davidii* (marked in red) growing nearby.

**Table 5-9: Desktop records of non-native/invasive species of flora within hectad O14.**

Species Common Name	Scientific name	Approximate Distance of Closest NBDC Species Record	Invasiveness NBDC <sup>22</sup>	Listed on Regulation S.I. 477 <sup>23</sup>
Buddleia	<i>Buddleja davidii</i>	6.8 km east of the proposed development site. Species recorded on site during site visit in January 2024	Medium impact	No
Canadian Fleabane	<i>Conyza canadensis</i>	3.0 km southeast of the proposed development site	Medium impact	Third Schedule listed
Cherry Laurel	<i>Prunus laurocerasus</i>	2.8 km southeast of the proposed development site	High impact	No
Common Cord-grass	<i>Spartina anglica</i>	9.7 km northeast of the proposed development site	High impact	Third Schedule listed
Evergreen Oak	<i>Quercus ilex</i>	8.5 km northeast of the proposed development site	Medium impact	No

<sup>22</sup> Species Profile Browser · Species Profile (biodiversityireland.ie)

<sup>23</sup> Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended)

Species Common Name	Scientific name	Approximate Distance of Closest NBDC Species Record	Invasiveness NBDC <sup>22</sup>	Listed on Regulation S.I. 477 <sup>23</sup>
Giant Hogweed	<i>Heracleum mantegazzianum</i>	5.0 km southeast of the proposed development site	High impact	Third Schedule listed
Himalayan Honeysuckle	<i>Leycesteria formosa</i>	5.3 km northeast of the proposed development site	Medium impact	No
Japanese Knotweed	<i>Fallopia japonica</i>	6.5 km northeast of the proposed development site	High impact	Third Schedule listed
Russian-vine	<i>Fallopia baldschuanica</i>	2.5 km southeast of the proposed development site	Medium impact	No
Sycamore	<i>Acer pseudoplatanus</i>	5.3 km northeast of the proposed development site	Medium impact	No
Three-cornered Garlic	<i>Allium triquetrum</i>	7.8 km northeast of the proposed development site	Medium impact	Third Schedule listed
Wild Parsnip	<i>Pastinaca sativa</i>	10.6 km northeast of the proposed development site	Medium impact	No

### 5.3.8 Protected Fauna within the Study Area

#### 5.3.8.1 Bats

##### 5.3.8.1.1 Desk Study

The bat suitability index rating available on the NBDC website<sup>24</sup> indicates that the habitats within the proposed development site and in the area extending away from it are assessed as being of medium value to bats in general with a rating of 24.67 out of 100 for the category 'All bats'<sup>25</sup>. However, areas with a medium suitability rating may still have local areas of bat species abundance. **Table 5-10** below gives the suitability of the proposed development site for each of the bat species found in Ireland (based on NBDC data) along with their Irish Red List Status (taken from Marnell *et al.* (2019)). The suitability index at the proposed development site is highest for common pipistrelle (*Pipistrellus pipistrellus*) with a rating of 39.

A data request from BCI for bat records within a 10km radius of the site was carried out on the 27<sup>th</sup> March 2024. The BCI data request identified 60 known roosts within 10km of the proposed development site. The closest roosts include two that are within 4km of the proposed development site. One of these is a Leisler's bat (*Nyctalus leisleri*) roost and the second is a *Pipistrellus* spp. roost. According to NBDC and BCI records all Irish bat species, except for lesser horseshoe (*Rhinolophus hipposideros*) have been recorded within hectad O14.

**Table 5-10: Bat suitability index for the proposed development site**

Common name	Scientific name	Suitability index	Irish red list status
All Bat Species	-	24.67	-
Brown long-eared bat	<i>Plecotus auritus</i>	34	Least Concern
Common pipistrelle	<i>Pipistrellus pipistrellus</i>	39	Least Concern
Daubenton's bat	<i>Myotis daubentonii</i>	19	Least Concern
Leisler's bat	<i>Nyctalus leisleri</i>	38	Least Concern

<sup>24</sup> <https://maps.biodiversityireland.ie/Map>

<sup>25</sup> [http://maps.biodiversityireland.ie/metadata/Landscape\\_Conservation\\_for\\_Irish\\_Bats\\_metadata\(v.3\).pdf](http://maps.biodiversityireland.ie/metadata/Landscape_Conservation_for_Irish_Bats_metadata(v.3).pdf)

Common name	Scientific name	Suitability index	Irish red list status
Lesser Horseshoe bat	<i>Rhinolophus hipposideros</i>	0	Least Concern
Nathusius's pipistrelle	<i>Pipistrellus nathusii</i>	5	Least Concern
Natterer's bat	<i>Myotis nattereri</i>	25	Least Concern
Soprano pipistrelle	<i>Pipistrellus pygmaeus</i>	35	Least Concern
Whiskered bat	<i>Myotis mystacinus</i>	27	Least Concern

### 5.3.8.1.2 **Field survey**

It is considered that the hedgerows and treelines that occur throughout the proposed development site offer some foraging and commuting suitability for bats (see **Plate 5-6**, below). Similar habitats within the greater area also provide some degree of connectivity between the proposed development site and the surrounding area, as well as providing foraging habitat. One building located adjacent to the proposed development site (ITM 710690 742714; see **Plate 5-6** below) was assessed and classed as negligible for roosting bats.

No confirmed roosts, bats, or evidence of bats was found during the PBRA. (see **Plate 5-6** below), was considered to have low roost suitability.

No confirmed roosts, bats, or evidence of bats was found during the PBRA; however, a single tree was found to have low bat potential. **Table 5-11** provides the results of the PBRA for all trees found across the site that were subject to inspection.

Those trees with a negligible potential rating are not considered further; these will not need to be subject to any further survey work or mitigation. The single tree on site with a low potential rating will not need to be subject to further bat surveys. However, a sensitive approach to arboriculture works will be required as per Collins (2023), which are outlined in **Section 5.6.2.5.2**, below.

**Table 5-11: Results of the PBRA for trees on site subjected to inspection.**

Tree ITM location	Tree ID	Species	Proposed Arboricultural Works	PRF	Bat Potential
710241, 742703	G1	Ash x4	Fell entire group	N/A	Negligible
710380, 742634	T1	Ash	Fell	N/A	Negligible
710456, 742648	T2	Ash	Fell	Dead ash tree with flaking bark, south facing, 3-4 meters from ground level	Low
710563, 742640	T3	Ash	Fell	N/A	Negligible
710590, 742648	T4	Sycamore	Fell	N/A	Negligible



Plate 5-6: Building located adjacent to the proposed development site (top left). Hedgerows with some suitability for foraging bats along Bay Lane (top right). Suitable foraging habitat located nearby the footprint of the proposed development site (bottom left and right).

### 5.3.8.2 Non-volant Mammals

Information received from the NPWS data request for rare and protected species was reviewed and a number of protected native mammal species are recorded from hectad O14 (see **Table 5-12**). All non-volant mammals discussed below and listed in **Table 5-12** are known to occur in the wider area (as per desk study) and are evaluated as being of Local Importance (higher value) in the context of the proposed development site. While these species are likely to utilise/traverse the proposed development site occasionally, it is of no particular importance to this group of fauna.

#### 5.3.8.2.1 *Badger (Meles meles)*

Badger setts and evidence of badger activity, in the form of snuffle holes, prints, or latrines were not recorded within the study area. In general, the habitats within the proposed development site were of low suitability for badger due to the location and overall structure of the site.

### 5.3.8.2.2 **Pine Martin (*Martes martes*) and Red Squirrel (*Sciurus vulgaris*)**

There is little available habitat for pine marten and red squirrel within the study area and there were no signs of either species recorded during the walkover survey. Habitats in the surrounding area are likely to be of greater value to both species.

### 5.3.8.2.3 **Otter (*Lutres lutres*)**

There was no evidence of otter recorded within the study area. The drainage ditches crossed by the proposed development site are not considered suitable habitat for breeding and / or foraging otter as they are of insufficient size to support fish in numbers that would make it energetically feasible for hunting otter. However, the drainage ditch within the proposed development empties into the Ward River in which otter are known to occur.

**Table 5-12: Summary of native, non-volant mammal records in hectad O14 (source NBDC and NPWS).**

Common name	Species name	Year of Record(s)	Level of Protection
Badger	<i>Meles meles</i>	1992, 2007, 2010, 2012, 2013, 2015	Wildlife Acts
Hedgehog	<i>Erinaceus europaeus</i>	1976, 2007, 2008, 2011, 2012, 2013, 2015, 2020, 2021, 2022	Wildlife Acts
Irish Mountain hare	<i>Lepus timidus subsp. hibernicus</i>	2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2022, 2023	Wildlife Acts
Irish Stoat	<i>Mustela erminea subsp. hibernica</i>	1968, 2012	Wildlife Acts
Otter	<i>Lutra lutra</i>	1980, 2009, 2011, 2012, 2013, 2014	Annex II & IV, Wildlife Acts
Pine marten	<i>Martes martes</i>	2011, 2012, 2020, 2022	Annex V, Wildlife Acts
Pygmy Shrew	<i>Sorex minutus</i>	2018, 2019	Wildlife Acts
Red Fox	<i>Vulpes vulpes</i>	1992, 2007, 2011, 2012, 2013, 2014, 2015, 2018,	-
Red Squirrel	<i>Sciurus vulgaris</i>	2011	Wildlife Acts
Wood Mouse	<i>Apodemus sylvaticus</i>	2011	-

### 5.3.8.3 Birds

The proposed works do not occur in the immediate proximity of any site designated for the protection of bird species or any known locations of importance to birds. The agricultural-dominated landscape and availability of some hedgerow and scrub provides limited habitat for mainly passerines and corvids. Gull species may potentially forage occasionally on the grassland habitats within the proposed development site, mainly during harvesting and silage cutting. The proposed works will be carried out in proximity of hedgerows, and treelines which may provide nesting habitat for bird species.

The birds recorded during the ecological field survey are listed in **Table 5-13**, below. Species highlighted in green are green listed species, which are not of conservation concern, and species highlighted in amber are amber listed, are of medium conservation concern (based on Gilbert *et al.*, 2021). Linnet, an amber listed species, was recorded onsite in significant numbers (30+ individuals in the flock) at the proposed AGI during the ecological walkover survey. This species relies on the availability of seeds from wildflowers, overwinter stubble and cover crops, and they flock in large numbers where there is a good supply of seeds available<sup>26</sup>.

**Table 5-13: Bird species recorded during field surveys**

Bird species		Location of observation
Chaffinch	<i>Fringilla coelebs</i>	Widely across the site
Linnet	<i>Carduelis cannabina</i>	Utilising tree at (ITM 0710728 0742596)
Goldfinch	<i>Carduelis carduelis</i>	Widely across the site
Dunnock	<i>Prunella modularis</i>	Utilising scrub and hedgerow near existing BV
Robin	<i>Erithacus rubecula</i>	Widely across the site
House sparrow	<i>Passer Domesticus</i>	Widely across the site
Blackbird	<i>Turdus merula</i>	Widely across the site
Woodpigeon	<i>Columba palumbus</i>	Widely across the site
Jackdaw	<i>Coloeus monedula</i>	Widely across the site
Rook	<i>Corvus frugilegus</i>	Widely across the site
Blue tit	<i>Cyanistes caeruleus</i>	Widely across the site

### 5.3.8.4 Reptiles & Amphibians

There are NBDC records in hectad O14 for common frog (*Rana temporaria*) and smooth newt (*Lissotriton vulgaris*), both protected under the Wildlife Acts. Common frog has additional protection as an Annex V protected species under the EU Habitats Directive. The NBDC also has records for the presence of two medium impact invasive species within hectad O14; red-eared terrapin (*Trachemys scripta*) and yellow-bellied slider (*Trachemys scripta scripta*). The mechanism of impact of both these species includes competition, predation, disease transmission, and grazing/herbivory/browsing.

