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O'CONNOR · SUTTON · CRONIN  
MULTIDISCIPLINARY CONSULTING ENGINEERS

**W370: WICKLOW FIRE STATIONS - BALTINGLASS**

# **ECOLOGICAL IMPACT ASSESSMENT REPORT**

**For  
Wicklow County Council**

**16 June 2023**

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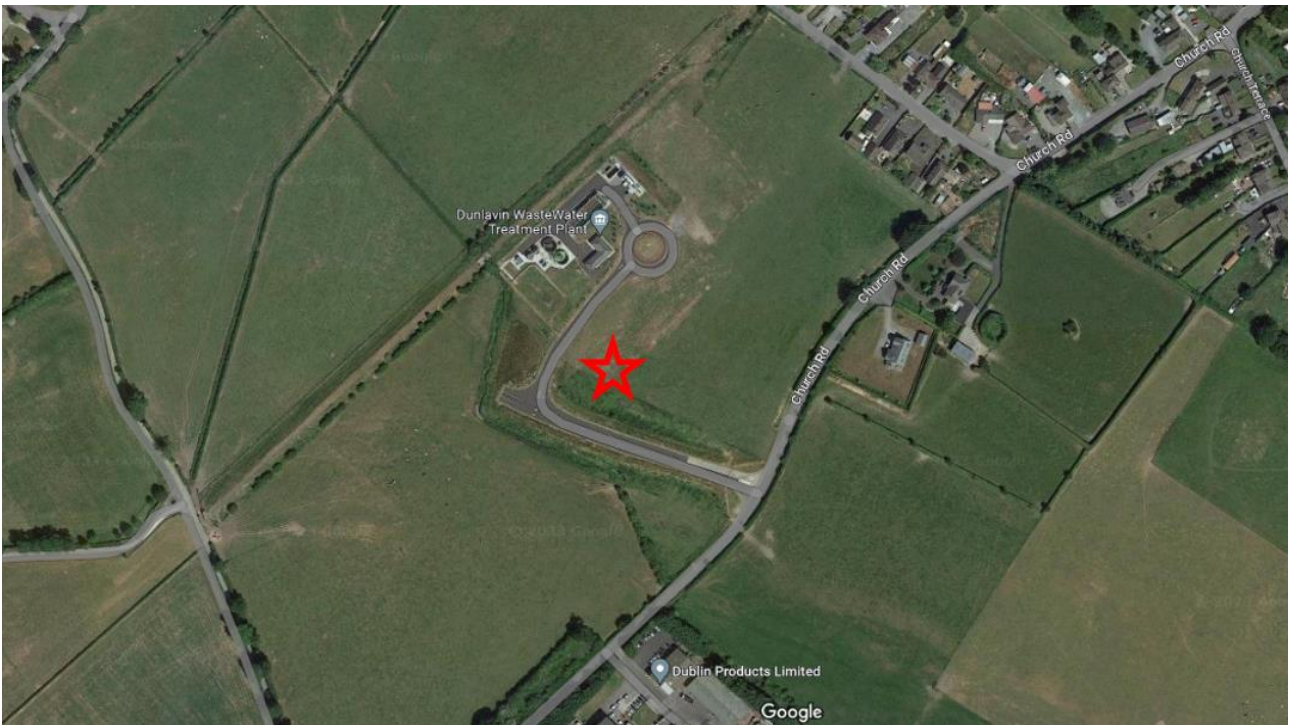
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# 1 INTRODUCTION

## 1.1 BACKGROUND

This Ecological Impact Assessment (EclA) Report has been prepared by O'Connor Sutton Cronin & Associates Ltd. (OCSC) at the request of their Client, Wicklow County Council. The regulatory authority for the site is Wicklow County Council. The proposal is for the construction of a new two-storey fire station building including on-site parking for 16 vehicles, a hard-landscaped training yard to the rear of the new building, the construction of a new four storey training tower at the northeast corner of the site to the rear of the main building and hard and soft landscaping and all associated boundary treatments. The development will include all associated drainage and site development works. The site location is shown in Figure 1.1.



*Figure 1.1: The study area is shown using a red star (Source: EPA Maps, 2023).*

## 1.2 AIMS AND APPROACH

The overall purpose of this report is to assess the status of known potential ecological constraints to the construction and/or operation of the completed and proposed works and to identify mitigation requirements to ensure compliance with relevant national and European statutory requirements for ecological protection.

The report provides an assessment of the estimated potential impacts of the completed and proposed development on the ecological environment, i.e., flora and fauna, collectively known as biodiversity. The Assessment follows Guidelines for Ecological Impact Assessment in the UK and Ireland by the Chartered

Institute of Ecology and Environmental Management (CIEEM, 2018) and guidelines for ecological report writing (CIEEM, 2017). This EclA process follows the tasks set out in Table 1.1.

Table 1.1: EclA process, as detailed in CIEEM (2016).

Task	Description
Scoping	Determining the matters to be addressed in the EclA, including consultation to ensure the most effective input to defining the scope. Scoping is an ongoing process – the scope of the EclA may be modified following further ecological survey/research and during impact assessment.
Establishing the baseline	Collecting information and describing the ecological conditions in the absence of the proposed project, to inform the assessment of impacts.
Important ecological features	Identifying important ecological features (habitats and species) that may be affected, with reference to a geographical context in which they are considered important.
Impact assessment	An assessment of whether important ecological features may be subject to potential impacts and characterisation of these impacts and their effects. Assessment of potential residual ecological impacts of the project remaining after mitigation and the significance of their effects, including cumulative effects.
Avoidance, mitigation, compensation, and enhancement	Incorporating measures to avoid, reduce, and/or compensate for potential ecological impacts and the provision of ecological enhancements.
Monitoring	Monitoring impacts of the development and evaluation of the success of proposed mitigation, compensation, and enhancement measures.

### 1.3 EVIDENCE OF TECHNICAL COMPETENCE AND EXPERIENCE

The fieldwork and report were completed by Eadaoin Butler, BSc in Ecology, Consultant Ecologist, assisted by Ciaran Foran, BSc., Graduate Ecologist; reviewed by Luis Iemma, BSc, MSc, Ph.D., CEcol, MCIEEM, Principal Ecologist; and authorised by Eleanor Burke BSc, MSc, DAS, MIEnvSc, CSci, Technical Principal, and the OCSC Environmental Division Manager.

### 1.4 LIMITATIONS

This Ecological Impact Assessment Report has been prepared for the sole use of Wicklow County Council (“the Client”). No other warranty, expressed or implied, is made as to the professional advice included in this report or any other services provided by OCSC.



This assessment is based on a review of available historical information, environmental records, site visits, consultations, relevant guidance information, and reports from third parties. All information received has been taken in good faith as being true and representative.

This report has been prepared in line with best industry standards. The methodology adopted and the sources of information used by OCSC in providing its services are outlined in this Report. The assessment undertaken by OCSC and described was undertaken in June 2023 and is based on the information available during that period. The scope of this Report and the services are accordingly factually limited by these circumstances. OCSC disclaim any undertaking or obligation to advise any person of any change in any matter affecting the Report, which may come or be brought to OCSC's attention after the date of the Report. The conclusions presented in this report represent OCSC's best professional judgement based on a review of the relevant information available at the time of writing. The opinions and conclusions presented are valid only to the extent that the information provided was accurate and complete.



## 2 PROJECT DESCRIPTION

### 2.1 OVERVIEW

This EclA Report has been prepared by OCSC at the request of their Client, Wicklow County Council. The site for assessment is the subject of proposed development of a new fire station, a fire training tower, a concrete water tank for fire training, and associated lighting, drainage, and entrance infrastructure in Dunlavin, County Wicklow.

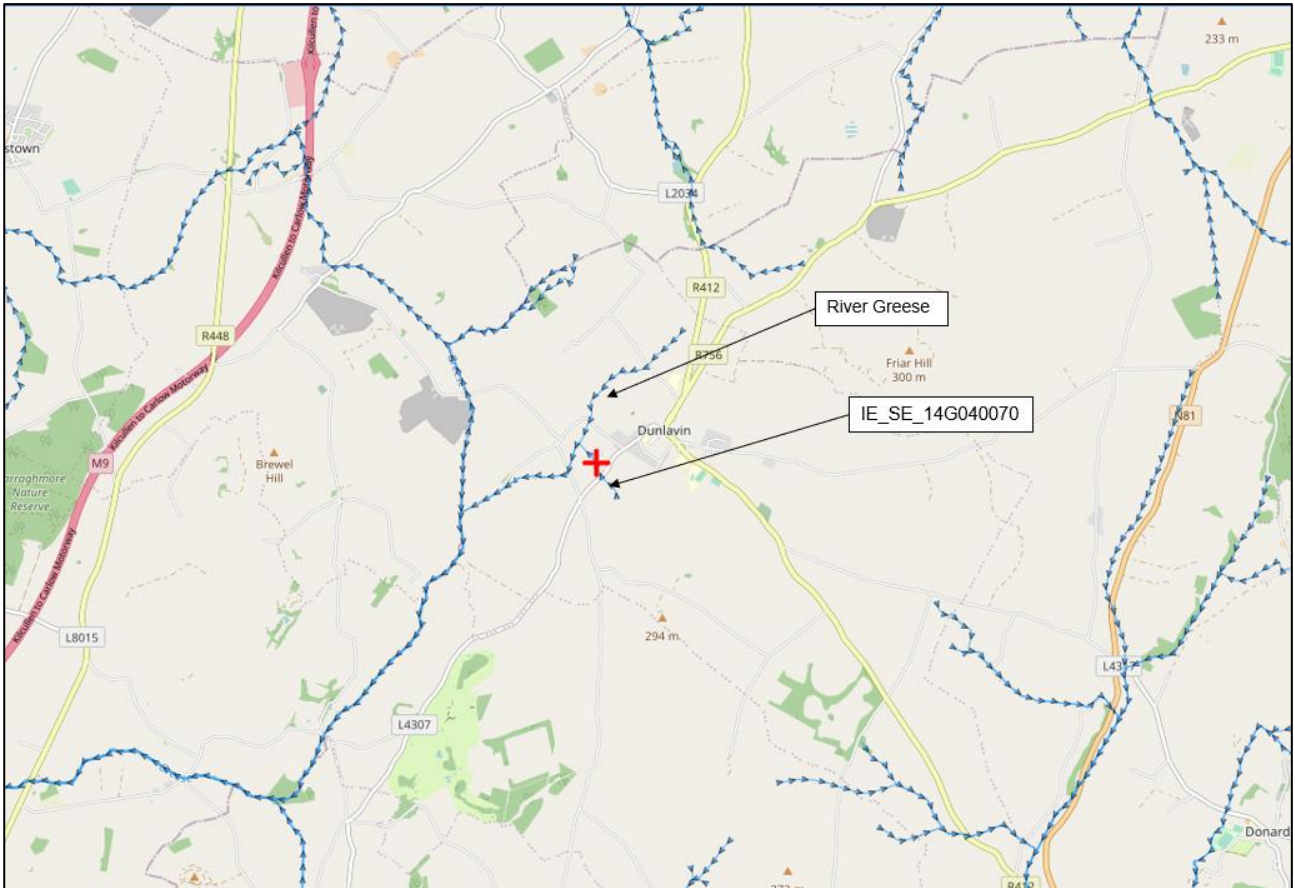
### 2.2 GENERAL DESCRIPTION OF THE SITE

The proposed development site is approximately centred at the Irish Transverse Mercator (ITM) coordinates 686475E, 701298N and is bounded by the L4309 to the north and east, Church Road (L4307) to the south and Dunlavin wastewater treatment plant to the west. The area immediately surrounding the site is of residential, agricultural, and municipal infrastructural use. Further to the east are residential neighbourhoods and the town of Dunlavin.

