

**Ballinahinch Residential Development
Ecological Impact Assessment**



Prepared By:

**Moore Group -
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**On behalf of:
Wicklow County Council**

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1. INTRODUCTION

Moore Group was commissioned by Wicklow County Council to undertake a Habitat Survey and EclA of the site of a proposed new residential development at Ballynahinch, Ashford, Co. Wicklow, referred to as the 'Proposed Development'.

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

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

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

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

- Stepping stones and ecological corridors encapsulated by Article 10 of the Habitats Directive.

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

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

As such, a report for the purposes of Appropriate Assessment Screening was undertaken by Moore Group for the proposed development in support of the Part 8 application. This stand-alone report is presented separately as part of the design package for the Project. The site location is presented in Figure 1 below.



Figure 1. Showing the site location at Ashford, Co. Wicklow

2. ASSESSMENT METHODOLOGY

2.1. POLICY & LEGISLATION

2.1.1. EU Habitats Directive

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

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

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

2.1.2. EU Birds Directive

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

Additionally, Article 5 of the Birds Directive requires that Member States establish a general system of protection for all naturally occurring wild birds within the EU territory, similar to the system of strict protection required for Annex IV species under the Habitats Directive.

2.1.3. Wildlife Acts 1976 - 2021¹

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

2.1.4. Wicklow County Council Planning Policies & Objectives

This EclA was prepared with consideration of the policies and objectives of the Wicklow County Development Plan 2022-2028 in particular Chapter 17 relating to the protection and enhancement of Natural Heritage and Biodiversity in the County and in particular:

CPO 17.8 Ensure ecological impact assessment is carried out for any proposed development likely to have a significant impact on proposed Natural Heritage Areas (pNHAs), Natural Heritage Areas (NHAs), Statutory Nature Reserves, Refuges for Fauna, Annex I habitats, or rare and threatened species including those species protected by law and their habitats. Ensure appropriate avoidance and mitigation measures are incorporated into development proposals as part of any ecological impact assessment.

2.2. SURVEY METHODOLOGY

2.2.1. Desk Study

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

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

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

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

2.2.2. Field Study

The second phase of the assessment involved a site visit to establish the existing environment in the footprint of the proposed development area. Areas which were highlighted during desktop assessment were investigated in closer detail according to the Heritage Council Best Practice Guidance for Habitat Survey and Mapping (Smith *et al.*, 2011). Habitats in the proposed development area were classified according to the Heritage Council publication "*A Guide to Habitats in Ireland*" (Fossitt, 2000). This publication sets out a standard scheme for identifying, describing and classifying wildlife habitats in Ireland. This form of classification uses codes to classify different habitats based on the plant species present. Species recorded in this report are given in both their Latin and English names. Latin names for plant species follow the nomenclature of "*An Irish Flora*" (Parnell & Curtis, 2012).

Habitats were surveyed on the 13 June 2023 by conducting a study area walkover covering the main ecological areas identified in the desktop assessment. The survey date is within the optimal botanical survey period. A photographic record was made of features of interest.

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

In order to assess the presence and activity of bats within the proposed development area, a preliminary daylight site inspection was conducted on the 13/06/2023 with a night time detector survey carried out on the same night. Boundary trees were surveyed from the ground for signs of bat roosting potential.

A dusk mobile detector survey was carried out completing looped transects of the site during the dusk period to survey for commuting, feeding and potential roost sites. The transects included timed (20min) vantage watches at each corner of the proposed development area. The survey commenced at 21:00; c.50min prior to sunset and continued for two hours until no further bat calls were recorded.

The bat detectors used during the walked surveys were a Pettersson D230 bat detector and an Echo Meter Touch 2 Pro bat detector. A contact describes a bat observed by the surveyor. This contact can range from a commuter passing quickly to a foraging bat circling a feature lasting for several minutes. Some observations contain multiple bats. When several bats of the same species are encountered together, they are recorded under the one contact. A separate contact is recorded for each species. A contact finishes when the recorder assumes the bat is no longer present. It is likely that the same bat is recorded in several contacts throughout the night. This survey type cannot estimate abundance of bats, rather activity; the amount of use bats make of an area / feature.