During the site walkover there was no evidence found of reptiles or amphibians. There is some suitable terrestrial habitat available in a mosaic pattern onsite for the common lizard (*Lacerta vivipara*) and amphibians in the form

<sup>26</sup> <https://biodiversityireland.ie/app/uploads/2023/06/Species-Profile-Common-Linnet.pdf>

of scrub, log piles and rubble piles<sup>27</sup>. There was a limited suitable breeding habitat within the proposed development site for common frog and smooth newt in the form of drainage ditches onsite which could potentially serve as breeding grounds for both species. Frog and smooth newt depend on ponds and shallow pools to breed, and when not breeding, they can be found some distance from water, usually deep within vegetation and hibernating under cover, in tree roots, under dead wood and stones (frogs can hibernate in mud at the bottom of ponds)<sup>28</sup> in winter. Both species are surprisingly widespread in Ireland<sup>29,30</sup> with the common frog being more common and widespread than the smooth newt.



Plate 5-7: log piles and rubble piles, suitable refugia for amphibians and reptiles

### 5.3.8.5 Invertebrates

The NBDC holds records in hectad O14 for marsh fritillary *Euphydryas aurinia*, an Annex II species under the EU Habitats Directive and protected under the Bern Convention<sup>31</sup>. However, the date of the last NBDC record for this species within the hectad is 1960. In Ireland, this butterfly species is vulnerable to extinction due to habitat loss and fragmentation. It relies on its foodplant devil's-bit scabious (*Succisa pratensis*) as its main source of food<sup>32</sup>. There are no Natura 2000 sites designated for marsh fritillary within the ZOI of the proposed development site. During the ecological walkover survey there was no sign of devil's bit scabious and there are no records held by the NBDC for the plant species within hectad O14.

### 5.3.9 Invasive Fauna within the Study Area

Documented NBDC records of high/medium impact invasive fauna species exist within the hectad O14 (see **Table 5-14**). Hectad records exist for five high-impact species and three medium-impact species. Four species are listed on the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477 of 2011, as amended). During MWP multi-disciplinary ecological field survey of the site, no signs of invasive animal species were recorded anywhere on the site.

<sup>27</sup> <https://thehsi.org/native-reptiles-and-amphibians/common-lizard/>

<sup>28</sup> <https://iwt.ie/wp-content/uploads/2018/02/Common-Frog.pdf>

<sup>29</sup> <https://species.biodiversityireland.ie/profile.php?taxonId=6863&taxonName=frog>

<sup>30</sup> <https://species.biodiversityireland.ie/profile.php?taxonId=6993>

<sup>31</sup> <https://eunis.eea.europa.eu/species/134>

<sup>32</sup> <https://www.npws.ie/research-projects/animal-species/invertebrates/marsh-fritillary-euphydryas-aurinia>

**Table 5-14: Desktop records of non-native/invasive species of fauna within hectad O14.**

Species Common Name	Scientific name	Closest NBDC Species Record to Development Site	Invasiveness NBDC <sup>4</sup>	Listed on Regulation S.I. 477 <sup>5</sup>
European Rabbit	<i>Oryctolagus cuniculus</i>	Approximately 1.7 km southwest of the proposed development site	Medium impact	No
Brown Rat	<i>Rattus norvegicus</i>	Approximately 2.9 km southeast of the proposed development site	High impact	Third Schedule listed
Eastern Grey Squirrel	<i>Sciurus carolinensis</i>	Approximately 4.2 km southeast of the proposed development site	High impact	Third Schedule listed
Yellow-bellied slider	<i>Trachemys scripta scripta</i>	Approximately 4.3 km northeast of the proposed development site	Medium impact	No
Harlequin Ladybird	<i>Harmonia axyridis</i>	Approximately 4.7 km southeast of the proposed development site	High impact	Third Schedule listed
Flatworm	<i>Arthurdendyus triangulatus</i>	Approximately 7.4 km northeast of the proposed development site	High impact	No
Ruddy Duck	<i>Oxyura jamaicensis</i>	Approximately 8.1 km northeast of the proposed development site	High impact	Third Schedule listed
Jenkins' Spire Snail	<i>Potamopyrgus antipodarum</i>	Approximately 8.2 km southeast of the proposed development site	Medium impact	No
American Mink	<i>Mustela vison</i>	Approximately 9.3 km northeast of the proposed development site	High impact	Third Schedule listed
Red-eared Terrapin	<i>Trachemys scripta</i>	Approximately 9.7 km northeast of the proposed development site	Medium impact	No

## 5.4 Identification of Important Ecological Features (IEFs)

The habitats and associated flora, fauna and other ecological features or resources identified in the previous section are now evaluated on the basis of their local, national and international conservation importance using the evaluation criteria described in **Section 5.2.5.2** above. Based on these evaluations, an assessment will then be made as to which of these habitats or species are considered sensitive ecological receptors that may be effected during the proposed construction, operation or decommissioning phases of the project.

### 5.4.1 Selection of Designated Sites as IEFs

#### 5.4.1.1 Natura 2000 Sites

With regard to European Sites, the AASR concluded that the proposed development will not adversely affect (either directly or indirectly) the integrity of any Natura 2000 sites within the ZOI. As a result, **no Natura 2000 sites will be selected as an IEF** as they are not considered sensitive ecological receptors that may be affected during the proposed construction, operation or decommissioning phases of the proposed development.

#### 5.4.1.2 Sites of National Importance

Each IBA identified within the ZOI (see **Section 5.3.3.2**, above) overlaps with several Natura 2000 sites. A hydrological connection between the proposed development site and Malahide Estuary pNHA has been

identified. This pNHA overlaps with the Malahide Estuary SAC and Malahide Estuary SPA. Considering the conclusion of the AASR as mentioned in the previous section, any pNHA sites overlapping with Natura 2000 sites within the ZOI will also not be impacted. Therefore, the Malahide Estuary pNHA will also not be impacted by the proposed development. As a result, **no site of national importance will be selected as an IEF** as they are not considered sensitive ecological receptors that may be effected during the proposed construction, operation or decommissioning phases of the project.

### 5.4.1.3 Additional Sites

Each additional designated site identified within the ZOI (see **Section 5.3.3.3**, above) overlaps with several Natura 2000 sites, apart from ‘Seagrang Park’. Seagrang Park does not have any hydrological or ecological connection to the proposed development site and therefore will not be impacted by the proposed development. Considering the conclusion of the AASR, any sites overlapping with Natura 2000 sites within the ZOI will also not be impacted as they share the same ecological receptors. As a result, **no IBA will be selected as an IEF** as they are not considered sensitive ecological receptors that may affected upon during the proposed construction, operation or decommissioning phases of the project.

### 5.4.2 Selection of Key Habitats as IEFs

The habitat types within the study area are evaluated in **Table 5-15** below for their conservation importance. Those identified as being of ‘Local importance (higher value)’ or higher are selected as IEFs.

**Table 5-15: Selection of Key Habitats as IEFs**

Habitat Type	Extent/Location within study area	Ecological value in context of study area (NRA, 2009a)	Rationale	Important Ecological Feature
Arable Land (BC1)	Comprising the agricultural land that will be utilised as the route for the gas pipeline, and the location of the AGI.	Local importance (lower value)	Supports species that rely on winter stubble and other sources of seeds for foraging. However, arable land is widespread and available in the surrounding landscape.	No
Improved agricultural grassland (GA1)	Comprising the customer fields that will be utilised as the route for the gas pipeline.	Local importance (lower value)	Highly modified and managed habitat with low species diversity and limited biodiversity value.	No
Buildings and artificial surfaces (BL3)	Comprising the public roads that will be utilised as the route for the gas pipeline.	Local importance (lower value)	Habitat of negligible botanical diversity or value.	No
Drainage ditches (FW4)	Associated with the field boundary in the eastern side of the proposed development site where the development crosses the drainage ditch.	Local importance (higher value)	Artificial habitat of low to moderate botanical diversity, associated with field boundaries. These are seasonally wet habitats that are of value to invertebrates and amphibians.  Drainage ditches drain water from the customer field, in the	Yes

			proposed development site, directly into the Huntstown_08 Stream watercourse which is a direct hydrological connection to Malahide Estuary SAC & SPA.	
Hedgerows (WL1)	Occurs along the road and field boundaries and within the proposed development site.	Local importance (higher value)	Despite this habitat being in poor condition, it is of local biodiversity value for a range of fauna relative to the rest of the habitats within the proposed development site. Potential to provide habitat connectivity and a source of shelter and food for some faunal species including invertebrates, birds, and bats.	Yes
Treelines (WL2)	Cypress treeline along the boundary and within the proposed development site.	Local importance (lower value)	Habitat of low botanical diversity within the proposed development site.	No
Scrub (WS1)	Occurs along boundaries and within the proposed development site. Of local biodiversity value for range of fauna.	Local importance (higher value)	Scrub in general is of biodiversity value for a range of flora and fauna; provides a source of shelter and food for some faunal species including invertebrates and birds. Substantial scrub habitat is found at the scrub habitat is found at the proposed AGI and temporary works area adjacent the existing BV providing biodiversity value.	Yes
Spoil and Bare Ground (ED2)	An area in the Arable Land (BC1) was excavated for an archaeological study and the site of the dig is considered Spoil and Bare Ground (ED2)	Local importance (lower value)	Presents opportunity for a diversity of native plant species to recolonise and increase biodiversity of the area. However, Spoil and Bare Ground (ED2) does not provide much biodiversity value to the site and is therefore of lower value to the local area.	No

### 5.4.3 Selection of Rare and Protected Flora Species as IEFs

There are no records for rare and/or protected plant species within the proposed development site and none were recorded during the ecological walkover survey. None of the species outlined in **Section 5.3.5** above are considered to comprise IEFs for the project and so will not be considered further in this evaluation.

### 5.4.4 Selection of Fauna as IEFs

**Table 5-16** presents an evaluation of the importance of the ecological value of the fauna identified within the receiving environment of the subject site, and rationale for inclusion, or exclusion as IEFs.

**Table 5-16: Evaluation of fauna within the study area**

Species	Legislative Protection	Ecological Value in Context of Study Area	Rationale	Important Ecological Feature
<b><u>Bats</u></b>				
All bat species	All bat species are listed in Annex IV of the EU Habitats Directive (92/43/EEC)	Local Importance (higher value)	There are records for eight bat species within the hectad O14. Majority of the habitat considered to be of low suitability for roosting within trees. Hedgerows provide a foraging resource and/or a means of navigation/connection. The precautionary principle and the legal status and ecological sensitivity of these species merits their selection as an IEF.	<b>Yes</b>
<b><u>Non-volant Mammals</u></b>				
Badger	Irish Wildlife Acts	Local Importance (higher value)	Species is protected under national legislation. No badger activity recorded within the study area. Considered an IEF on a precautionary principle.	<b>Yes</b>
Hedgehog	Irish Wildlife Acts	Local Importance (higher value)	Suitable habitat exists onsite and there are desktop records in the greater area. This species is protected under national legislation. Precautionary principal.	<b>Yes</b>
Irish Mountain hare	Annex V Habitats Directive, Irish Wildlife Acts	Local Importance (higher value)	National legal protection. Multiple records (107) of this species in the greater area. Consequently, site considered to contain suitable habitat for the species. Precautionary principal.	<b>Yes</b>
Irish Stoat	Irish Wildlife Acts	Local Importance (higher value)	The species is protected under national legislation. Not recorded during ecological surveys but suitable habitat occurs. Precautionary principal.	<b>Yes</b>
Otter	Annex II of the EU Habitats Directive (92/43/EEC) Irish Wildlife Acts	Local & county Importance (higher value)	Not identified during survey, no evidence of species found on site. No watercourses on-site therefore habitats on-site not considered optimal to support otter. Precautionary principal.	<b>Yes</b>
Pine marten	Annex V Habitats Directive, Irish Wildlife Acts	Local Importance (higher value)	Not identified during surveying, no evidence of the species found on site. No suitable habitat onsite apart from Scrub (WS1), however this habitat was not deemed optimum for pine marten. Precautionary principal.	<b>Yes</b>