### 2.3 ADJACENT RIVER

There are no surface water features within the site boundary. The nearest surface waterbody is a small stream (IE\_SE\_14G040070) which is a tributary of the River Greese (IE\_SE\_14G040070). This stream is located 45m west of the proposed development at the nearest point. The stream flows from this point into the Greese, approximately 304 metres downstream. The River Greese joins the River Barrow north of Carlow town.

The Greese flows southwest through Ballitore, and Kilkea before entering the River Barrow approximately 25km downstream of the development. From here the Barrows continues south through Carlow town, Muine Beag, Graiguenamanagh and New Ross before reaching Waterford Harbour and flowing into the Irish Sea.



*Figure 2.1; Nearby waterbodies; site location indicated by the red cross (EPA maps, 2023).*

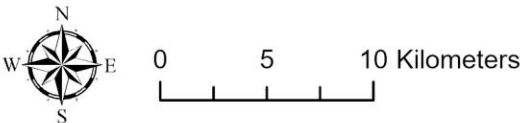
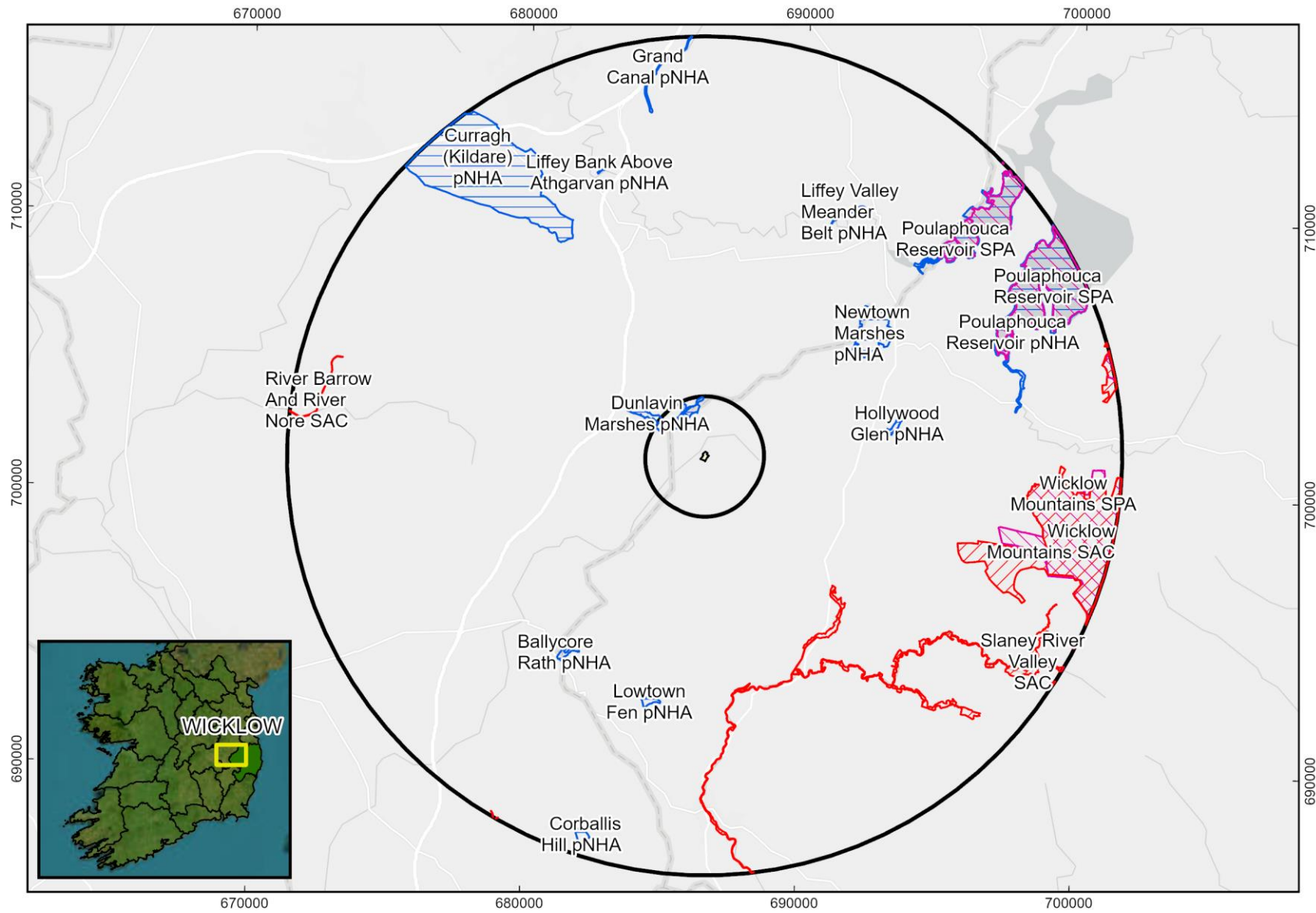
## 2.4 DESIGNATED SITES

Figure 2.1 and Table 2.1 below present locations and details of the key ecological features of designated sites located within 15km of the site.

# Map 370/2.1 - NPWS Designated Sites

## Legend

-  Site
-  2km Buffer
-  15km Buffer
-  SAC
-  SPA
-  pNHA



Scale: 1:350.000

Spatial Reference  
Name: WGS 1984 Web Mercator Auxiliary Sphere  
PCS: WGS 1984 Web Mercator Auxiliary Sphere  
GCS: GCS WGS 1984  
Datum: WGS 1984  
Projection: Mercator Auxiliary Sphere

Earthstar Geographics; Esri UK, Esri, HERE, Garmin, Foursquare, FAO, METI/NASA, USGS

Project: Wicklow Fire Service - Dunlavin

Reference: W370/2

Client: Wickow County Council

Figure 2.2: Designated sites within 15km of the development.

Table 2.1: European Sites within 15 kilometres (ZOI) of the site.

Site Code	Site Name	Distance (km)	Reasons for Designation (*=priority habitats)
<b>Special Areas of Conservation (SAC) and Special Protection Areas (SPA)</b>			
000781	Slaney River Valley SAC	6.5	1103 Twaite Shad ( <i>Alosa fallax fallax</i> ) 1099 River Lamprey ( <i>Lampetra fluviatilis</i> ) 1365 Harbour Seal ( <i>Phoca vitulina</i> ) 1096 Brook Lamprey ( <i>Lampetra planeri</i> ) 1095 Sea Lamprey ( <i>Petromyzon marinus</i> ) 1106 Salmon ( <i>Salmo salar</i> ) 1355 Otter ( <i>Lutra lutra</i> ) 1029 Freshwater Pearl Mussel ( <i>Margaritifera margaritifera</i> ) 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide. 1330 Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) 1410 Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) 3260 Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> ) *
002122	Wicklow Mountains SAC	9.6	1355 Otter ( <i>Lutra lutra</i> ) 3110 Oligotrophic waters containing very few minerals of sandy plains ( <i>Littorelletalia uniflorae</i> ) 3160 Natural dystrophic lakes and ponds 4010 Northern Atlantic wet heaths with <i>Erica tetralix</i> 4030 European dry heaths 4060 Alpine and Boreal heaths 6130 Calaminarian grasslands of the <i>Violetalia calaminariae</i> 6230 Species-rich <i>Nardus</i> grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe) * 7130 Blanket bogs (* if active bog) 8110 Siliceous screes of the montane to snow levels ( <i>Androsacetalia alpinae</i> and <i>Galeopsietalia ladani</i> ) 8210 Calcareous rocky slopes with chasmophytic vegetation 8220 Siliceous rocky slopes with chasmophytic vegetation 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles
004040	Wicklow Mountains SPA	10.9	A098 Merlin ( <i>Falco columbarius</i> ) A103 Peregrine ( <i>Falco peregrinus</i> )
004063	Poulaphouca Reservoir SPA	11	A183 Lesser Black-backed Gull( <i>Larus fuscus</i> ) A043 Greylag Goose( <i>Anser anser</i> )
002162	River Barrow And River Nore SAC	13.6	1096 Brook Lamprey( <i>Lampetra planeri</i> ) 1355 Otter( <i>Lutra lutra</i> ) 1103 Twaite Shad( <i>Alosa fallax fallax</i> ) 1099 River Lamprey( <i>Lampetra fluviatilis</i> ) 1095 Sea Lamprey( <i>Petromyzon marinus</i> )

Site Code	Site Name	Distance (km)	Reasons for Designation (*=priority habitats)
			1106 Salmon( <i>Salmo salar</i> ) 1092 White-clawed Crayfish( <i>Austropotamobius pallipes</i> ) 1029 Freshwater Pearl Mussel( <i>Margaritifera margaritifera</i> ) 1990 Nore Pearl Mussel( <i>Margaritifera durrovensis</i> ) 1016 Desmoulin's Whorl Snail( <i>Vertigo moulinsiana</i> ) 1421 Killarney Fern( <i>Trichomanes speciosum</i> ) Habitats 1130 Estuaries 1140 Mudflats and sandflats not covered by seawater at low tide. 1170 Reefs 1310 Salicornia and other annuals colonising mud and sand. 1330 Atlantic salt meadows ( <i>Glauco-Puccinellietalia maritima</i> ) 1410 Mediterranean salt meadows ( <i>Juncetalia maritimi</i> ) 3260 Water courses of plain to montane levels with the <i>Ranunculum fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation 4030 European dry heaths 6430 Hydrophilous tall herb fringe communities of plains and of the montane to alpine levels 7220 Petrifying springs with tufa formation ( <i>Cratoneurion</i> )* 91A0 Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles 91E0 Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> ( <i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i> )*
Proposed Natural Heritage areas (pNHA)			
Site Code	Site Name	Distance (km)	
001772	Dunlavin Marshes pNHA	1.4	
001759	Newtown Marshes pNHA	6.4	
002053	Hollywood Glen pNHA	6.6	
001751	Ballycore Rath pNHA	8.3	
001764	Lowtown Fen pNHA	8.9	
000392	Curragh (Kildare) pNHA	9.2	
000393	Liffey Valley Meander Belt pNHA	9.25	
001396	Liffey Bank Above Athgarvan pNHA	10.8	
000731	Poulaphouca Reservoir pNHA	11.1	
002104	Grand Canal pNHA	12.5	
001389	Corballis Hill pNHA	14.3	



## 3 METHODOLOGY

The methods used to carry out the survey of the site, to evaluate the habitats and species, and to prepare the report are outlined in this section. The assessment method for this report was developed using the standard professional impact assessment guidance published in 2018 by Chartered Institute of Ecology and Environmental Management (CIEEM).