The daylight and nighttime bat survey date lies within the main bat activity season according to the Bat Mitigation Guidelines (Kelleher, C. & Marnell, F. 2006). The evening of the survey was relatively warm with temperatures ranging from 22 -16C. Weather conditions were suitable, remaining dry for the duration of the survey with light breezes. The surveys undertaken are in line with recommendations in Chapter 10 of the Bat Conservation Trust 'Good Practice Guidelines, 2nd edition, 2012' (BCT Guidelines 2012) and The Irish Wildlife Manual No. 25' (Kelleher, C. & Marnell, F. 2006).

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

2.2.3. Site Evaluation and Impact Assessment

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

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

- EPA Guidelines on Information to be contained in an EIAR (EPA, 2022);
- Best Practice Guidance for Habitat Survey and Mapping (Heritage Council, 2011);
- Ecological Surveying Techniques for Protected Flora & Fauna (NRA, 2008);
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA, 2009);
- Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DEHLG, December 2009, Rev 2010);
- Guidance document on Article 6(4) of the Habitats Directive 92/43/EEC (EC, 2007).

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

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

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

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

3. PROJECT DESCRIPTION

The Proposed Development consists of the construction and operation of a Residential Development and all associated and ancillary development.

Storm water from the site will be collected and attenuated in a proposed new attenuation tank prior to discharge to the existing outfall to the Vartry River. Wastewater from the proposed development will be directed to the Wicklow WWTP which has the capacity (>15,000P.E.) to assimilate the proposed additional load (EPA Wicklow D0012-01; 2020).

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



Figure 2. Location of proposed development.