Species	Legislative Protection	Ecological Value in Context of Study Area	Rationale	Important Ecological Feature
Pygmy Shrew	Irish Wildlife Acts	Local Importance (higher value)	Suitable habitat exists onsite and there are desktop records in the greater area. This species is protected under national legislation. Precautionary principal.	Yes
Red Squirrel	Irish Wildlife Acts	Local Importance (higher value)	Not identified during surveying, no evidence of the species found on site. No suitable habitat onsite apart. Precautionary principal.	Yes
<b><u>Birds</u></b>				
All bird species	Irish Wildlife Acts	Local, county & international Importance (higher value)	No particularly important or rare species of bird identified onsite, or particularly important bird habitat identified onsite. However, considering that bird species have high levels of conservation protection and have a relatively widespread distribution and are quite mobile, birds are considered an IEF on a precautionary principle.	Yes
<b>Reptiles &amp; Amphibians</b>				
Common frog ( <i>Rana temporaria</i> )	Annex V of the Habitats Directive Wildlife Act, 1976	Local Importance (higher value)	Some suitable habitats present on site. Potential to use drainage ditch as breeding site. Considered an IEF on a precautionary principle.	Yes
Smooth newt ( <i>Lissotriton vulgaris</i> )	Wildlife Act, 1976	Local importance (higher value)	A single record of the species occurred in 2019, however, habitat suitability is limited within the proposed development site,. Potential to use drainage ditch as breeding site. Considered an IEF on a precautionary principle.	Yes
Lizard ( <i>Zootoca vivipara</i> )	Wildlife Act, 1976	Local Importance (higher value)	Some suitable habitats present on site. Potential to use woodpiles and rubble piles as refugia. Considered an IEF on a precautionary principle.	Yes
<b><u>Terrestrial macro-Invertebrates</u></b>				
Marsh Fritillary	Annex II species Habitats Directive	Local Importance (higher value)	Suitable habitat was not identified during field surveys. Species and foodplant was not recorded within the study area	No
Other terrestrial macro-invertebrates (bees, butterflies, earthworms etc.)	N/a	Local importance (higher value)	The terrestrial insect population in semi-natural terrestrial habitats is important at the lower level of ecosystem food chains, for example, essential for sustenance of bats and birds.	Yes

#### 5.4.5 Selection of Invasive Alien Species as IEFs

All invasive alien species within and adjacent to the proposed development are identified as IEFs as they have the potential to have negative ecological effects if spread during the construction, operational and decommissioning stages of the proposed development.

## 5.5 Assessment of Impacts and Effects

Development projects may potentially impact on the natural environment (habitats, flora, fauna, water quality, aquatic ecology, and fisheries) if not carried out in a responsible manner and without control measures. For the proposed development, the construction phase has the potential to have the most significant effect on biodiversity. This section will identify in detail the potential ecological impacts of the construction, operational, and decommissioning phases of the proposed development on the receiving natural environment.

The potential impacts of the proposed development were considered and assessed to ensure that all effects on IEFs are adequately addressed and no significant residual effects are likely to remain following the implementation of mitigation measures.

### 5.5.1 Construction Phase

The main potential effects associated with the construction phase of the development are identified in **Table 5-17** below.

**Table 5-17: Potential construction phase effects associated with the proposed development.**

Construction Phase Effect	Source
Direct habitat loss/alteration	Felling of trees and clearance of vegetation, excavation works for pipeline construction, temporary storage of excavated soil, installation of site access tracks and temporary compounds, movement of plant and machinery, any ancillary site development works and site reinstatement.
	Risk of spread/introduction of IAPS from construction activity. Soil disturbance associated with preliminary groundworks and general construction activity poses risk of spread and/or introduction of IAPS. Risk of excavations of infested soil. Plant/machinery, tools/equipment, workers clothing/footwear, imported building materials can all potentially be contaminated with IAPS-infested soil, viable seed or other IAPS material.
	Potential treatment/management of IAPS (e.g. the buddleia specimens found near the existing BV) including use of chemical herbicides (multi-annual treatment approach) and risk of airborne drift.
Direct water quality effects	Release of sediment and/or fuels/oils to watercourse during works associated with water crossing and works in proximity to water course.
Indirect water quality effects	On-site temporary toilets and washing facilities. Leaching of fuels/oils etc to drains/surface water in the event of accidental spillage/leaks. Increased levels of fugitive dust entering drains/watercourses. Potential use of chemical herbicides.
Direct species disturbance/displacement	Increased anthropogenic activity and presence. Noise/vibration/lighting associated with construction works, human activity and use of plant and machinery. Potential for barriers to animal movement through vegetation removal. Potential for injury/mortality as a result of construction activity.
Indirect species disturbance/displacement	Increased anthropogenic activity and presence. Indirect water quality effects.

#### 5.5.1.1 Designated Sites

None of the designated sites outlined in **Section 5.4.1** above are located within the proposed development site and are, therefore, not considered to comprise IEFs for the project and so will not be considered further in this evaluation.

### 5.5.1.2 Habitats

Habitat loss is expected to occur during the construction of the gas pipeline (via open cut trench excavation) and the Block Valve extension enabling works, AGI, related pre-construction field drainage. The site enabling works associated with the AGI will happen as part of the power station project works and has been assessed in the power station project EIAR. The pipeline route has been refined to minimise the number of mature trees requiring felling. As discussed in **Section 5.3.6**, 4 no. trees are to be removed to facilitate the proposed development. Hedgerow and tree removal has the potential to reduce habitat connectivity between the site of the proposed development and the surrounding landscape. New hedgerow will be planted where practicable as part of the habitat reinstatement of the site after construction is complete. Suitable native tree species will be planted in the BV to fully offset the carbon lost from the 4 ash trees to be removed. It is however not possible to instantly reinstate trees as it takes many years for a tree to grow to early mature stage. The loss of early mature trees will reduce to some the forage and shelter availability for wildlife in the area. Due to a lack of suitable potential roosting features, trees to be removed were considered to be of negligible potential for roosting bats.

For the section of the pipeline routed within the customer’s field, within the working width of 30m as required, topsoil will be removed to a typical depth of 300mm and kept free of disturbance and damage until reinstatement. It is anticipated that the (50%) of the excavated soil will be reinstated as backfill. There is therefore a risk of introducing or spreading IAPS during excavations, soil works, and soil movement.

As part of the permitted customer development a concrete culvert is to be installed where the new site roadway and services will cross the drainage ditch. There are no trees or hedgerows within the working width of 30m as required as part of the customer's permitted development and new road scheme .

See **Appendix 5-1** for the habitat map of the proposed development. **Table 5-18** below assesses the direct and indirect potential construction phase effects on the habitats included as IEFs, without the implementation of appropriate mitigation measures.

**Table 5-18: Construction stage potential effects on Important Ecological Feature (habitats) without mitigation**

Important Ecological Feature	In-situ Impact	In-situ/Ex-situ effect	Description of Unmitigated Impact	Significance of Unmitigated effects (NRA, 2009a & EPA, 2022)
Hedgerows (WL1) /Trees	Habitat Loss	Habitat loss and loss of habitat connectivity	<u>Habitat Loss</u> The proposal will require the loss of 4 no. Trees at Block Valve Station.	Direct habitat loss effects are assessed as <b>Permanent, Likely Moderate, Negative Effects.</b>
			<u>Habitat Alteration</u> Habitat disturbance may occur due to encroachment from works areas, side-casting of materials or spread of invasive species.	Habitat disturbance effects are assessed as <b>Short-term, Likely Slight, Negative Effects.</b>
Drainage ditch (FW4)	Habitat disturbance	Impairment of water quality	<u>Habitat Loss</u> Loss of this habitat is not anticipated. The drainage ditch will be reinstated, and native plants will be replanted where vegetation removal has occurred as a result of the construction works.  <u>Habitat Alteration</u>	Direct habitat loss effects are assessed as <b>Unlikely.</b>  Habitat alteration effects are assessed as <b>Temporary, Likely Slight, Negative Effects.</b>

Important Ecological Feature	In-situ Impact	In-situ/Ex-situ effect	Description of Unmitigated Impact	Significance of Unmitigated effects (NRA, 2009a & EPA, 2022)
			Potential direct effects due to deterioration of water and stream habitat quality as a result of potential run off of silt/sediment, ingress of construction materials, fuel or oil and /or impacts on flow regime and in-stream vegetation.	
Scrub (WS1)	Habitat Loss	Habitat loss and loss of habitat connectivity	<u>Habitat Loss</u> The proposal will require the loss of all scrub at the BV and AGI.	Direct habitat loss effects are assessed as <b>Permanent, Likely Moderate, Negative Effects</b> .
			<u>Habitat Alteration</u> Habitat disturbance may occur due to encroachment from works areas, side-casting of materials or spread of invasive species.	Habitat disturbance effects are assessed as <b>Short-term, Likely Slight, Negative Effects</b> .

### 5.5.1.3 Water Quality and Aquatic fauna

The Huntstown\_08 Stream is located less than 400m south of the proposed development site. The drainage ditch identified within the proposed development drains into this watercourse. Crossing this drainage ditch is part of the construction phase in order to construct the gas pipeline.

In the absence of adequate pollution prevention controls, adverse impacts to water quality could ensue. This may arise from areas exposed during site set-up and vegetation removal, groundworks and excavations, material storage areas or from other potential sources such as construction vehicles/plant. Construction works within the drainage ditch poses a risk of ingress of silt/sediment, dust and debris, fuels/oils or cementitious material into the drainage ditch, and in turn into the Huntstown\_08 Stream, in the absence of mitigation measures to protect water quality.

Potential also exists for accidental ingress of fuel and oils, concrete and cementitious material and other such substances considered harmful to the aquatic environment. Such impacts may occur via the proposed construction phase drainage scheme, via overland flow, via leaching to groundwater or via the existing drainage network. Construction and pipe-laying operations taking place on-site can generate dust from excavation works, loading, haulage as well as vehicle movement. Without appropriate mitigation this can travel into waterways and other habitats and as a result can impact upon sensitive ecosystems and disrupting wildlife.

An on-going programme of site assessment, treatment and control may be required to manage invasive species on-site during site preparation and construction. The application of herbicides, where required to treat invasives, poses a risk to the aquatic environment where sufficient care is not taken regarding the use of such chemicals. Where stands of invasive plant species are treated near any form of watercourse or drainage ditch, this provides potential for an indirect pollution pathway through which herbicides and/or pesticides could make their way into the aquatic environment where they have the potential to result in significant adverse water quality impacts. There is a risk of water quality impacts in the absence of appropriate mitigation measures in relation to treatment and management of invasive species on-site, in particular use of chemical herbicides.

Uncontrolled release of site run-off and/or ingress of certain materials considered deleterious to the aquatic environment during the construction phase of the proposal could have **Temporary to Short-term, Slight to Moderate, Negative Effects** on water quality.

## 5.5.1.4 Fauna

### 5.5.1.4.1 **Bats**

The closest roosts include two roosts that are within 4km of the proposed development site. One of these is a Leisler's bat roost and the second is a *Pipistrellus* spp. roost. Analysis of aerial view maps show poor ecological connectivity between these roosts and the proposed development site. Collins (2023) identifies the Core Sustenance Zone (CSZ) for Leisler's bat and *Pipistrellus* spp. to be 3 km and 2-3 km, respectively. However, Marnell *et al.*, (2022) notes that Leisler's bat will frequently travel more than 5km from their roosts to forage. As the proposed development site is located within the known foraging range from roosts for Leisler's bat, as per Marnell *et al.*, (2022), in the context of the nearby Leisler's roost, it is considered that, on a precautionary basis, habitat alteration through the removal of trees and hedgerow could have an impact on Leisler's bats utilizing the proposed development site for foraging, and subsequently comprise part of the nearby roost population. This population could therefore be subject to construction phase effects if individuals were to utilise the proposed development site for foraging.