### 3.1 SCOPE OF THE REPORT

The scope of this report is to set out the baseline ecology of the site using the findings of the desk and field studies. The extent of the study area is delineated by the site boundary. The scope of the baseline ecology survey is to classify the habitats present within the site and to evaluate their suitability to support protected species.

### 3.2 ZONE OF INFLUENCE

Construction and operation of machinery have the potential to result in localised impacts. The potential zone of influence for developments of this scale and nature, which do not result in emissions to air or water or where such emissions are so low that any effect would not be appreciable, would be limited a maximum distance of 2 km and is likely to be much less than this. The site location and the potential zone of influence is shown on Figure 2.1.

### 3.3 DESK STUDY

A desk study was carried out to collate the available existing ecological information on the Site. The Site and the surrounding area were viewed using available satellite imagery.

The desk study included research on the National Parks and Wildlife Service (NPWS) and National Biodiversity Data Centre (NBDC) websites and a literature review of published information on flora and fauna occurring within the zone of influence of likely significant ecological impact. Key resources included:

- Information on nationally designated sites available in site synopses available from the NPWS online ([www.npws.ie](http://www.npws.ie)).
- Data on rare / protected / threatened species and designated sites held online by the NPWS ([www.npws.ie](http://www.npws.ie)) and the NBDC ([www.biodiversityireland.ie](http://www.biodiversityireland.ie));

- Wicklow County Council website was also accessed for information on relevant planning policy while the planning portal was accessed for information on other planning applications within the Site and immediately surrounding area.

The conservation status of mammals within Ireland and Europe was evaluated using one or more of the following documents: Wildlife Acts (1976 - 2012), the Red List of Terrestrial Mammals (Marnell et al., 2009), and the EU Habitats Directive 92/43/EEC.

### 3.4 FIELD SURVEYS

A site walkover was undertaken on the 11<sup>th</sup> of May 2023 by Consultant Ecologist Eadaoin Butler and assisted by Graduate Ecologist Ciaran Foran. The site visit was carried out in mixed weather conditions with heavy showers and sunny spells, light breezes, and cloud cover (6/8 Oktas). The temperature was 13°C. The objective of the site visit was to undertake a walkover survey to better understand the ecology of the site and to determine its ecological value.

### 3.5 HABITATS

Habitats were identified, described, and classified during the walkover survey to level 3 (where possible) in accordance with 'A Guide to Habitats in Ireland' (Fossitt, 2000) produced by the Heritage Council (see Figure 5.1). Features of ecological interest, if present, were noted, and the dominant plant species present in each habitat type were recorded. This is not a comprehensive list of plant species but is sufficient to broadly describe the botanical interest of the site. Species nomenclature follows Parnell & Curtis (2012) for scientific and English names of vascular plants.

### 3.6 SPECIES

Mammal tracks, signs, or direct observations were recorded during the walkover survey of the site. Incidental sightings of birds, mammals, or amphibians were noted during the walkover survey. The habitats present were also evaluated in terms of suitability to support foraging bats. Trees with features such as areas of loose, flaking bark, splits, cavities, etc. that could provide suitable roost sites for bats, where present, were also noted during the ground level survey. The suitability of the habitats for roosting, commuting, and foraging bats was evaluated using the Bat Conservation Trust guidelines (Collins 2016).



### 3.7 IMPACT ASSESSMENT

The ecological evaluation and impact assessment within this report has been undertaken following the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland (“CIEEM guidelines”).

### 3.8 IMPORTANCE OF FEATURE TO BE CONSIDERED

Ecological features should be evaluated within a defined geographical context (CIEEM, 2016). These are based upon criteria identified in the CIEEM (2016) and NRA (2009a) guidance, which categorise the geographic context of ecological importance as within one of the following:

- International and European.
- National.
- Regional.
- County or local authority; and,
- Local Importance (High or Low Value).

Only features deemed “important ecological features” (the term used in CIEEM, 2016) are carried forward into the assessment of potential impacts.

Ecological features valued at Local Importance (Lower Value) or of negligible value, as per the valuation criteria in Bat Conservation Trust guidelines (Collins 2016) are not considered significant features and are scoped out of impact assessment. It is not necessary to carry out detailed assessment of features that are sufficiently widespread, unthreatened, and resilient to project impacts and will remain viable and sustainable (CIEEM, 2016). In some cases, the data collected as part of the scoping process will be sufficient to inform the assessment of effects on a given feature. In other cases, additional surveys will need to be undertaken. Ecological features which are within the zone of influence of a development but not considered important ecological features can be ‘scoped out’ (excluded), with justification.

The impact assessment process involves the following steps:

- identifying and characterising impacts.
- incorporating measures to avoid and mitigate (reduce) these impacts.
- assessing the significance of any residual effects after mitigation.
- identifying appropriate compensation measures to offset significant residual effects (if required);  
and
- identifying opportunities for ecological enhancement.

When describing impacts, reference has been made to the following characteristics, as appropriate:

- Positive or negative.
- Extent.
- Magnitude.
- Duration.
- Timing.
- Frequency; and
- Reversibility.

The impact assessment process considers both direct and indirect impacts. Direct ecological impacts are changes that are directly attributable to a defined action, e.g., the physical loss of habitat occupied by a species during the construction process. Indirect ecological impacts are attributable to an action but affect ecological resources through effects on an intermediary ecosystem, process, or feature, e.g., the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland.

### **3.9 SIGNIFICANT EFFECTS**

A significant effect, for the purposes of EclA, is defined as an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' or for biodiversity in general. Conservation objectives may be specific (e.g., for a designated site), broad (e.g., national/local nature conservation policy), or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local.

The nature of the identified impacts on each assessed feature is characterised. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature's importance and the degree to which its interest is judged to be affected.

### **3.10 CUMULATIVE EFFECTS**

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

### **3.11 MITIGATION**

Where significant impacts have been identified, the mitigation hierarchy has been taken into account, as suggested in the 2018 CIEEM Guidelines which set out a sequential approach of avoidance of impacts where possible, application of mitigation measures to minimise unavoidable impacts, and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, along with any necessary compensation measures, and opportunities for enhancement incorporated, residual impacts have then been identified.

## 4 RELEVANT PLANNING AND POLICY AND LEGISLATION

An EclA is a process of identifying, quantifying, and evaluating potential effects of development or other actions on habitats, species, and ecosystems (CIEEM, 2016). When an EclA is undertaken as part of an EIA process it is subject to the EIA Regulations (under the EU Planning and Development [Environmental Impact Assessment] Regulations 2001-2018). An EclA is not a statutory requirement; however, it is a best practice evaluation process. This EclA has been undertaken to support and assess the proposed works as well as to assess the potential impact that the proposed works may have on the ecology of the site and its environs. Where a potential risk to the environment is identified, measures are proposed on the basis that, by deploying such measures, the risk is eliminated or reduced to an insignificant level.

### 4.1 PLANNING POLICY, GUIDELINE AND LEGISLATION

#### 4.1.1 EUROPEAN UNION HABITATS DIRECTIVE

The “Habitats Directive” (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna) is the main legislative instrument for the protection and conservation of biodiversity within the European Union (EU). The Habitats Directive lists habitats and species that must be protected within Special Areas of Conservation (SAC) on Annexes I and II, respectively. The Habitats Directive also identifies plant and animal species on Annex IV which are subject to strict protection anywhere they occur. The Habitats Directive sets out the protocol for the protection and management of SACs.

Although the distance between the site and the nearest protected area is relatively short, (Slaney River Valley SAC, 120 metres), due to the lack of spatial overlap between the two and the small-scale nature of the development, SACs have been scoped out of this EclA Report.

#### 4.1.2 EUROPEAN UNION BIRDS DIRECTIVE

The “Birds Directive” (Council Directive 2009/147/EC on the Conservation of Wild Birds) provides a network of sites in all member states to protect birds at their breeding, feeding, or roosting areas. The Birds Directive identifies in Annex I species that are rare, in danger of extinction, or vulnerable to changes in habitat and which require special protection (so-called ‘Annex I’ species). Special Protection Areas (SPA) are designated under the Birds Directive to protect a range of bird populations including those of Annex I species.

However, due to the distance between the closest SPA site (Wicklow Mountains SPA) and the proposed site, 12.5km, and the small-scale nature of the development, SPAs have been scoped out of this EclA Report.

### 4.1.3 NATIONAL LEGISLATION

The primary domestic statutes in the Republic of Ireland providing for wildlife protection are the Wildlife Acts of 1976 and 2000, as amended (hereafter 'The Wildlife Acts'). All bird species are protected under the Wildlife Acts from offences including intentional killing or injury and disturbance during the breeding season (to include eggs, young, and nests which are also protected). A range of mammal species, two amphibian species, one butterfly species, and one reptile species are all similarly protected from intentional killing or injury, whilst the breeding or resting sites of these species are also protected.

Unless specified otherwise, the term "invasive species" in this report refers to species scheduled to the European Communities (Bird and Natural Habitat) Regulations 2011 and 2015 (hereafter 'the effects Regulations'). The Regulations make it an offence to plant, disperse, allow or cause to disperse, spread, or otherwise cause to grow any of the scheduled species. A number of vascular (i.e., flowering plants) and non-vascular plant species (i.e., non-flowering or 'lower plants') are afforded legal protection under the Flora (Protection) Order, 2015 (hereafter 'The Flora Protection Order'). It is an offence to cut, pick, collect, uproot, or otherwise take, injure, damage, or destroy any specimens of the species listed under the Flora Protection Order.

The third National Biodiversity Plan (2017-2021) was launched in 2017. This plan includes 119 targeted actions for public authorities in relation to their obligations for biodiversity. One particularly important policy change in the plan (Objective 1) relates to the 'mainstreaming' of biodiversity into decision-making across all sectors. Specifically, there is an obligation on all Public Authorities to "move towards no net loss of biodiversity through strategies, planning, mitigation measures, appropriate offsetting, and/or investment in Blue-Green infrastructure". This and other relevant policies in the plan have informed the valuation of ecological features, assessment of potential impacts, and development of mitigation in this report, as relevant.