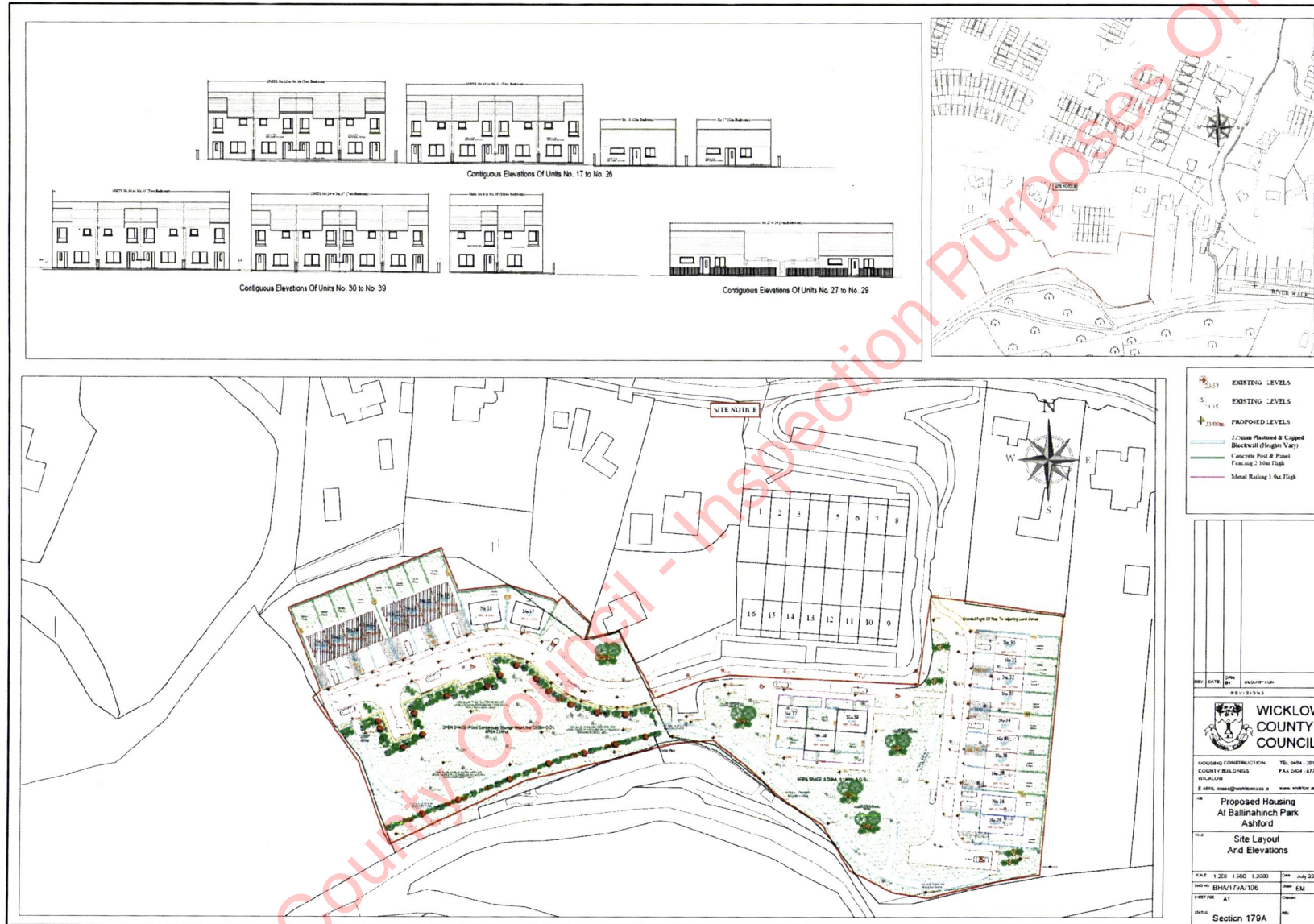


Figure 3. Plan showing redline boundary of proposed development.

4. EXISTING ENVIRONMENT

4.1. DESIGNATED CONSERVATION AREAS

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

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

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

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

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

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

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

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

The potential for source pathway receptor connectivity is firstly identified through GIS interrogation and detailed information is then provided on sites with connectivity. European sites that are located within a potential Zone of Influence of the Proposed Development are listed in Table 1 and presented in Figures 4 and 5, below. Spatial boundary data on the Natura 2000 network was extracted from the NPWS website (www.npws.ie) on 29 June 2023. This data was interrogated using GIS analysis to provide mapping, distances, locations and pathways to all sites of conservation concern including pNHAs, NHA and European sites.

Table 1 European Sites located within the potential Zone of Influence² of the Proposed Development.

Site Code	Site name	Distance (km) ³
002249	The Murrough Wetlands SAC	3.03
004186	The Murrough SPA	3.22

The Proposed Development is located in the hydrological catchment of the Vartry River at Ashford. Approximately 4.6 river km downstream the waters of the Vartry River enter the Murrough Wetlands with its European sites, The Murrough Wetlands SAC (Site Code 002249) and The Murrough SPA (Site Code 004186).

² All European sites potentially connected irrespective of the nature or scale of the Proposed Development.

³ Distances indicated are the closest geographical distance between the Proposed Development site and the European site boundary, as made available by the NPWS.