Habitat loss/vegetation removal (potential foraging/ commuting habitat) effects on individuals from the nearby Leisler's bat roost population are assessed as **Short-term, slight negative effects**.

Disturbance and/or displacement effects on individuals from this roosts' Leisler's bat population are assessed as **short-term, slight negative effects**.

### 5.5.1.4.2 **Other Fauna**

In terms of potential disturbance/displacement of species, it is considered that noise and air emissions and increased human activity required for construction of the proposed development site, and water quality impacts, have the most potential for disturbance/displacement effects to faunal IEF's (excluding bats). Mobile species, such as mammals and birds, are expected to temporarily leave the area once works begin owing to noise and human activity. Many mammal species, such as otter and badger, are frequently more active at night, and so activity will not overlap with construction works which will take place during standard working hours.

The following table below (**Table 5-19**) describes the potential construction phase effects on non-volant mammal species identified as Important Ecological Features (IEFs) at the proposed development site, as well as the significance of the effect, without the implementation of appropriate mitigation measures.

In terms of potentially significant disturbance/displacement of species, it is considered that increased activity at the site during the construction phase is unlikely to cause significant impacts on other fauna as construction activities will be restricted to daylight hours, expected construction activity/noise is unlikely to be significantly higher than the existing background noise levels (from existing traffic levels, and industrial and agricultural activity) and the number of individual fauna present on site will be habitually low.

**Table 5-19: Construction stage potential effects on non-volant mammal IEFs without implementation of mitigation measures.**

Important Ecological Feature	Extent/Location	Description of Unmitigated Impact	Significance of Unmitigated Effects (NRA, 2009a & EPA, 2022)
<b>Otter</b>		<p><u>Habitat Loss</u>                      None expected. Habitats which will be lost as a result of the proposed development are not considered to be of particular ecological value to otter. No evidence of breeding and resting places within the site.</p>	No habitat loss effects on otter predicted.
	Not identified during field survey.	<p><u>Disturbance and/or Displacement</u>                      On a precautionary basis, direct disturbance and/or displacement effects on otter could potentially ensue as a result of increased noise, lighting and human activity if otters were to occur within the vicinity of construction works. It is noted that industrial, agricultural and traffic activities comprise the majority of on-going land-use at the development site and in immediate environs.</p>	Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight Negative Effects.</b>
	Habitats on-site identified as being sub-optimal for otter.  Evaluated as Local importance (higher value)	<p>Indirect disturbance and/or displacement effects on otter could potentially ensue due to water quality impacts which could impact on otter foraging/commuting habitat and/or prey biomass in rivers. Watercourses on-site identified as being sub-optimal for otter; however, extensive suitable habitat for foraging is located outside of the proposed development site.</p>	Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary to Short-term, Slight to Moderate Negative Effects.</b>
<b>Badger</b>	Ecological surveys determined that badger does not use the site for foraging, resting or breeding.	<p><u>Habitat Loss</u>                      No loss of badger habitat likely to occur.</p>	No habitat loss effects on badger predicted.
	Evaluated as Local Importance (Higher Value).	<p><u>Disturbance and/or Displacement</u>                      There is little potential for disturbance and/or displacement effects as a result of increased noise and human activity at the site during the construction phase. It is noted that industrial, agricultural and traffic activities comprise the majority of on-going land-use at the development site and in immediate environs.</p>	Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Not significant, Negative Effects.</b>
<b>Pine marten</b>	Habitats on-site identified as being sub-optimal for pine marten. Habitats nearby the site are potentially suitable pine marten.	<p><u>Habitat Loss</u>                      No loss of pine marten habitat identified.</p>	No habitat loss effects on pine marten predicted.
		<p><u>Disturbance and/or Displacement</u></p>	

Important Ecological Feature	Extent/Location	Description of Unmitigated Impact	Significance of Unmitigated Effects (NRA, 2009a & EPA, 2022)
	<p>Four counts of this species have been recorded within hectad O14, with most recent counts occurring in 2020.</p> <p>Evaluated as Local Importance (Higher Value).</p>	<p>Direct disturbance and/or displacement effects could arise as a result of increased noise, lighting and human activity at the site during the construction phase. However, since the site is already somewhat disturbed and near busy, built-up areas, the disturbance created during the construction phase of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, pine marten is not expected to be significantly disturbed and/or displaced because of the proposed development.</p>	<p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight Negative Effects.</b></p>
<p><b>Irish Hare</b></p>	<p>No observations of hare during field survey; suitable foraging and breeding/resting habitat was considered to occur at the subject site.</p> <p>Approximately 107 counts of the species have been recorded in the hectad O14 with most recent counts being recorded in 2023.</p> <p>Evaluated as Local Importance (Higher Value).</p>	<p><u>Habitat Loss</u>                      No significant loss of Irish hare habitat identified. Most grassland habitats will be reinstated.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects could arise as a result of increased noise and human activity at the site during the construction phase. However, since the site is already somewhat disturbed and near busy, built-up areas, the disturbance created during the construction phase of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, Irish hare is not expected to be significantly disturbed and/or displaced because of the proposed development.</p>	<p>No habitat loss effects on Irish hare predicted.</p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight Negative, Effects.</b></p>
<p><b>Irish Stoat</b></p>	<p>No observations of Irish stoat during field survey; suitable foraging and breeding/resting habitat was considered to occur at the subject site.</p> <p>One count of the species in NBDC records from 2012 within hectad O14.</p> <p>Evaluated as Local Importance (Higher Value).</p>	<p><u>Habitat Loss</u>                      The scrub/hedgerow/treeline habitats which will be impacted provide potential foraging and breeding/resting habitat for Irish stoat.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects could arise as a result of increased noise and human activity at the site during the construction phase. However, since the site is already somewhat disturbed and near busy, built-up areas, the disturbance created during the construction phase of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, Irish</p>	<p>Habitat loss effects on stoat are assessed as <b>Temporary, Slight Negative Effects.</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative Effects.</b></p>

Important Ecological Feature	Extent/Location	Description of Unmitigated Impact	Significance of Unmitigated Effects (NRA, 2009a & EPA, 2022)
		stoat is not expected to be significantly disturbed and/or displaced because of the proposed development.	
European Hedgehog	<p>Not recorded during surveys but suitable foraging and breeding/resting habitat occurs at the subject site.</p> <p>53 counts of this species have been recorded by the NBDC within hectad O14. Most recent counts of the species were recorded in 2022.</p> <p>Evaluated as Local Importance (Higher Value).</p>	<p><u>Habitat Loss</u>                      Habitats which will be lost provide potential foraging and breeding/resting habitat for hedgehog. These habitat types are common and widespread in the greater area.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects could arise as a result of increased noise and human activity at the site during the construction phase. However, since the site is already somewhat disturbed and near busy, built-up areas, the disturbance created during the construction phase of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, European hedgehog is not expected to be significantly disturbed and/or displaced because of the proposed development.</p>	<p>Habitat loss effects on hedgehog are assessed as <b>Permanent, Slight Negative Effects.</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative Effects.</b></p>
Pygmy shrew	<p>Not recorded during surveys but suitable foraging and breeding/resting habitat occurs at the subject site.</p> <p>Three NBDC records exist of this species within hectad O14. Most recent counts of the species were recorded in 2019.</p> <p>Evaluated as Local Importance (Higher Value).</p>	<p><u>Habitat Loss</u>                      The habitats which will be lost provide potential foraging and breeding/resting habitat for pygmy shrew. These habitat types are common and widespread in the greater area.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects could arise as a result of increased noise and human activity at the site during the construction phase. However, since the site is already somewhat disturbed and near busy, built-up areas, the disturbance created during the construction phase of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, pygmy shrew is not expected to be significantly disturbed and/or displaced because of the proposed development.</p>	<p>Habitat loss effects on pygmy shrew are assessed as <b>Permanent, Slight, Negative, Effects.</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative Effects.</b></p>
Red Squirrel	<p>Not recorded during surveys. Very little suitable habitat for foraging and</p>	<p><u>Habitat Loss</u>                      No loss of red squirrel habitat identified</p>	

Important Ecological Feature	Extent/Location	Description of Unmitigated Impact	Significance of Unmitigated Effects (NRA, 2009a & EPA, 2022)
	<p>breeding/resting available within the subject site. Treelines and hedgerows nearby have potential to provide suitable habitat.</p> <p>The species has not been recorded within the proposed development site. The NBDC holds one record from 2011 within hectad O14.</p> <p>Evaluated as Local Importance (Higher Value)</p>	<p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects could arise as a result of increased noise and human activity at the site during the construction phase. However, since the site is already somewhat disturbed and near busy, built-up areas, the disturbance created during the construction phase of the proposed development is not expected to significantly exceed the current levels of background noise, lighting and human presence in the area. Therefore, red squirrel is not expected to be significantly disturbed and/or displaced because of the proposed development.</p>	<p>No habitat loss effects on red squirrel predicted.</p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b></p>
<p><b>Birds</b></p>	<p>Habitats within and to a greater extent adjacent to and extending away from the works areas provide potential foraging and breeding/resting habitat for a range of passerines and other birds.</p> <p>Evaluated as Local importance Higher value</p>	<p><u>Habitat Loss</u>                      The habitats which will be lost provide some potential foraging and breeding/resting habitat for several passerine bird species. However, these habitat types are common and widespread within the greater area.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects on birds could potentially ensue as a result of increased noise and human activity. It is likely that birds present in the vicinity during heavy works associated with excavations, ground levelling and foundation building will temporarily avoid the area and move to alternative suitable areas during intermittent periods of loud noise.</p>	<p>Habitat loss effects on birds are assessed as <b>Permanent, Slight, Negative Effects.</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b></p> <p>Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative Effects.</b></p>
<p><b>Common Frog</b></p>	<p>Not recorded during surveys but suitable foraging and breeding/resting habitat occurs at the subject site.</p> <p>Evaluated as Local Importance (Higher Value).</p>	<p><u>Habitat Loss</u>                      The habitats which will be lost provide potential foraging and resting habitat for common frog. These habitat types are common and widespread in the greater area. There will be no loss of potential breeding habitat.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance via works on the drainage ditch during the species breeding season (February to July) and/or displacement effects on common frog could potentially ensue as a result of increased noise and human activity.</p>	<p>Habitat loss effects on common frog are assessed as <b>Permanent, Slight, Negative Effects</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b></p>

Important Ecological Feature	Extent/Location	Description of Unmitigated Impact	Significance of Unmitigated Effects (NRA, 2009a & EPA, 2022)
		Indirect disturbance and/or displacement effects on common frog could potentially ensue as a result of water quality impacts to frog foraging/breeding/resting habitat.	Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b>
<b>Smooth Newt</b>	Not recorded during surveys but suitable foraging and breeding/resting habitat occurs at the subject site.  Evaluated as Local Importance (Higher Value).	<p><u>Habitat Loss</u>                      The habitats which will be lost provide limited potential as foraging and resting habitat for smooth newt. These habitat types are common and widespread in the greater area. There will be no loss of potential breeding habitat.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance via works on the drainage ditch during the species breeding season (February to July) and/or displacement effects on smooth newt could potentially ensue as a result of increased noise and human activity.</p> <p>Indirect disturbance and/or displacement effects on smooth newt could potentially ensue as a result of water quality impacts to smooth newt foraging/breeding or resting habitat.</p>	<p>Habitat loss effects on smooth newt are assessed as <b>Permanent, Slight, Negative, Effects</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b></p> <p>Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative Effects.</b></p>
<b>Terrestrial Macro-Invertebrates</b>	Evaluated as Local Importance (Higher Value).	<p><u>Habitat Loss</u>                      Removal of hedgerow and trees will result in the loss of habitat for invertebrates. Removal of soil during excavation works will result in the loss of habitat for soil dwelling invertebrates. These habitat types are common and widespread in the greater area.</p> <p><u>Disturbance and/or Displacement</u>                      Direct disturbance and/or displacement effects on invertebrates could potentially ensue as a result of vegetation removal, soil excavation and soil movement activities during construction works. Soil works will potentially disturb important ecological processes carried out by invertebrates in the soil.</p>	<p>Habitat loss effects on invertebrates are assessed as <b>Short-term, Moderate, Negative Effects</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Short-term, Moderate, Negative Effects.</b></p> <p>Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary to Short-term, Slight to Moderate Negative Effects.</b></p>

### 5.5.1.5 Invasive Alien Plant Species

Many specimens of buddleia were identified within the proposed development site, particularly around the existing BV and along the drainage ditch in the customer field. Each buddleia plant can produce up to 3 million seeds that can remain viable in the soil for many years. It creates competition for resources such as pollinators, light and space and poses a threat to native plant species. Buddleia is not listed on the Third Schedule of the Birds and Habitats Regulations. However, should it be determined that buddleia at the proposed development site should be removed, treatment methods are recommended<sup>33</sup>. Please refer to **Section 5.6.2.6** for recommended methods of control of buddleia.