## 5 SURVEY RESULTS (HABITAT, FLORA, FAUNA)

The habitats present within the site are described, classified, and evaluated in this section of the report and shown on Figure 5.1. The site is largely homogenous consisting entirely of habitat type GA1 (Improved Agricultural Grassland).

### 5.1 HABITAT MAP



*Figure 5.1: Habitat map showing the habitats found on site.*

#### ❖ Improved agricultural grassland (GA1)

This category is used for intensively managed or highly modified agricultural grassland that has been reseeded and/or regularly fertilised and is now heavily grazed and/or used for silage making. It includes regularly reseeded monoculture grasslands and rye-grass leys that are planted as part of an arable rotation. Among the more frequently occurring ‘agricultural’ herbs are Dandelion (*Taraxacum* spp.), Creeping Buttercup (*Ranunculus repens*), plantains (*Plantago* spp.), Nettle (*Urtica dioica*), thistles (*Cirsium arvense* and *C. vulgare*), and docks (*Rumex* spp.). The majority of the site comprises improved agricultural grassland (GA1) as shown in Figure 5.2 and Figure 5.3.





*Figure 5.2: Improved agricultural grassland (GA1)*





*Figure 5.3: Improved agricultural grassland (GA1)*

## 5.2 FAUNA

### 5.2.1 BATS

A preliminary roost assessment was carried out to identify, from ground level in daylight, any potential roost features (PRF) that have the ability to support roosting bats. There are no trees located within the boundaries of the site. Due to the absence of trees within the site, there is no possibility for them to provide potential roosting features (PRF). However, there are treelines nearby that could potentially support roosting and foraging bats, although they are situated outside of the site boundary.

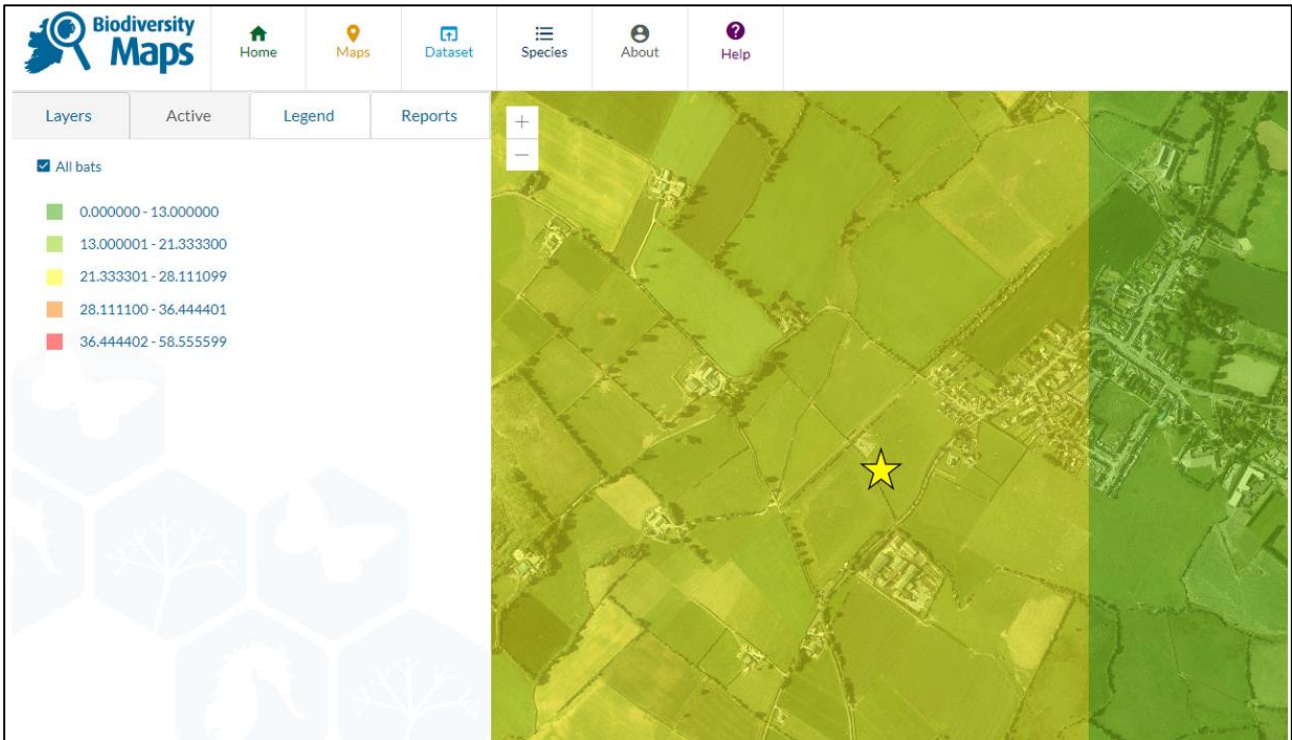
The suitability index of the area is considered moderate (24 on a scale that ranges from 0 to 100 with 0 being least favourable and 100 most favourable for bats). The index is for all species combined in addition to individual species' indices (**Error! Reference source not found.**). When considering each of the common species separately, the following species are listed as high in the index:

- Common pipistrelle (*Pipistrellus pipistrellus*) scores 40 in the scale (High) as shown in Figure 5.6**Error! Reference source not found.** and has an IUCN conservation status of 'Least Concern'. This species is common in many habitats including Stone walls and other stonework (BL1) present on site and also treelines present in its surroundings, they were included in this list.
- Leisler's bat (*Nyctalus leisleri*) scores 39 in the scale (High) as shown in Figure 5.10 and has an IUCN conservation status of 'Least Concern' in Europe and globally but a status of 'Near Threatened' in Ireland. Leisler's Bat is a woodland species, but it is also to be found in parkland, along treelines, pasture and riparian habitats, over lakes, beaches and dunes and above streetlights in urban areas. They are not as dependent on linear features like hedgerows as our other bat species.

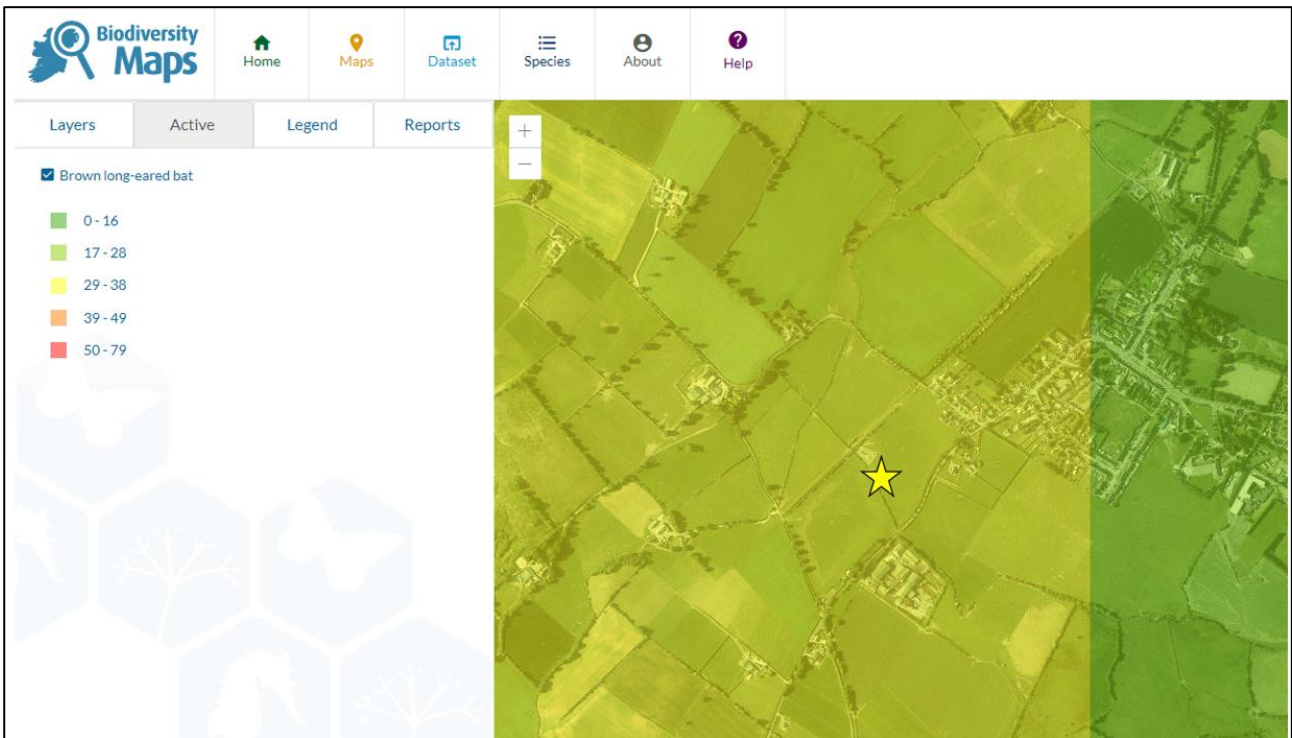
Given the absence of trees or hedgerows within the site, which mainly consists of grassland, the likelihood of bats using the site for roosting purposes is low. Therefore, they can be scoped out of this assessment and excluded from further consideration within this report.