Without intervention, Invasive Alien Plant Species (IAPS) could spread within the proposed development site during construction works via movement of vehicles such as excavators and dumpers. The introduction of IAPS to a location free of such plants could have serious implications for habitats. The impact of IAPS without mitigation measures is assessed as a **long-term, likely, moderate, negative** effect.

## 5.5.2 Operational Phase

### 5.5.2.1 Potential Habitat Loss/Alteration Impacts

The operational phase of the proposed development will not involve any additional removal of habitat nor any point source discharges, and there will be no other material releases that would cause adverse effects on surface waters.

### 5.5.2.2 Potential Impacts to Faunal Species (Excluding Bats)

Once the construction phase has ceased, excavation will no longer be required, which will reduce the potential for sediment run off from the site. Following site reinstatement and re-vegetation of bare areas any potential water quality effects are assessed as **Short-term Slight to Imperceptible Negative Effects**.

No significant disturbance or displacement impacts are expected to affect birds, terrestrial mammals, amphibians or reptiles selected as IEFs during the operational phase of the project. Once the construction phase ceases, any species temporarily displaced during construction works are expected to utilise the habitats in the immediate vicinity of the development within a short period of time. There may be some minimal disturbance/displacement of fauna due to increased human activity, noise and lighting associated with operation and maintenance. Any disturbance/displacement impacts are expected to decrease with increasing distance and are expected to be negligible outside the immediate environs of the proposed development.

Potential disturbance/displacement effects on terrestrial mammals, birds, amphibians and reptiles during operation are assessed as **Long-term, Imperceptible, Negative Effects**.

### 5.5.2.3 Potential Impacts to Bats

Site lighting will comprise standard, single down lights positioned around the substation compound and mounted to the substation building and will be motion activated by vehicles or personnel that enter the site to allow safe access and egress. The lighting units will be hooded to minimise light impacts/spillage.

While bats are naturally exposed only to very low lighting levels produced by moonlight, starlight and low intensity twilight, light levels greater than natural light levels at night can impact on the lifestyle of bats. Artificial Light at Night (ALAN) may significantly change the natural behaviour of bats in relation to roosting, commuting and feeding by avoiding habitats lit up by ALAN. Behavioural changes of bats as a result of increased light levels may

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<sup>33</sup><https://www.tii.ie/media/rtmi2ebi/management-of-noxious-weeds-and-non-native-invasive-plant-species-on-national-road-schemes.pdf>

result in a loss of foraging grounds and nocturnal/seasonal commuting routes through avoidance effects<sup>34</sup> (BCI, 2010). Such changes in behaviour may in turn significantly affect local bat populations. Nocturnal flying insects such as moths can be attracted away from their natural habitat towards artificial light sources indirectly impacting bats through impacts on prey resource (BCI, 2010).

It is considered that disturbance or displacement effects to foraging/commuting bats as a result of increased lighting during operation would comprise **Long-term, Slight, Negative Effects**.

It is considered that disturbance or displacement effects to bats as a result of increased noise and human activity during operation would comprise **Long-term, Slight, Negative Effects**.

### 5.5.3 Decommissioning Phase

Impacts and effects as outlined for construction phase will apply for the decommissioning stage as the activities of decommissioning the proposed development will be similar. However, decommissioning will be of a significantly lesser scale, as large-scale excavations will not be required. Mitigations for the decommissioning phase will be the same as mitigations for the construction phase.

### 5.5.4 Do-Nothing Scenario

The proposed development site comprises mainly agricultural land, and public roads.

If the proposed development does not progress, it is likely that the current land-use practices will continue at the site; grassland habitats will continue to be farmed, hedgerow removal is unlikely to occur, and the existing road network will be maintained and upgraded in the future.

### 5.5.5 Cumulative Impacts and Effects

As well as singular effects, the potential for cumulative impacts and effects also need to be considered. A cumulative impact arises from incremental changes caused by other past, present or reasonably foreseeable future actions together with the proposed development. The proposal was considered in combination with other relevant plans, projects and activities in the area. Cumulative effects are defined by CIEEM (2018) as; *“Additional changes caused by a proposed development in conjunction with other developments or the combined effect of a set of developments taken together”*.

#### 5.5.5.1 Projects

The works for the proposed development will overlap with the works for the Kilshane Energy Facility which has been granted permission.

A search for other projects was carried out focusing on the areas close to the proposed development. The findings of the searches are provided in **Chapter 01**. The majority of planned and proposed projects identified within the area are warehouses, industrial units and some smaller scale projects linked to renovations and extensions to existing buildings. The Kilshane Energy Facility project, including all other plans and projects in the area, have undergone AA and EclA with no significant impacts on Natura 2000 sites being identified. Given the scale and nature of the construction and operational stage of the proposed development, it is considered that no significant in-combination effects on biodiversity are likely as a result of interactions between the proposed development construction phase and any other plans or projects. Due to the nature of the proposed development i.e. BV, underground transmission gas pipeline and AGI, there are no regular activities during the operational phase.

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<sup>34</sup> <https://theilp.org.uk/publication/guidance-note-8-bats-and-artificial-lighting/>

Therefore, no potential for cumulative impacts during the operational phase with existing and/or approved projects is expected.

### 5.5.5.2 Plans

The project was considered in combination with other plans in the area that could result in significant cumulative effects on IEFs. The plans considered include:

- The Fingal County Development Plan (2023-2029) , adopted on the 22<sup>nd</sup> of February 2023 and came into effect on the 5<sup>th</sup> of April 2023; and
- The Fingal Biodiversity Action Plan (2022-2030), regarding the local ecology and action plans implemented to achieve the protection and enhancement of Fingal County's biodiversity.

No significant negative cumulative impacts are predicted with the Fingal County Development Plan (2023-2029) nor the Fingal Biodiversity Action Plan (2022-2030), as each plan has a range of environmental and natural heritage policy safeguards in place. These safeguards that protect the natural environment and Natura 2000 Sites will also apply to the proposal described in this report. Projects arising from the Fingal County Development Plan (CDP), and successors to the CDP, will be subject to AA/EIA.

No significant cumulative effects are predicted with the plans listed above because of the temporal and geographical scale of the proposed development, effects are assessed as **imperceptible negative**.

## 5.6 Mitigation and Monitoring Measures

The existing site of the proposed development is considered to be of low ecological importance due to low availability of any high value habitats and its proximity to a large urban location. However, it is imperative that all elements of the proposed developments construction and operational stages are sensitive to each IEF identified.

### 5.6.1 Design

A large proportion of the proposed development is confined to the existing road network. This mitigation by design effectively limits, and avoids intrusion into ecologically sensitive habitats by having its footprint located on largely artificial habitats and habitats of low value (roads and associated verges). It is acknowledged that some treelines and hedgerows occur adjacent to the road network used to facilitate the proposed Development, and the potential exists for damage to tree roots via excavation. This impact is not considered significant however because the ground beneath roads is usually compacted and thus, not well penetrated by roots. In addition, a biodiversity hierarchy approach was employed to avoid and minimise the number of trees impacted by the proposed development.

The pipeline trench will only have a working area of 100mat any one time. This feature of the proposed development will ensure that the scale of any impacts will be minor, especially considering its linear character.

### 5.6.2 Construction Phase

An Outline Construction Environmental Management Plan (**OCEMP**), refer to **Appendix 2-1**, has been prepared and incorporates all of the following mitigations. Prior to the construction phase, the Appointed Contractor(s) will prepare their own site specific CEMP using this OCEMP as a framework.

Mitigation measures to prevent likely significant negative effects to the ecological receptors identified in this chapter into the project through the **OCEMP** and will be overseen by the Project Ecologist/Environmental

Manager. Mitigation measures will be monitored for compliance in-line with the requirements of the Planning Consent.

The finalised **OCEMP** will take cognisance of Construction Industry Research and Information Association (CIRIA) technical guidance on water pollution control (Masters-Williams *et al.*, 2001; Murnane *et al.*, 2006) and will include, but is not limited to, the following construction phase elements:

- Management of Excavations;
- Surface Water Management Plan (Sediment and Erosion Control);
- Fuels and Oils Management;
- Management of Concrete;
- Construction Waste and By-product Management Plan;
- Wheel Wash Management Procedure;
- Construction Dust Management;
- Construction Noise Management;
- Biodiversity Enhancement Management Plan;
- Management of Invasive Species;
- Monitoring and Auditing Procedures; and
- Environmental Accidents, Incidents and Corrective Actions.
- 

#### **5.6.2.1 Site Environmental Manager**

Routine inspections of construction activity will be carried out on a daily basis by the Site Environmental Manager and/or appointed contractor staff to ensure all controls to prevent environmental impact, relevant to the construction activities taking place at the time, are in place. Environmental inspections will ensure that the works are undertaken in compliance with the **OCEMP** and that the requirements of the Conditions of Planning and associated documentation are being adhered to during construction. Only suitably trained staff will undertake environmental site inspections.

#### **5.6.2.2 Water Quality**

The main potential for water quality impacts during the construction phase is the excavation of soil. Loose and exposed soils are at risk of being washed into watercourses during wet periods.

While site management controls will reduce the potential for water pollution, additional measures will be deployed to minimise erosion and runoff from excavated areas. This will be achieved as follows:

- Disturb as little area as possible and excavate only one section of the site at a time where feasible. Backfill each section at the end of each day upon completion of the pipeline installation;
- Excavated topsoil and subsoil will be stored onsite for reuse or removed off site to an appropriate licenced facility;
- Temporary stockpiles of soils will not be permitted within 50m of any watercourse; and
- Undertake road cleaning at the end of each day at a minimum and more frequently if necessary.

### 5.6.2.3 Fuel Management

All plant will be refuelled on site e.g. excavators, dumpers etc, while rigid and articulated vehicles will be fuelled off site as will all site vehicles (jeeps, cars and vans). At construction stage, a Fuel Management Plan will be developed specific to the site and the particular plant and equipment required for construction.

The plan outlined will have regard to the following elements:

- Mobile bowsers, tanks and drums will be stored in a secure, impermeable storage area, away from drains and open water;
- Fuel containers will be stored within a secondary containment system e.g. bund for static tanks or a drip tray for mobile stores;
- Ancillary equipment such as hoses, pipes will be contained within the bund;
- Taps, nozzles or valves will be fitted with a lock system;
- Fuel and oil stores, including tanks and drums, will be regularly inspected for leaks and signs of damage;
- Only designated trained operators will be authorised to refuel plant on site;
- Procedures and contingency plans will be set up to deal with emergency accidents or spills; and
- An emergency spill kit with oil boom and absorbers will be kept on site in the event of an accidental spill.