Table 5.1: Suitability Index for all bat species

Species	Suitability Index
All Bats	24
<i>Pipistrellus pygmaeus</i>	34
<i>Plecotus auritus</i>	33
<i>Pipistrellus pipistrellus</i>	40
<i>Rhinolophus hipposideros</i>	0
<i>Nyctalus leisleri</i>	39
<i>Myotis mystacinus</i>	15
<i>Myotis daubentonii</i>	20
<i>Pipistrellus nathusii</i>	9
<i>Myotis nattereri</i>	26



*Figure 5.4: Suitability index for all bats in the site and surrounding areas (NBDC, 2023).*



*Figure 5.5: Suitability index for Brown long-eared bat in the site and surrounding areas (NBDC, 2023).*



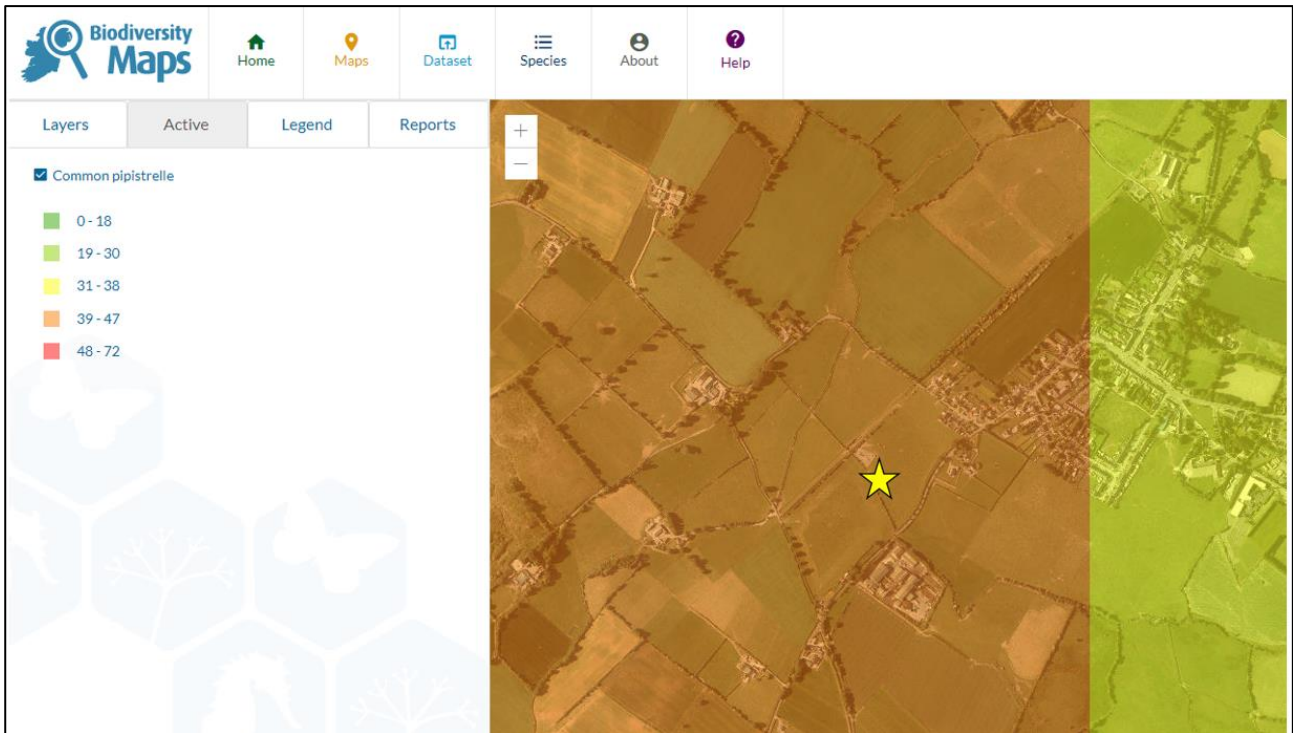


Figure 5.6: Suitability index for Common pipistrelle bat in the site and surrounding areas (NBDC, 2023).

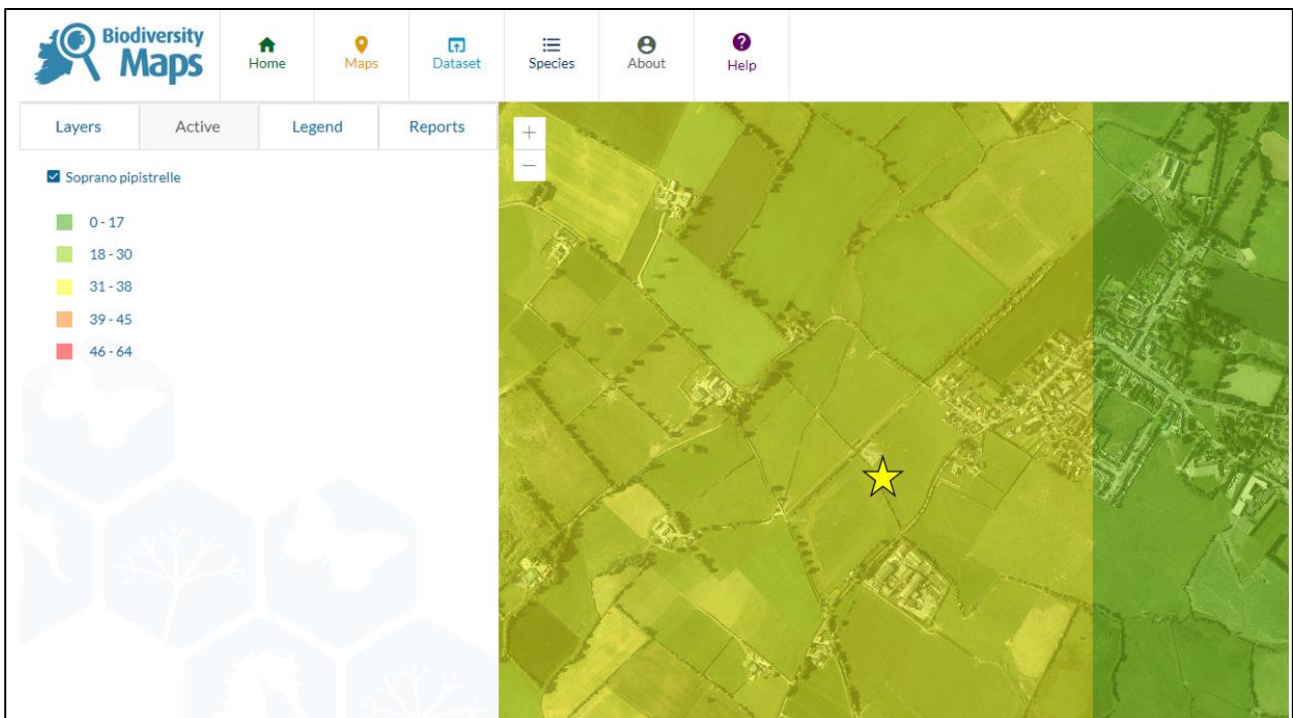


Figure 5.7: Suitability index for Soprano pipistrelle in the site and surrounding areas (NBDC, 2023).

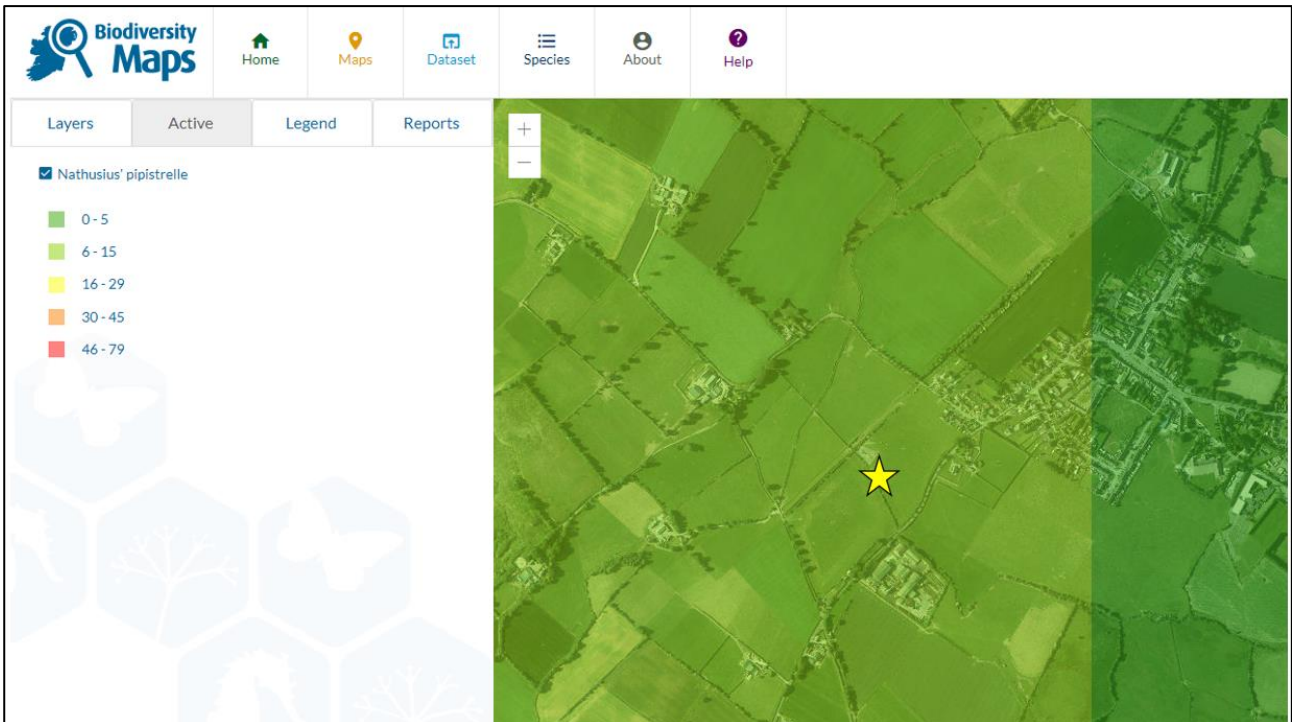


Figure 5.8: Suitability index for *Nathusius' pipistrelle* in the site and surrounding areas (NBDC, 2023).

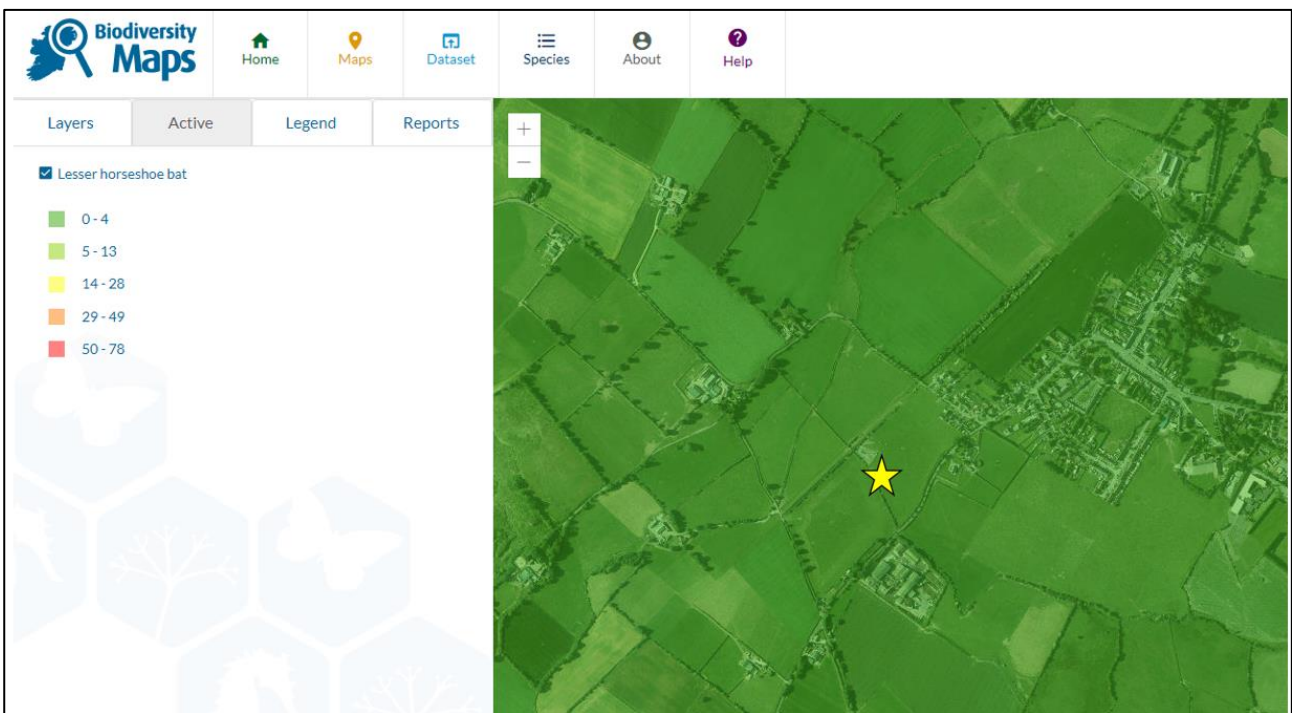


Figure 5.9: Suitability index for Lesser horseshoe bat in the site and surrounding areas (NBDC, 2023).



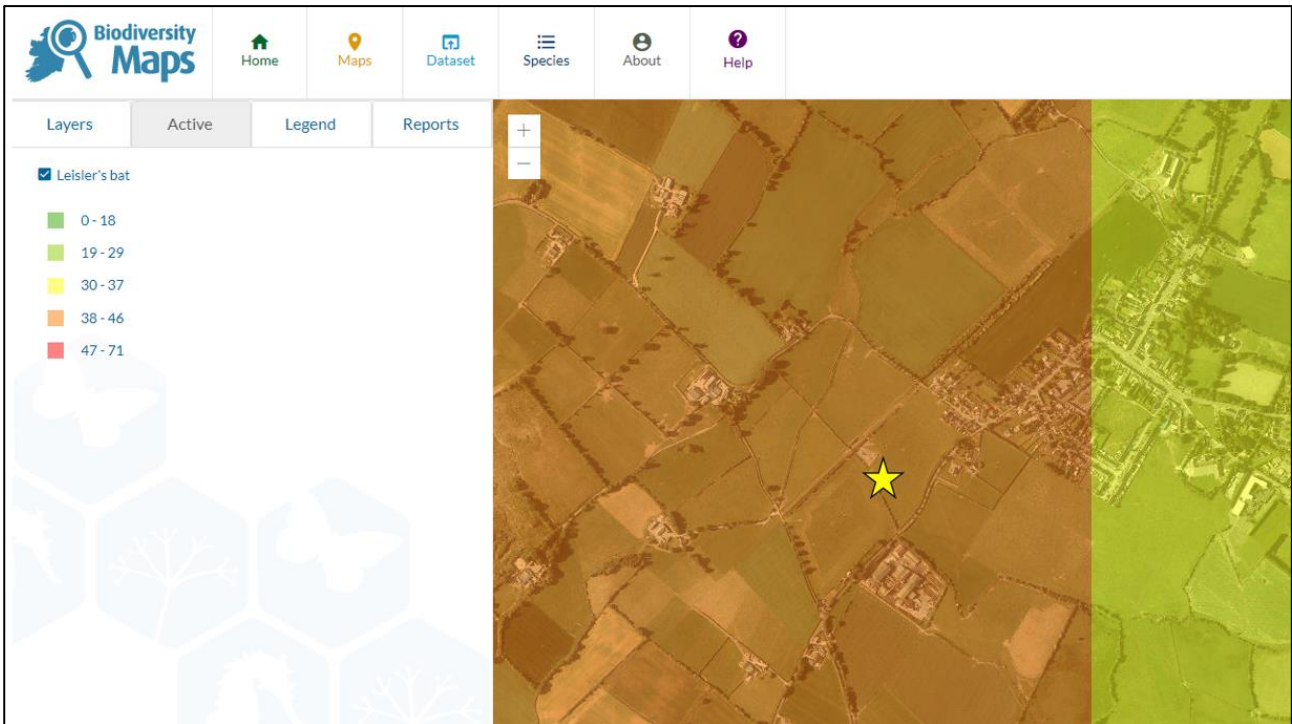


Figure 5.10: Suitability index for Leisler's bat in the site and surrounding areas (NBDC, 2023).

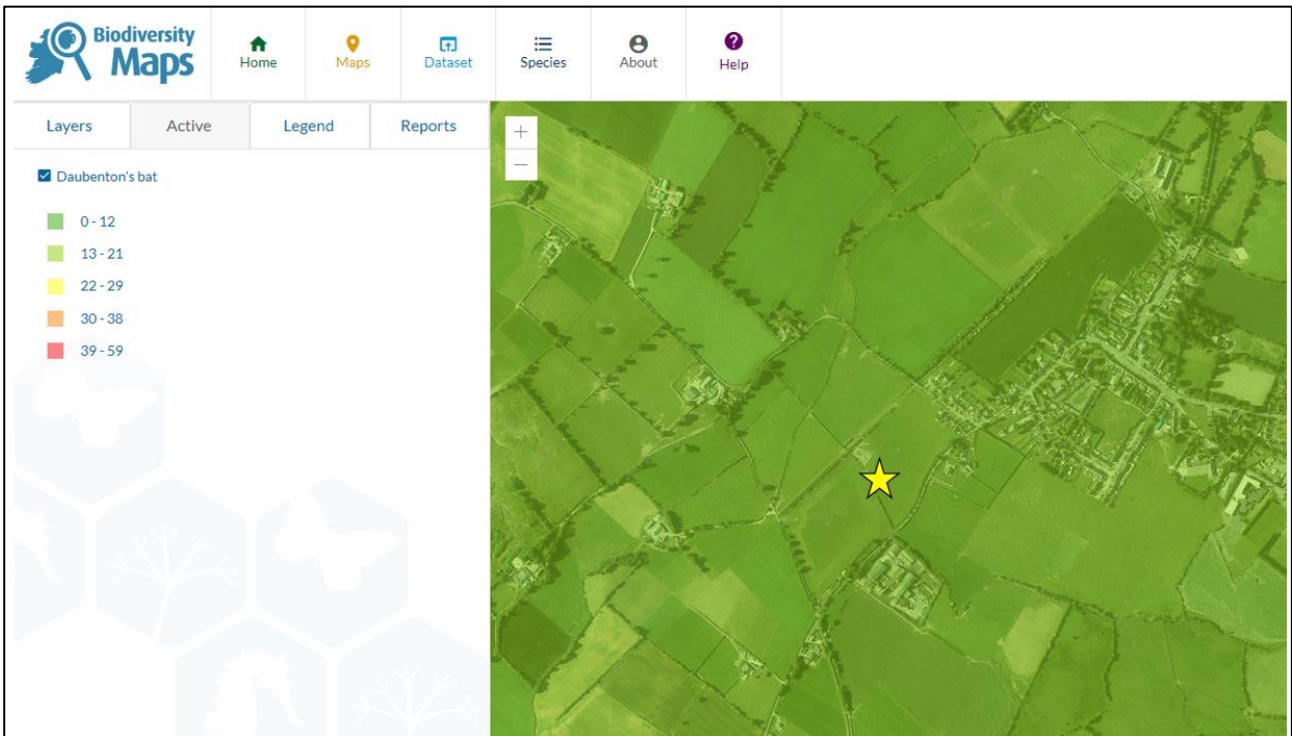


Figure 5.11: Suitability index for Daubenton's bat in the site and surrounding areas (NBDC, 2023).

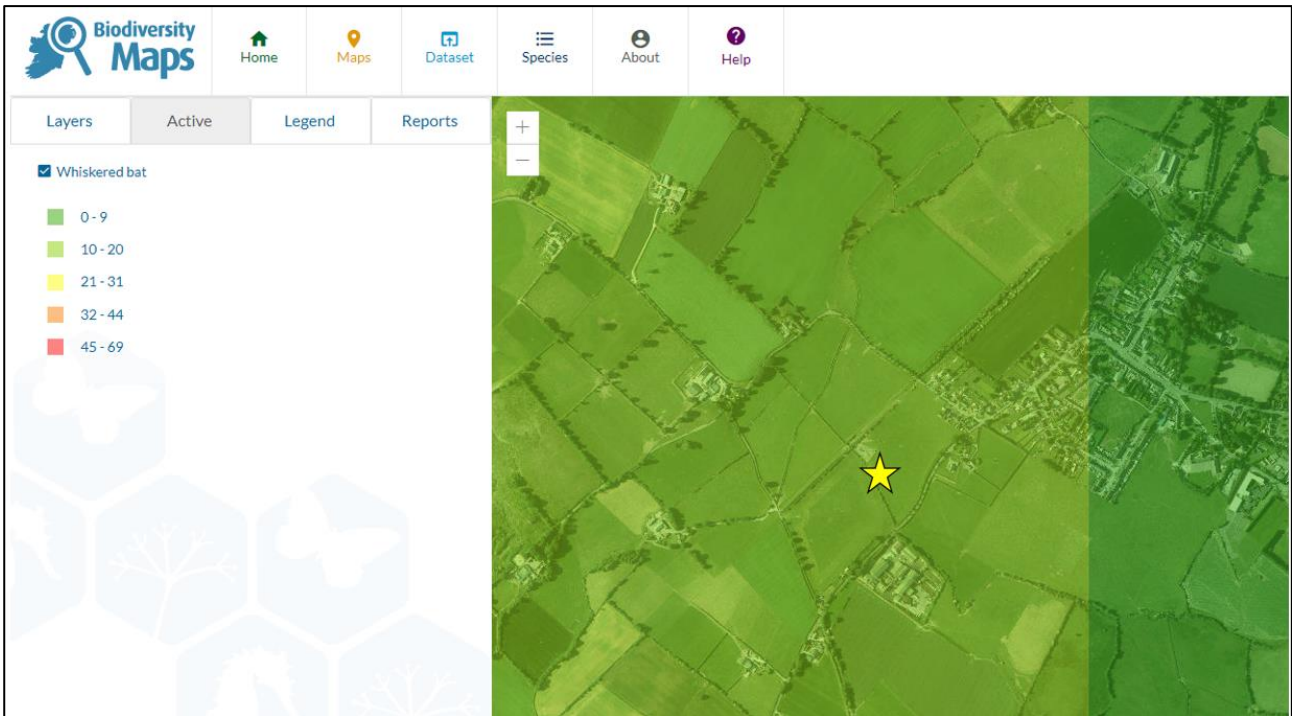


Figure 5.12: Suitability index for Whiskered bat in the site and surrounding areas (NBDC, 2023).