#### Refuelling of Construction Plant On-Site

The following measures will be undertaken to avoid or minimise negative effects to water quality as a result of the use of hydrocarbons:

- Refuelling will be carried out using 110% capacity double-bunded mobile bowsers. The refuelling bower will be operated by trained personnel. The bowser will have spill containment equipment which the operators will be fully trained in using;
- Mobile bowsers, tanks and drums will be stored in secure, impermeable storage area, away from drains and open water;
- To reduce the potential for oil leaks, only mechanically sound vehicles and machinery will be allowed onto the site. An up to date service record will be required from the main contractor;
- Should there be an oil leak or spill, the leak or spill will be contained immediately using oil spill kits; the nearby water drain outlet will be blocked with an oil absorbent boom until the fuel/oil spill has been cleaned up and all oil and any contaminated material removed from the area. This contaminated material will be properly disposed of in a licensed facility;
- Immediate action will be facilitated by easy access to oil spill kits. An oil spill kit that includes absorbing pads and socks will be kept at the site compound and in site vehicles and machinery; and
- In the event of a major oil spill, a company providing a rapid response emergency service for major fuel spills will be immediately called for assistance, their contact details will be kept in the site office and in the spill kits kept in site vehicles and machinery.

#### Storage

The storage of materials, containers, stockpiles, and waste, however temporary, will follow best practice at all times and be stored in designated areas. Storage will be located as follows:

- Away from drains and sensitive habitats (IEFs);
- On an impermeable base;
- Under cover to prevent damage from the elements; and
- In secure areas.

All containers will be stored upright and clearly labelled. Sufficient storage will be supplied near to all working areas.

#### **5.6.2.4 Habitats**

##### **5.6.2.4.1 General Protection of Habitats**

The area of proposed works will be kept to the minimum necessary to minimise disturbance to habitats and flora. The footprint of the development area and construction area including temporary working compounds will be clearly marked prior to commencement of construction with secure posts and high visibility tape. These areas will be marked out with reference to design drawings, under the supervision of the project engineer and Project Ecologist. There will be no removal of habitat, movement/storage of construction machinery or any other construction related activities permitted outside the footprint of the proposed development area.

Habitat disturbance will be limited by controlling the movement of plant, machinery and personnel.

All trees and as much hedgerows and scrub habitats as is feasible will be retained within the site, and all possible measures will be taken to protect vegetation and/or the habitat features from damage or disturbance. Such impacts may arise from physical damage to individual trees and shrubs, damage/alteration of the surrounding ground such as compaction of soil and/or changes in ground levels due to excavation. Any works in proximity of these areas will be undertaken in line with the advice of a suitably qualified Ecologist and with regard to 'Guidelines for the Protection and Preservation of Trees, Hedgerows and Scrub, Prior, During and Post Construction of National Road Schemes' (NRA, 2006).

#### 5.6.2.4.2 **Removal of Vegetation**

In accordance with Section 40 of the Wildlife Acts, vegetation removal, including hedgerow and tree removal, will be conducted outside of the restricted bird nesting period (March 1<sup>st</sup> to 31<sup>st</sup> August, inclusive). The provisions of Section 40 of the Acts do not relate exclusively to birds, but considers the enhancement of interests to biodiversity; the protection of hedgerows and vegetation will contribute to local ecological food chains and ecosystem functioning.

If vegetation removal must take place inside the bird nesting period (March 1<sup>st</sup> to 31<sup>st</sup> August, inclusive), a suitably qualified Ecologist must be consulted prior to any works and they must oversee the works only after a derogation licence has been granted by the NPWS. If any active bird nests are found by the Ecologist, all works in the area must cease and the nest must be left undisturbed until all chicks have successfully fledged, thereby avoiding disturbance to the breeding birds.

#### 5.6.2.4.3 **Hedgerow and Treeline Reinstatement**

Where hedgerow and treeline removal are required within the proposed development site, these areas of loss will be replanted within the proposed development site with native hedgerow and tree species. Appropriate planting of native trees and shrubs will be carried out along suitable stretches of the pipeline route. A detailed landscape plan has been designed for the BV station to optimise local biodiversity and offset tree carbon.

Planting will comprise a mix of semi-mature specimen trees, immature trees and pollinator-friendly hedgerow species. Planting of species will be staggered to achieve structural heterogeneity, avoid excessive shading and promote natural diversity as the field and shrub layers re-establish over time. Fast-growing species such as willow (*Salix* spp.) and alder (*Alnus glutinosa*) will be used, along with other native hedgerow species such as whitethorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), holly (*Ilex aquifolium*), rowan (*Sorbus aucuparia*), bramble (*Rubus fruticosus*), birch (*Betula* spp.) and hazel (*Corylus avellana*).

It is essential that planting will use only nursery plants grown in Irish nurseries to avoid the spread of diseases such as ash dieback disease<sup>35</sup> and fireblight<sup>36</sup>. Entry pathways for such diseases are through imports of host plants grown in nurseries outside of Ireland.

Reinstatement will ensure that there will be no net loss of these habitats. Please refer to the Landscape Plan (**Appendix 5-3**) for details of the reinstatement of hedgerow and treeline habitats.

### 5.6.2.5 **Protection of Fauna**

#### 5.6.2.5.1 **General**

- Construction materials and wastes are to be kept in designated areas only to prevent accidental injury/entrapment of wildlife on-site;
- Vegetation removal should be minimised. Vegetation to be cleared will be clearly marked prior to removal. Removal of vegetation from anywhere outside of marked areas will not be permitted;
- Refer to **Section 5.6.2.4.2**, above, regarding vegetation removal during bird breeding and nesting season;
- To reduce the level of night-time disturbance to nocturnal fauna, construction activities will be restricted to standard construction hours. Construction work will not take place outside of these hours unless in exceptional circumstances;

<sup>35</sup><https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://assets.gov.ie/271942/bf0fab39-2baf-4b09-a2ce-62a60ce449c7.pdf&ved=2ahUKewiXi9XX2rKFAXUuQEEAHciuDs0QFnoECBUQAw&usg=AOvVaw2-OiuRACvIac0exmhdlv6z>

<sup>36</sup> <https://assets.gov.ie/267419/5ddd15ae-9de7-42cd-82c3-9e3c7820ba48.pdf>

- All temporary construction lighting is to be turned off after daylight hours; and
- Should any previously unidentified resting or breeding place of any protected species be discovered within the site during construction works, works will cease immediately, the area will be cordoned off and a suitably qualified Ecologist will be informed and will advise how to proceed. NPWS will be informed and advice sought, where necessary.

#### 5.6.2.5.2 **Bats**

##### Tree felling

As part of the design of the proposed development construction works, the pipeline route has been refined to minimise the number of mature trees requiring felling. However, any changes to the design that require trees to be felled will require protection measures. As the small stand of trees are deemed to be negligible with no potential for roosting bats, these will not be subject to any further survey work or mitigation; as per current bat survey guidance (Collins, 2023), where no suitable habitat for bats is found, then further survey is not considered to be necessary. Results given in this report provide the rationale and evidence gathered by a suitably qualified ecologist to support the aforementioned conclusion. Should works not be undertaken within 12 months then these trees will be subject to re-evaluation for their potential for roosting bats. All trees on the site identified as having a low potential for roosting bats, including the dead ash tree (T2 in **Table 5-11**), will need to be felled using a soft-felling approach. Further details about this method are provided below.

Bats are most vulnerable to disturbance during hibernation and maternity seasons, therefore, it is recommended that the removal of trees identified as suitable for bats are removed outside of these seasons; September/October are the recommended months for felling such trees. Soft felling is recommended to mitigate against disturbance to any bats present in the tree(s) during the removal process. Soft felling involves leaving cut tree limbs and other cut elements of a tree grounded over night to allow bats to make their way out. PRF's (potential roost features) would be identified and removed sensitively, by making cuts away from the features and lowering the cut section carefully by rope to the ground. This will then be left at the base of the tree for at least 48 hours, with the PRF facing outwards to allow any bat to freely leave if present. Ivy removal would be undertaken sensitively and limited to that required to ensure safety.

If further trees require removal/felling for the purposes of health and safety, or the proposed development construction works, a suitably qualified bat worker/Ecologist will assess the tree for bat suitability and apply the necessary and appropriate protection measures as follows. During felling of a tree with bat roost suitability, a licensed bat worker will be required to supervise and advise on the works on site. A toolbox talk would be provided to all workers at the site, advising on bat protection legislation (and other protected species) and the methods for work.

##### Lighting

Appropriate lighting will be employed during the construction and operational phases to minimise impacts on local bat populations. Use of lighting will be minimised and avoided, where possible. Construction lighting will be targeted to minimise/avoid light spill to enable the retention of dark-corridor connectivity within the landscape for commuting bats.

Where lighting is required, the following will be considered:

- Lighting that meets the lowest light levels permitted under health and safety will be installed. Low-pressure sodium lights will be used instead of high-pressure sodium lights or mercury lamps. If mercury lamps are to be used, they will be fitted with UV filters;

- LED luminaires will also be used due to the fact that they are highly directional, lower intensity, good colour rendition and dimming capability;
- All lighting used will lack UV/IR elements to reduce impact;
- Directional lighting will be used to prevent overspill on to hedgerow edges, trees, potential commuting/foraging routes or other habitat features of importance to bats. This will be achieved with the use of covers and shields (baffles, hoods or louvres) to reduce light spill and direct lighting to the intended area only;
- Luminaires will feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;
- Only luminaires with an upward light ratio of 0% and with good optical control will be used;
- Luminaires will be mounted on the horizontal, i.e. no upward tilt; and
- Any external security lighting will be set on motion-sensors and short (1min) timers.

Any lighting introduced to the proposed development site will follow guidance in the documents:

- Institution of Lighting Professionals (ILP) (2023). Guidance Note 08/18. Bats and Artificial Lighting in the UK - Bats and the Built Environment Series;
- Bats & Lighting. Guidance Notes for: Planners, engineers, architects and developers (BCI, 2010); and
- Bat Mitigation Guidelines for Ireland Ver 2. Irish Wildlife Manuals, No 134 (Marnell et al., 2022);

#### 5.6.2.5.3 ***Badger and Otter***

Where areas of dense vegetation are to be removed, a suitably qualified Ecologist will be present to oversee removal of vegetation and ensure any necessary mitigation measures are in place in the event that a previously unknown breeding or resting site of any protected mammal species e.g., badger sett, are encountered during the works.

If any badger setts are discovered during the pre-construction surveys within or in proximity to the construction corridor, then all works within a 30 m buffer (50 m buffer during the breeding season, typically between February and May inclusive<sup>37</sup>) will cease. NPWS will be contacted, and the necessary mitigation implemented further to consultation.

Water quality protection measures as outlined in **Section 5.6.2.2** will be in place to protect otters and their habitats downstream of the proposed development.

Surveys and implementation of best-practice guidelines for badger and otter will be overseen by a suitably qualified Ecologist and in accordance with NRA/TII Guidelines 'Guidelines for the Treatment of otters prior to the Construction of National Road Schemes' (NRA, 2008a) and 'Guidelines for the Treatment of badgers prior to the Construction of National Road Schemes' (NRA, 2008b).

Where relevant, mitigation for badger and otter will be carried out in full accordance with NRA/TII Guidelines.

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<sup>37</sup><https://www.vincentwildlife.ie/species/badger>

#### 5.6.2.5.4 ***Irish hare, Hedgehog and Pygmy Shrew***

These species are mobile and so are expected to disperse from the area. However, in the case of hedgehog and hare, young are vulnerable to impacts during vegetation clearance and/or during periods of hibernation. Prior to any vegetation clearance, the area to be cleared will be checked by a suitably-qualified ecologist to check for the presence of young mammals, or hibernating hedgehog, as appropriate.

#### 5.6.2.5.5 ***Amphibians***

In the event that there is a requirement to disturb breeding smooth newt or common frog, (including spawn and/or spawning habitat) that may occur in the drainage ditch at the watercourse crossing or any other area in the proposed development site, appropriate actions will be followed by the project ecologist to ensure their preservation including seeking a derogation licence where amphibians will require translocation in order to proceed with proposed works. Translocation efforts include the capture and removal of adult amphibians, spawn, and tadpoles/juvenile newts from any affected habitat to the nearest available and suitable habitat. These efforts will be undertaken in advance of construction works commencing. Fingertip surveys will be carried out by a competent Ecologist prior to the disturbance of terrestrial habitats (log piles, rubble piles etc). Any reptiles or amphibians found during this process will be translocated by the Ecologist to a safe and suitable location.