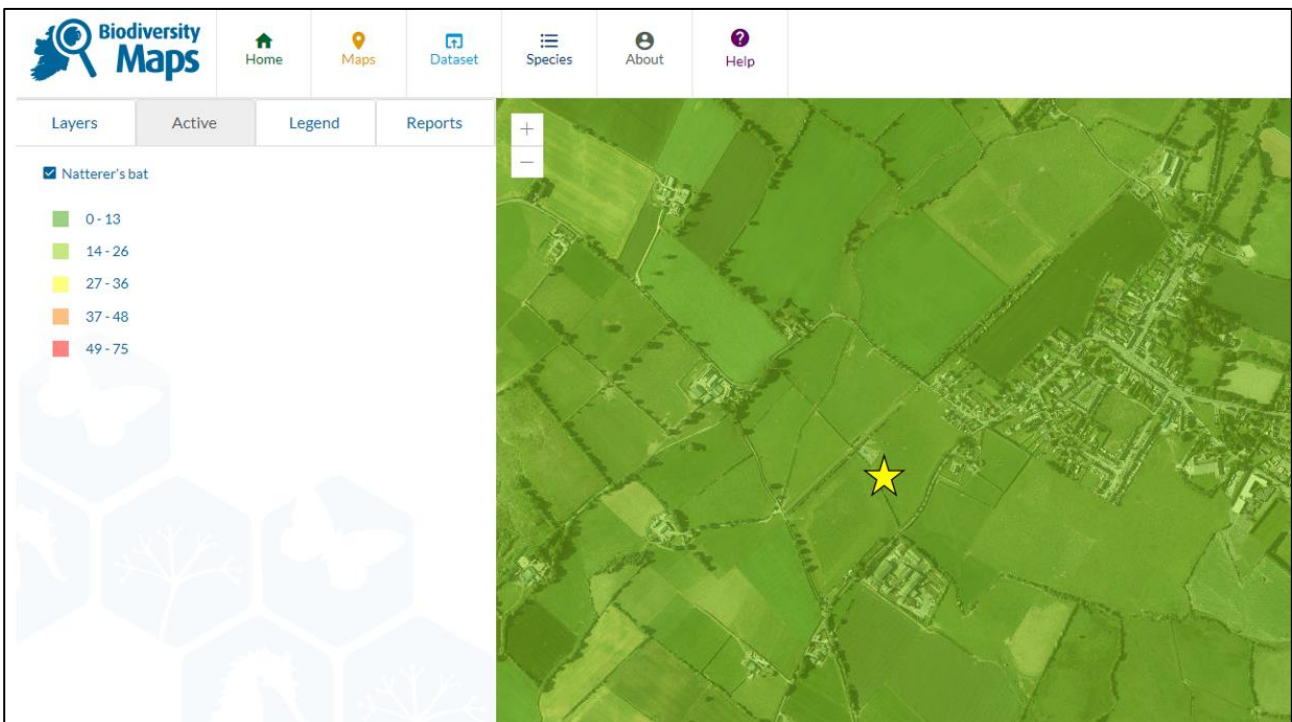


Figure 5.13: Suitability index for Natterer's bat in the site and surrounding areas (NBDC, 2023).



### 5.2.2 BADGERS

According to the NBDC, there is one record of the Eurasian Badger (*Meles meles*) from the 2km grid square (N80Q) within which the site is located. The footprint of the proposed works was also searched for evidence of badgers including the presence of setts, foraging evidence, access runs, hairs caught on wires and bushes, tracks, and prints. As none of these were found on site, badgers are scoped out of this assessment and excluded from further consideration within this report.

### 5.2.3 OTTERS

According to the NBDC, there are no records of the European Otter (*Lutra lutra*) from the 2km grid square (N80Q) within which the site is located. The footprint of the proposed works was also searched for evidence of otters including spraints, foraging evidence, and remains such as fish bones, access runs, tracks, and prints. None of these were observed onsite.

In general, otters do not forage more than 80m from riverbanks, lake or coastal shores. The nearest surface waterbody is a small stream (IE\_SE\_14G040070) which is a tributary of the River Greese (IE\_SE\_14G040070). This stream is located 45m west of the proposed development at the nearest point. The stream flows from this point into the Greese, approximately 304 metres downstream. Based on the distance between the proposed site and the 80m foraging ground otters utilise, it is unlikely that the site is used by otters and therefore no additional surveys are needed.

### 5.2.4 AMPHIBIANS

According to the National Biodiversity Data Centre (NBDC), there has been one amphibian species found within the 2km grid square (N80Q) within which the site is located. The Common Frog (*Rana temporaria*) has been observed 3 times within N80Q grid square. During the site walkover, there were no amphibians recorded. There are no ponds or drainage ditches located within the site and therefore, it is unlikely that the site is being used by amphibians. Therefore, they can be scoped out of this assessment and excluded from further consideration within this report.

### 5.2.5 INVERTEBRATES

Surveys were carried out during the window of butterfly flight in spring/summer, but no species were recorded. A number of common butterflies are likely to occur within the area. According to the National Biodiversity Data Centre (NBDC), two species have been previously recorded within the 2km grid square that the site is located in (N80Q); Orange-tip (*Anthocharis cardamines*) and Painted Lady (*Vanessa cardui*).

The Orange-tip (*Anthocharis cardamines*) is common and widespread in Ireland and is of low conservation priority. The Orange-tip prefers damp habitats such as meadows, woodland glades, hedgerows and the banks of streams and rivers, but will also use gardens. Foodplants for the caterpillars consist of Cuckooflower (*Cardamine pratensis*) in damp meadows and Garlic Mustard (*Alliaria petiolata*) along road verges and ditches. Occasionally, they will feed off Hedge Mustard (*Sisymbrium officinale*), Winter-cress (*Barbarea vulgaris*), Turnip (*Brassica rapa*), Charlock (*Sinapis avensis*), Large Bitter-cress (*Cardamine amara*), and Hairy Rock-cress (*Arabis hirsuta*). Cuckooflowers (*Cardamine pratensis*) were recorded onsite and although not many flowers were observed, the site may still provide food for the larval stage of the Orange-tip.

The Painted Lady (*Vanessa cardui*) is a regular long-distance migrant in Ireland and is of low conservation priority. It travels from the deserts in North Africa, the Middle East, and Central Asia. Overwintering in Ireland does not occur in this species and occurrences are dependant on arrival of new immigrants from North Africa and continental Europe. The larva (caterpillar) use a wide range of foodplants with thistles (*Cirsium spp. and Carduus spp.*) being preferred in Britain and Ireland. Mallows (*Malva spp.*), Common Nettle (*Urtica dioica*), Viper's-bugloss (*Echium vulgare*) have also been recorded as larval foodplants. Both the Common Nettle and thistle species were recorded in good numbers and therefore the site could provide food for the larval stage of the Painted-Lady.

### 5.3 NATURA 2000 (EUROPEAN SITES)

There are no Natura 2000 sites within the 2km potential zone of influence of the proposed development. The closest site Slaney River Valley SAC (Site Code 000781) is located 6.5km southeast of the site. At a slightly further distance is Wicklow Mountain SAC (Site Code 002122) located 9.6km east of the proposed development.

### 5.4 APPROACH TO POLLUTION

A new surface water drainage system will be required for the project, The surface water drainage will be designed in accordance with all best practice requirements, including design in accordance with the Great Wicklow Area Drainage Study, and CIRIA C753 The SuDS Manual. The surface water design should be carried out so that all rainfall runoff is restricted to a maximum that is equal to, or less than, the natural greenfield runoff equivalent and that an oil and water interceptor be located prior to discharge. Given the proposed design specification, the probable small magnitude of discharge which will not contribute to additional surface water to river, and the distance between the European site and the development (6.5km to the Slaney River Valley SAC), it is considered that the surface water drainage from the site will not have a significant impact on nearby European sites.

The majority of any dust produced as the result of the development will be deposited close to the potential source. Any impacts from dust deposition will typically be within two hundred metres of the construction area.

The dust threshold distance for ecological sensitivity is 50m. There are no European or Designated Sites within 50m of the site boundary. Therefore, there are predicted to be no significant impacts to ecological sites from the construction works, and this element does not require further assessment.

## 5.5 NATIONALLY IMPORTANT SITES

There is one proposed Natural Heritage Areas (pNHAs) within the 2 km potential zone of influence of the proposed development and no Natural Heritage Areas (NHA). The closest site is Dunlavin Marshes pNHA (Site Code 001772) located 1.3km northwest of the site. There is no potential for direct impacts and effects such as habitat loss within the pNHA as a result of the proposed development as there is no overlap of the site and the boundary of Dunlavin Marshes pNHA.

Due to the small scale of the project and the distance to the nearest nationally designated sites, there is no potential for impacts. They can, therefore, be scoped out of this assessment and are not considered further in this report.

## 5.6 INVASIVE SPECIES

According to the NBDC, there is one invasive plant listed for the 2km grid square (S88T) in which the site is located; Cherry Laurel (*Prunus laurocerasus*)

During the site walkover (on the 11th of May 2023), no invasive species were found on site. Therefore, invasive species can be scoped out of this assessment and do not need to be considered further in this report.

## 5.7 SUMMARY OF EVALUATION OF ECOLOGICAL FEATURES

Table 5.2: Summary of evaluation of ecological features. Table 5.2 summarises the ecological features described and evaluated in the preceding sections of this chapter. The importance of these features is summarised along with their legal status and rationale for not carrying forward any features for detailed assessment.

*Table 5.2: Summary of evaluation of ecological features.*

<b>Ecological Feature</b>	<b>Scale at which Feature is important</b>	<b>Comments on legal status and/or importance</b>
<b>Natura 2000 sites</b>	International	Natura 2000 sites have been screened out in the Appropriate Assessment Screening report prepared as part of this application.
<b>pNHA/NHA</b>	National	pNHA / NHA sites have been scoped out due to the small scale of the works and distance to the nearest designated sites.
<b>Habitats</b>	Local (Higher)	The habitats present evaluated as important at the site level are sufficiently widespread and commonly occurring within the landscape. The habitats are resilient, so they do not require detailed assessment.
<b>Mammals</b>	Local (Higher)	Mammals are scoped out of further consideration within this report as either not likely to be present at all or are not likely to be significantly affected by the proposed development.
<b>Bats</b>	County	Both treelines provide moderate connectivity to treelines within the area and along the River Slaney; therefore, the potential for use by commuting bats would be considered moderate. No evidence of roosting was found. A further detailed bat survey is recommended to ensure the proposed works will not interfere with local bat populations.
<b>Amphibians</b>	Local (Higher)	This site is not suitable for amphibians as there are no ponds or drainage ditches onsite; therefore, amphibians can be scoped out of the assessment.
<b>Invertebrates</b>	Local-County (Higher)	No protected species of invertebrates or suitable habitats for those were found on site; therefore, invertebrates can be scoped out.
<b>Invasive species</b>	County	One invasive species were found on site, Sycamore ( <i>Acer pseudoplatanus</i> ); therefore, invasive species will need further consideration.