#### 5.6.2.6 **Invasive Species**

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

As discussed in **Section 5.3.7**, a stand of buddleia has been identified within the site and the following treatment for removal according to the National Roads Authority (NRA – now TII) is recommended<sup>38</sup>:

**Chemical control:** It is recommended that plants are cut back to a stump during active growth (late spring to early summer) and then immediately treated with a systemic weed killer (brushed on). Foliar application of herbicide may be adequate for smaller infestations of younger plants but must be followed up on a 6 monthly basis.

**Physical control:** Physical removal of buddleia is only suitable for very small infestations of this species. If this is the chosen method of removal, care should be taken to remove all parts of the plant as branches are capable of re-rooting from cuttings. The plants should not be removed when in seed as there would be a risk of spreading the seeds further. Where removal of mature plants is not immediately feasible, the flower heads should be removed in June before they go to seed. It is essential to plant the ground with native species immediately following removal to prevent new seedlings taking hold. Seedling buddleia plants can be removed manually from newly grassed areas prior to mowing.

For invasive species in general, the following measures address potential effects associated with the construction phase of the project:

- Pre-construction site surveys are to take place during the growing period for any viable knotweed or other IAPS material;
- Where any IAPS is identified within the works footprint (see **Section 5.3.7** and **5.5.1.5** for a description of existing stands of IAPS identified onsite during the walkover survey). The appointed contractor is to develop and implement an appropriate method statement with regard to managing IAPS on-site. Fencing and/or advisory signage is to be erected. Where stands are small, comprising individual plants, the use

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<sup>38</sup> <https://www.tii.ie/media/rtmi2ebi/management-of-noxious-weeds-and-non-native-invasive-plant-species-on-national-road-schemes.pdf> [Accessed 15/04/2024].

of signage may suffice. Exclusion zones will be established to prevent access by plant or operatives to the invasive species plant area to prevent any further potential spread of the invasive species;

- No ground disturbance should take place within IAPS fenced areas, without prior consultation with, and the direction of the appointed invasive specialist, and then only under strict supervision;
- Where there will be encroachment into IAPS infested areas as part of the development, site-specific soil remediation plans are to be developed and implemented to provide for the safe and bio-secure removal and disposal of IAPS infested soil. These plans should include for the provision of vertical and horizontal root barrier membranes, as and where appropriate, and all other measures necessary to ensure bio security compliance;
- Best practice measures will be followed for cleaning and decontaminating equipment and vehicles to prevent the accidental transfer of invasive species;
- Under no circumstances is any IAPS plant or rhizome material to be cut, dug out or in any other way disturbed without the advice, direction and supervision of the appointed invasive specialist;
- Where necessary, the off-site removal of Japanese knotweed, its variants, soil infested with knotweed material, and other IAPS is to be carried out according to the relevant NPWS licence and any conditions attached. This licence is to be procured in advance of any removal of IAPS material off-site and in accordance with the European Communities (Birds and Natural Habitats) Regulations 2011 (SI 477);
- Large areas of disturbed/bare soil should be mulched, where appropriate, and seeded/planted at the earliest opportunity with native species to stabilise the soil and deter subsequent reinvasion. Planting should be carried out with regard to 'Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species (Kelly, 2012);
- Where application of herbicides is required to treat IAPS on-site, the proximity of ecological receptors is to be considered. Herbicide use is to be minimised as much as possible and targeted to the specific IAPS. Where use of herbicides is required, non-residual, aquatic approved herbicides are to be used;
- Herbicides are not to be used in windy or foggy weather, during or preceding rainfall or where rainfall is forecast within 12 hours or during particularly cold weather to reduce risk of spray drift, run-off or poor plant uptake;
- All herbicides are to be pre-mixed in a designated secure area. Only the volumes of herbicide necessary for each treatment area are to be prepared;
- Herbicide will be applied to target species only and great care taken to avoid affecting surrounding vegetation by run-off or drift;
- Herbicides are to be applied strictly in accordance with the manufacturer's recommendations and by competent, experienced and licenced personnel registered as Professional Pesticides User, and fully in compliance with the European Communities (Sustainable Use of Pesticides) Regulations, 2012, (S.I. 155 of 2012) and Good Plant Protection Practice as prescribed in the European Communities (Authorization, Placing on the Market, Use and Control of Plant Protection Products) Regulations, 2003 (S.I. No. 83 of 2003). The herbicide selected must be used in compliance with the Pesticide Product Label and any conditions set out in it;
- All management and control measures implemented on-site during the construction phase are to be carried out strictly in accordance with best practice guidance as set out in 'The Management of Noxious Weeds and Non-native Invasive Species on National Roads' NRA (2010) and 'Horticulture Code of Good Practice: To prevent the introduction and spread of invasive non-native species (Kelly, 2012) and in

accordance with the site-specific IAPS Management Plan, which will be updated accordingly as the project progresses;

- Physical remediation post-construction, if required, is to be managed and undertaken as per the IAPS Management Plan which is to be updated continually over the course of the multi-annual management approach to IAPs within the site;
- Good construction site hygiene will be employed to prevent the introduction and spread of problematic invasive alien plant species (e.g. Himalayan Balsam, Rhododendron etc) by thoroughly washing vehicles in wheel washing designated zone prior to leaving any site;
- Any soil and topsoil required on the site will be sourced from a stock that has been screened for the presence of any invasive species and where it is confirmed that none are present; and
- All site users should be aware of invasive species mitigation and treatment methodologies through site induction training and subsequent toolbox talks.

#### Biosecurity

- Prior to being brought onto site, all plant, equipment and PPE will have to be clean and free of soil/mud/debris or any attached plant or animal material. Prior to entering the site, all plant and equipment will be thoroughly cleaned down using a power washer unit to prevent the spread of IAPS. All plant/equipment will be visually inspected to ensure all adherent material and debris has been removed;
- Prior to being brought to site, certification will be obtained from suppliers that all raw materials including soil, fill, sand, gravel and landscaping materials to be imported are free from IAPS. Locations for supply e.g. quarries etc., will be assessed for the presence of IAS prior to materials being brought to site;
- All footwear/waders and/or equipment that is to be used within the aquatic environment will be treated to prevent foreign flora/fauna entering the water, and again after use, to prevent spread to other catchments. PPE and tools will remain on site for the duration of construction;
- Non-native species control will be implemented and managed according to the following the Inland Fisheries Ireland (IFI) document, noting that some works components are located at/near watercourses 'IFI Biosecurity Protocol for Field Survey Work'<sup>39</sup>; and

### **5.6.3 Operational Phase**

No further mitigation is required at operational stage. Mitigation as outlined for construction phase will apply for any maintenance activities and protocols as set out in the **OCEMP** prepared for construction activities will also be followed.

### **5.6.4 Decommissioning Phase**

Mitigation as outlined for construction phase will apply for the decommissioning stage. Protocols as set out in the **OCEMP** prepared for construction activities will also be followed.

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<sup>39</sup> [https://www.fisheriesireland.ie/sites/default/files/2021-06/research\\_biosecurity\\_biosecurity\\_for\\_fieldsurveys\\_2010.pdf](https://www.fisheriesireland.ie/sites/default/files/2021-06/research_biosecurity_biosecurity_for_fieldsurveys_2010.pdf)

## 5.7 Residual Effects

Residual effects are those which are likely to occur even following the implementation of mitigation measures.

Mitigation measures are proposed in **Section 5.6** to provide robust and effective protection to IEFs likely to be affected by the proposed development in the absence of mitigation. A summary of the unmitigated effects of the construction and operational phases, and then including mitigation and residual effects, of the proposed development are detailed in **Table 5-20**. Decommissioning effects are expected to be similar to construction phase effects, however, they will be reduced in magnitude.

**Table 5-20: Summary table of unmitigated impacts and residual effects**

Important Ecological Feature (IEF)	Unmitigated Impacts		Mitigation Measures	Residual Effects
	Construction Phase	Operational Phase		
Hedgerows (WL1)	<p>Direct habitat loss effects (are assessed as <b>Permanent, Likely, Moderate, Negative Effects.</b></p> <p>Habitat disturbance effects are assessed as <b>Short-term, Likely, Slight, Negative Effects</b></p>	No Impacts	<ul style="list-style-type: none"> <li>- Implementation of CEMP</li> <li>- Best Practices and Site Management</li> <li>- Hedgerow and Treeline Reinstatement to replace all hedgerow and trees removed</li> </ul>	<p><u>Construction phase:</u> <b>Short-term, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
Drainage Ditches (FW4)	<p>No direct habitat loss.</p> <p>Disturbance/displacement during the operational phase is assessed as <b>Temporary, Slight, Negative effects</b></p>	No Impacts	<ul style="list-style-type: none"> <li>- Best Practice and Site Management</li> <li>- Implementation of CEMP</li> </ul>	<p><u>Construction phase:</u> <b>Temporary, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
Scrub (WS1)	<p>Direct habitat loss effects are assessed as <b>Permanent, Likely, Moderate, Negative Effects.</b></p> <p>Habitat disturbance effects are assessed as <b>Short-term, Likely, Slight, Negative Effects.</b></p>	No Impacts	<ul style="list-style-type: none"> <li>- Best Practice and Site Management</li> <li>- Implementation of CEMP</li> </ul>	<p><u>Construction phase:</u> <b>Temporary, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
All bat species	<p>Habitat loss/vegetation removal (potential foraging/ commuting habitat) effects on individuals from the nearby Leisler’s bat roost population are assessed as <b>Short-term, slight, negative effects.</b></p>	<p>Disturbance/displacement during the operational phase is assessed as <b>Long-term, Slight, Negative Effects</b></p>	<ul style="list-style-type: none"> <li>- Construction and operational stage lighting detailed in <b>Section 5.6.2.5.2</b></li> <li>- Implementation of CEMP,</li> <li>- Best Practices and Site Management</li> </ul>	<p><u>Construction phase:</u> <b>Short-term, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>Long-term, Not significant, Negative Effects</b></p>

	<p>Disturbance and/or displacement effects on individuals from this roosts' Leisler's bat population are assessed as <b>short-term, slight, negative effects.</b></p>			
Non-volant Mammals	<p>Habitat loss effects on non-volant mammals (loss of potential foraging and potential breeding/resting habitat) assessed as a <b>Short-term, Slight, Negative Effect.</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Short-term Slight Negative Effect.</b></p>	<p>Disturbance/displacement during the operational phase is assessed as <b>Long-term, Imperceptible, Negative Effects</b></p>	<ul style="list-style-type: none"> <li>- CEMP</li> <li>- Presence of a suitably qualified Ecologist</li> <li>- Compliance with Wildlife Acts regarding vegetation removal</li> <li>- Pre vegetation clearance check</li> </ul>	<p><u>Construction phase:</u>  <b>Temporary, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
Birds	<p>Habitat loss effects on birds are assessed as <b>Permanent, Slight, Negative Effects.</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b></p> <p>Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative Effects.</b></p>	<p>Disturbance/displacement during the operational phase is assessed as <b>Long-term, Imperceptible, Negative Effects</b></p>	<ul style="list-style-type: none"> <li>- CEMP</li> <li>- Presence of a suitably qualified Ecologist</li> <li>- Compliance with Wildlife Acts regarding vegetation removal</li> <li>- Pre-construction breeding survey if works occur during breeding season</li> </ul>	<p><u>Construction phase:</u>  <b>Temporary, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
Terrestrial macro-invertebrates	<p>Habitat loss effects on invertebrates are assessed as <b>Short-term, Moderate, Negative Effects</b></p> <p>Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Short-term, Moderate, Negative Effects.</b></p>	<p>Disturbance/displacement during the operational phase is assessed as <b>Long-term, Imperceptible, Negative Effects</b></p>	<ul style="list-style-type: none"> <li>- CEMP</li> <li>- Appropriate storage and protection of excavated soil during construction phase</li> </ul>	<p><u>Construction phase:</u>  <b>Temporary, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>

Indirect disturbance and/or displacement effects during the construction phase are assessed as **Temporary to Short-term, Slight to Moderate Negative Effects.**

Amphibians	Habitat loss effects on common frog are assessed as <b>Permanent, Slight, Negative Effects</b>			
	Direct disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b>	Disturbance/displacement during the operational phase is assessed as <b>Long-term, Imperceptible, Negative Effects</b>	<ul style="list-style-type: none"> <li>- Presence of a suitably qualified Ecologist</li> <li>- Pre-construction checks and translocation to nearby suitable aquatic habitat by a suitably qualified Ecologist if required</li> </ul>	<p><u>Construction phase:</u>  <b>Temporary, Likely, Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
	Indirect disturbance and/or displacement effects during the construction phase are assessed as <b>Temporary, Slight, Negative, Effects.</b>			

Water Quality	<b>Short-term, Not Significant, Negative effects</b> on water quality at the local level.	<b>No Impacts</b>	<ul style="list-style-type: none"> <li>- CEMP</li> <li>- Surface Water Network Design and Controls</li> <li>- Site Management</li> </ul>	<p><u>Construction phase:</u>  <b>Temporary, Likely Not Significant Negative Effect</b></p> <p><u>Operational Phase:</u> <b>No Impacts</b></p>
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## 5.8 Biodiversity Enhancement

A number of opportunities for biodiversity enhancement have been identified at the proposal site and are proposed primarily at the BV station. Enhancement will include but is not limited to the following:

- Creating habitats that naturally occur in the local area;
- Tree and hedgerow planting (native Irish grown plants only);
- Pollinator friendly planting (native Irish plant species/seed mixes);
- Providing nesting and roosting habitat for a wide range of native fauna (bird boxes/bat boxes/invertebrate shelters); and
- Reducing/avoiding pesticide usage.

Any planting will be restricted to native plant species only using stock of Irish provenance. It is essential that planting will use only nursery plants grown in Irish nurseries to avoid the spread of diseases such as ash dieback disease<sup>40</sup> and fireblight<sup>41</sup>. Entry pathways for such diseases are through imports of host plants grown in nurseries outside of Ireland.

A landscape plan for the Kilshane Block Valve has been developed as part of the proposed development and has elements aimed at increasing biodiversity at the Kilshane Block Valve. The landscape plan details management and enhancement measures in relation to habitats and species within the site, including wildflower hay meadow, hedgerows and treelines planted with native Irish species. This landscape plan aims to better utilise the green space around the proposed development to maximise its biodiversity potential and screen the site.

The landscape plan is included in **Appendix 5-3**. Measures proposed in this document have been agreed with the client and will be implemented by the operator in conjunction with the landowners and overseen by project ecologist.

### 5.8.1 Retention and Enhancement of Existing Boundary Habitats

Existing internal treelines and hedgerows will be enhanced within the site, where possible, to improve their value as commuting corridors for bats and other wildlife, in particular those connected to the wider landscape, including woodland habitats. Large gaps/openings in existing linear features will be planted up with appropriate native shrubs and trees to improve structure and connectivity along features.

Any newly planted hedgerows and existing hedgerows and treelines within the BV will be managed for wildlife e.g., any cutting of hedgerows required will be undertaken to ensure that the overall structure and shape of the hedgerow provides adequate cover and shelter for wildlife. Variation in structure and height will provide habitat of higher value for wildlife. Any hedgerow maintenance will be undertaken on a 3–4-year rotational cutting cycle. Suitable cutting equipment will be used to minimise unnecessary flaying and shredding of hedgerow vegetation to reduce risk of long-term damage and disease.

Hedgerow maintenance will be prohibited during the bird nesting season (March – August, inclusive), which will also have positive effects on other wildlife, such as insects. Native Irish grown plant species will be used for all planting and enhancement of habitats.

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<sup>40</sup><https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://assets.gov.ie/271942/bf0fab39-2baf-4b09-a2ce-62a60ce449c7.pdf&ved=2ahUKewiXi9XX2rKFAXUuQEEAHciuDs0QFnoECBUQAw&usg=AOvVaw2-OiuRACvlac0exmhdlv6z>

<sup>41</sup> <https://assets.gov.ie/267419/5ddd15ae-9de7-42cd-82c3-9e3c7820ba48.pdf>

### 5.8.2 Wildflower Meadow Habitat

Suitable sections of land within the proposed development will be planted with an appropriate wildflower mix to create areas of wildflower meadow which will have value for a wide variety of invertebrates and other species within the site. The seed mix used will be comprised exclusively of native Irish wildflower species only and will be sown at the appropriate time of year following suitable ground preparation to maximise seedling success.

### 5.8.3 Bat-box Scheme (Additional artificial roost-sites)

It is proposed that a bat-box scheme is implemented to enhance the value of the site for bats by providing additional artificial roost-sites. The bat box scheme will be initiated prior to commencement of the development (NRA, undated).

Bat boxes will be made of woodcrete material. There are many benefits to this material, such as providing thermal stability and insulation and rough surfaces which enable bats to grip easily. They're also self-cleaning and cost effective due to their durability (meaning they are replaced less often).

Since there are no trees that can be used for this purpose, the bat boxes will be either built into a building, mounted to an external surface of a building or erected on poles/posts. These boxes will be no less than 3m above ground level and away from any neighbouring ledge to prevent predation by local cats.

A minimum of three Schwegler Woodcrete bat boxes or similar will be built into, or fitted on to the building and or placed on poles/posts at a minimum of 3m from ground level and face south/south-westerly. These boxes are known to be used by crevice and void dwelling species. The siting and installation of the bat-boxes will be undertaken by a bat specialist and/or the Project Ecologist.

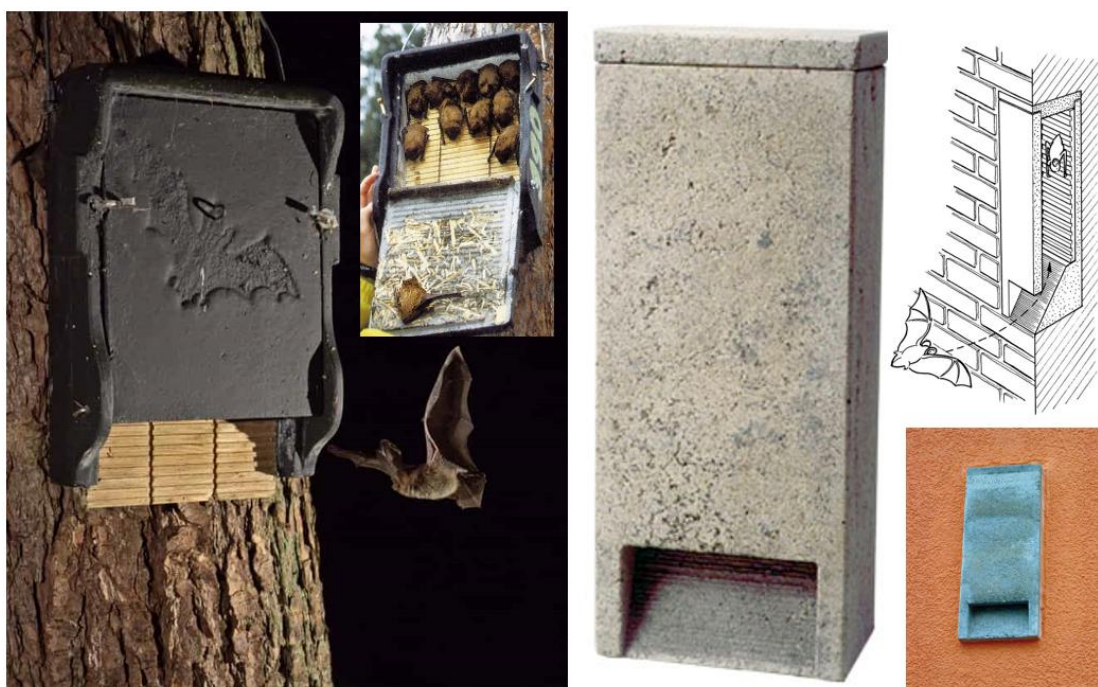


Plate 5-8: Examples of recommended artificial bat roosts. A typical bat box constructed out of woodcrete<sup>42</sup> (left). Schwegler Bat Tube 1FR for installation in walls (right)<sup>43</sup>

<sup>42</sup> [https://www.schwegler-natur.de/portfolio\\_1395072079/fledermausflachkasten-1ff/?lang=en](https://www.schwegler-natur.de/portfolio_1395072079/fledermausflachkasten-1ff/?lang=en)

<sup>43</sup> [https://www.schwegler-natur.de/portfolio\\_1395072079/fledermaus-fassadenroehre-1fr/?lang=en](https://www.schwegler-natur.de/portfolio_1395072079/fledermaus-fassadenroehre-1fr/?lang=en)

## **5.9 Environmental Interactions**

### **5.9.1 Biodiversity and Land/Soils**

There will be some habitat loss during excavation of certain works areas. There will be disturbance to fauna and birds caused by the construction activity. Any hedgerow, scrub or tree removal has the potential to reduce habitat connectivity between the site of the proposed development and the surrounding landscape. New hedgerow will be planted where practicable as part of the habitat reinstatement of the site after construction is complete. Suitable native tree species will be planted in the BV to fully offset the carbon lost from the 4 ash trees to be removed.

The potential significant effects, along with detailed mitigation measures, are set out in Section 5.5 and 5.6 respectively. Biodiversity enhancement measures are also set out in Section 5.8, presenting opportunities to improve the ecological value of the site.

### **5.9.2 Biodiversity and Water**

No permanent habitat loss is anticipated. The existing drainage ditch will be reinstated following construction and native vegetation will be replanted where clearance has occurred. Potential direct impacts may arise from deterioration of water quality and stream habitats due to silt or sediment run-off, ingress of construction materials, fuels, or oils, and possible alterations to flow regime and in-stream vegetation. Without robust pollution prevention measures, there is a risk of adverse effects on aquatic habitats and the species they support.

Additional risks include the potential spread of invasive species during site works, particularly where chemical herbicides are used for management. These risks, as well as all water-related effects including drainage considerations, are fully assessed in Chapters 5 and 6 respectively. An OCEMP has been prepared to mitigate the negative impacts on the aquatic environment during construction. Subject to the implementation of these mitigation measures, residual impacts on the aquatic environment will not be significant.

### **5.9.3 Biodiversity and Noise/Vibration**

Noise generated by plant and machinery during construction is likely to cause disturbance, leading to avoidance behaviour in some fauna. These potential impacts and their management are addressed in Chapter 5, Chapter 10 and the OCEMP.

## 5.10 Conclusion

With the construction and operation of the proposed development in accordance with the design, best practice and mitigation measures proposed, significant residual effects on biodiversity are not likely on any Important Ecological Feature (IEF).

The proposed development application area is largely composed of agricultural grassland, commercial and transport infrastructure throughout much of the proposed development area. Mitigation and monitoring measures both designed in consideration of the proposed development and as part of its management, have been designed to offset any significant direct or indirect effect which may result in residual significant impacts to IEFs considered. No habitats conforming to EU Annex I habitats are located within the proposed development boundary.

Species identified as IEFs have been avoided where possible and mitigation outlined in **Section 5.6** will minimise adverse effects as a result of the proposed development which ultimately will result in no likely significant negative residual effect. Furthermore, the creation and reinstatement of habitats, and enhancement of others, throughout the proposed development site will result in a net area gain for many IEF habitats including hedgerows and treelines, which will result in greater habitat areas occurring than previously existed in the area prior to development. The proposed development will not result in a residual loss of habitats of high ecological significance and the application of mitigation and protection measures throughout the construction and operational phases will ensure that no significant residual effects are likely to arise from the project, either alone or in combination with other plans or projects.

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