## 6 ASSESSMENT OF EFFECTS

This section sets out the potential impacts and their effects on important ecological features. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect, and cumulative effects.

### 6.1 DO NOTHING IMPACT

In the absence of development, it is assumed that the proposed site would remain basically unchanged. The Do-Nothing Impact would result in no positive or negative change in the ecological interest of the site over time.

### 6.2 POTENTIAL IMPACTS OF THE DEVELOPMENT

The potential impacts of developing the site are limited to temporary disturbance with no displacement of species. There is no significant risk of impact by pollution to nearby designated sites during the construction and operation phases due to the distances to these sites and subject to the implementation of design and construction phase mitigation measures. The appointed contractor will be required to prepare and implement a Construction Environmental Management Plan (CEMP) which will address potential environmental impacts such as release or spillage of fuels from equipment or sediment-laden runoff during the construction phase.

### 6.3 CUMULATIVE IMPACTS

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

Within the immediate area, the effects of the proposed construction are likely to be limited to habitat degradation of commonly occurring and widespread habitats as well as temporary disturbance and displacement of species within the immediate surroundings of the site. These effects are not thought to be significant.

Grants of planning in the vicinity of the site were reviewed to identify works of a significant scale which may produce in-combination effects with the proposed works. The following planning grants of larger than single domestic scale were identified:

- ❖ 20466: (Liam Burke): permission for the construction of a 26 no. housing development in two separate phases. Phase A will consist of 23 no. houses as follows: 5 no. two bedroom terraced two storey houses (houses no 1-5 inclusive). 4 no. three bedroom terraced two storey houses (houses no. 6-9 inclusive). 6 no. three bedroom terraced two storey houses (houses 10-15 inclusive). 4 no. three bedroom semi-detached two storey houses (houses no. 16-19 inclusive). 4 no. two bedroom semi-detached two storey houses (houses 20-23 inclusive). Phase B will consist of 3 no. four bedroom detached houses (houses 24-26 inclusive). Permission for the construction of a vehicular entrance through Chapel Hill, connection to public foul sewer, open space and pedestrian access to Chapel View, permission to amalgamate public open space of Chapel Hill into proposed development and all associated site works. Retention of existing block wall t the north eastern boundary of the site as constructed.
- ❖ 211141: (DL Residential Properties Ltd.): permission for 89 no. dwellings consisting of 8 no. 2 bed terraced bungalow dwellings, 10 no. 2 bed semidetached 2 storey dwellings, 4 no. 2 bed terraced 2 storey dwellings, 34 no. 3 bed semidetached 2 storey dwellings, 6 no. 3 bed terraced 2 storey dwellings, 13 no. 3 bed detached 2 storey dwellings, 8 no. 4 bed semidetached 2 storey dwellings 6 no. 4 bed detached 2 storey dwellings. Development is to include connection to the existing access road across Cow Green which connects to R412, proposed internal roads and pathways, alterations to existing levels, site landscaping, boundary treatments, pedestrian access and all ancillary site development and excavation works.

Other granted planning permissions in the vicinity of the site pertain primarily to small-scale agricultural, residential, and commercial constructions, extensions, change of use, or retention of works. Although two larger planning grants were identified in the vicinity of the site, due to the small scale of the proposed development, in-combination effects with these are considered to be unlikely and not significant.

## 7 MITIGATION

In this section, the minimum mitigation measures to be employed by the appointed Contractor(s) during construction and/or during operation are presented.

### 7.1 PRE-CONSTRUCTION SURVEYS

At least one month in advance of construction, and within the appropriate season, the following surveys must be carried out.

- Dawn/Dusk bat surveys of the treeline along the western site boundary with suitability for roosting bats.

### 7.2 OPERATIONAL PHASE

The following general mitigation applies.

- ❖ In the event that bats are found on the proposed development site during construction works, works will immediately cease in that area, and the local NPWS conservation ranger will be contacted. The bats should be removed by hand by a suitably qualified bat surveyor.
- ❖ In general, artificial light creates a barrier for commuting bats so lighting should be avoided where possible. If any external lighting is required, it must be sensitive to the presence of bats commuting in the area. Directional lighting (i.e., lighting which is focused on work areas and not nearby countryside) shall be used. The ideal lighting to use for bats is a light source that emits a specific wavelength of light and falls within the amber or red spectrum, as these colours have been found to be less disruptive to bats compared to white or blue lights. This type of lighting is designed to minimize disturbance and negative effects on bat behaviour, particularly their feeding and roosting patterns. Bat-friendly lighting reduces the risk of light pollution and allows bats to navigate and forage more effectively without disturbance.
- ❖ In the event other invasive species are found onsite during construction, specifically Cherry Laurel (*Prunus laurocerasus*), a management plan must be prepared and implemented. The management plan will detail the treatment programme which can be divided into three main stages: initial removal, control of stems and roots, and follow up. The management plan will quantify the number of invasive species and their characteristics (age, condition, and previous treatments) and begin clearance. Suitable conditions for the recovery of native ground flora will be created which will reduce open areas for recolonisation by invasive species. The management plan will detail acceptable timeframes for planned clearance and repeated treatments. As part of the plan, follow-up work will be necessary to remove any small plants and seedlings have been missed or that have germinated following the initial remediation phase.



## 8 ENHANCEMENT

As part of the proposed development, there is potential for ecological enhancement on the site. However, the lack of trees and hedges for wildlife results in limited habitat availability and overall, low levels of biodiversity.

To enhance biodiversity on the site, it is recommended to introduce high value native tree species such as Oak (*Quercus patraea* and *Q. robur*), Birch (*Betula pubescens*) or Willow (*Salix caprea* and *S. cinerea*), all of which support large numbers of insects and lichens as well providing shelter and food for birds and mammals. Other native species to consider such as Rowan (*Sorbus aucuparia*), Hawthorn (*Crataegus monogyna*), Blackthorn (*Prunus spinosa*), Ash (*Fraxinus excelsior*), Wild cherry (*Prunus avium*), Bird cherry (*Prunus padus*), Hazel (*Corylus avellana*), and Crab Apple (*Malus sylvestris*) will provide shelter, pollen and/or fruit for insects, birds, and mammals.

In an attempt to improve wildlife accessibility and movement around the site and prevent habitat fragmentation, the following measures can be implemented;

- Wildlife corridors: Establishing pathways or corridors using trees, shrubs etc., along the site boundary will encourage and facilitate wildlife dispersal. These corridors can connect to the surrounding habitats, allowing wildlife to travel freely and access necessary resources, ensuring that the development of the proposed fire station will not contribute to habitat fragmentation within the environment.
- Vegetation buffers: Planting native vegetation, such as dense shrubs and tall grasses, along the borders of the site will also act as a physical barrier, creating a partition between the fire station and the surrounding environment as well as providing cover and foraging opportunities for wildlife.
- Permeable fencing: Installing wildlife-friendly fences that allow smaller animals to pass through them while still acting as a barrier for larger animals and livestock.

By implementing these measures, the site can become more accessible for wildlife, while also establishing a physical barrier that separates the fire station from the natural surroundings, promoting coexistence and preserving the wild environment.

The addition of bat boxes in a variety of designs suitable for bats with differing roosting habits could be installed on the two mature oak trees to encourage more roosting within the area. Bat boxes should be installed and positioned to face south, southeast, or southwest and at heights no less than 4m above ground level. Suitably experienced ecologists must oversee the installation of the boxes. All personnel should wear gloves to reduce transmission of human pheromones, which may reduce or delay uptake of boxes by bats.

These boxes must be away from any felling or trimming to ensure that they are not accidentally damaged or removed. Bat boxes must be clear of scrub and away from ivy encroachment as well as lighting. Bat boxes are available commercially from a variety of suitable outlets (e.g. NHBS website <http://www.nhbs.com>).

The addition of a variety of bird boxes is recommended to increase nesting of local bird populations. The traditional nest box caters for a number of species; however, the diameter of the entrance hole will influence which species may use it.

- 25mm- Blue Tit, Coal Tit
- 28mm- Great Tit, Tree Sparrow
- 32mm- House Sparrow
- 45mm- Starling

In addition to traditional nest boxes, open front nest boxes are suitable for species such as blackbirds, robins, and wrens. However, each species has its own preference for the degree of exposure in the nesting site:

- Blackbirds prefer completely open boxes.
- Robins prefer half-open boxes.
- Wrens prefer more enclosed boxes.

For most traditional boxes, the ideal height is between 2 and 4m off the ground, ensuring no cats can access it. For the open front boxes, the best height is less than 2m but surrounded by dense vegetation. When attaching boxes to trees, it is recommended to use straps to secure them rather than drilling into the tree. This helps minimize potential damage to the tree and ensures a secure attachment for the nest box.

A variety of nest boxes can be purchased from Bird Watch Ireland (<https://birdwatchireland.ie>).

Planting flower boxes or planters with native species that support a wide variety of insects and pollinators is an excellent way to promote biodiversity and provide a valuable food source for bees and butterflies. Native plants are well-adapted to the local environment and can attract a diverse range of pollinators. Species such as Devil's Bit Scabious, Bird's-foot-trefoil, Vetch species, Selfheal, Oxeye daisy, and Harebell all provide nectar/honey for bees and butterflies. Carefully selecting species that have a different flowering period will ensure a continuous availability of food sources as well as an extended floral display. Further information and resources can be found on <https://pollinators.ie/resources/>.

## 9 CONCLUSION

The proposed construction of a new fire station, a fire training tower, a concrete water tank for fire training and associated lighting, drainage, and entrance infrastructure in Dunlavin, County Wicklow will have no significant impacts on both the immediate vicinity and protected areas such as SACs and SPAs.

There will be a permanent loss of some habitat within the site, but as these are commonly occurring and widespread habitats within the area, the loss will not be significant. Given the nature of the development, its scale, and the localised and temporary nature of the construction effects identified as potential sources, it is concluded that the proposed project is not foreseen to give rise to any significant adverse effects on any designated European sites, alone or in combination with other plans or projects.

## 10 REFERENCES

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## 11 VERIFICATION

This report was compiled by Eadaoin Butler, B.Sc, reviewed by Glenda Barry, BSc, MSc, PGeo, Eurgeol, Principal Consultant and Luis Iemma, BSc, MSc, Ph. D, CEcol, MCIEEM, Principal Ecologist; and approved by Eleanor Burke, BSc, MSc, DAS, MEnvSc, CSci, Technical Principal, and the OCSC Environmental Division Manager.

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