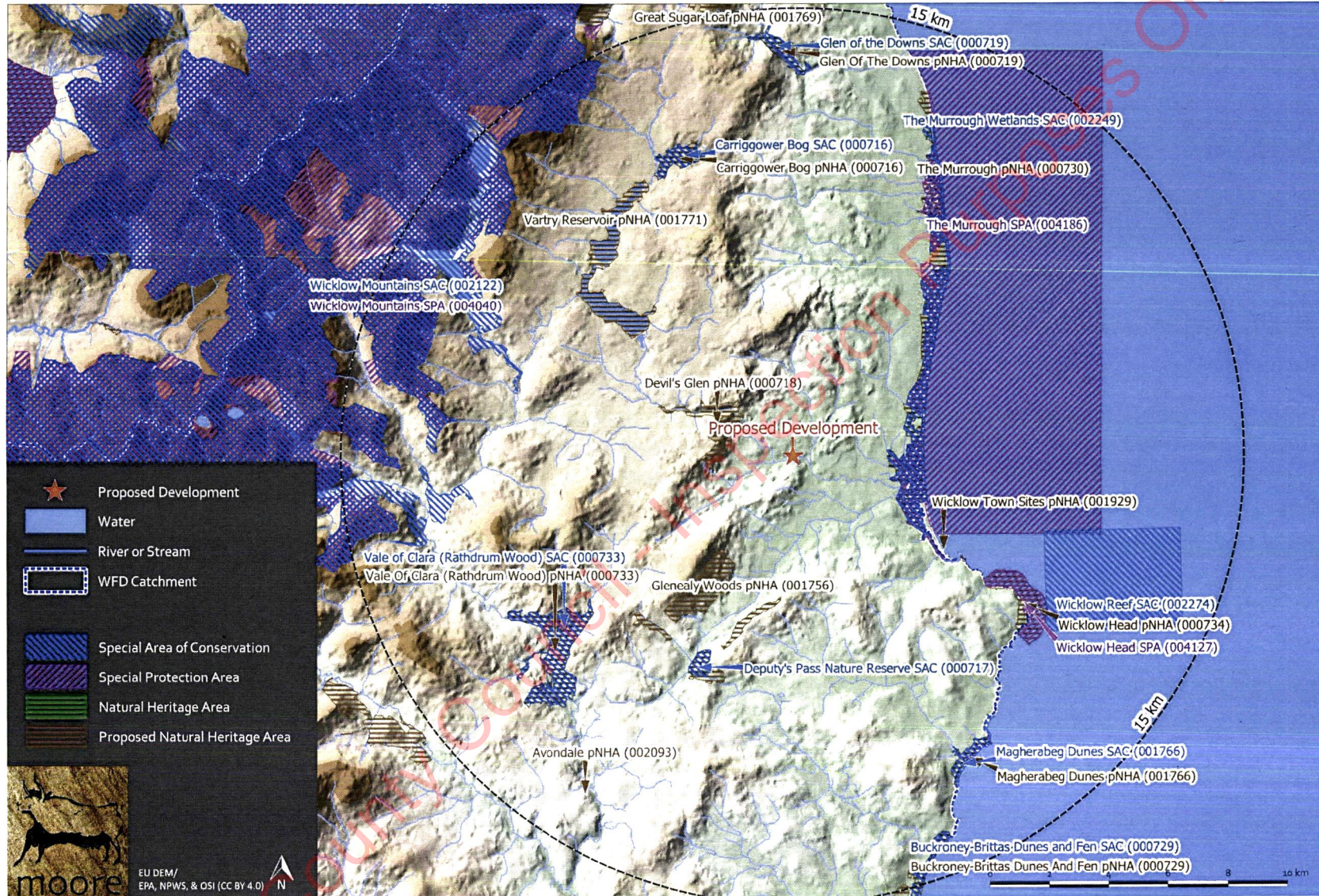


Figure 4. Showing the designated conservation sites in the vicinity of the Project.



Figure 5. Detail of designated conservation sites.

4.2. HABITAT DESCRIPTIONS

There are no records of rare plants in the 1km square in which the Project site is located, T2597.

The proposed development is located on a site to the north of the Vartry River in Ashford, Co. Wicklow, see Figure 6. The development area consists of an area rank grassland to the east, recolonising bare ground and scrub to the west, and mixed woodland along much of the perimeter.

The improved grassland consists of a rank sward of grasses, dominated by Yorkshire Fog (*Holcus lanatus*) and Perennial Rye Grass (*Lolium perenne*), with occasional tall herbs including Common Hogweed (*Heracleum sphondylium*). The most eastern extent of this area was previously cleared during overall site development and colonised by very tall grasses; False oat-grass (*Arrhenatherum elatius*) and Cocksfoot (*Dactylis glomerata*). The western portion of the site consists of highly disturbed ground, with patches of scrub, and a dense scrubby perimeter. A high proportion of non-native species were recorded, as is typical in such habitats; these included Green Alkanet (*Pentaglottis sempervirens*), Hedge Mustard (*Sisymbrium officinale*) and Buddleia (*Buddleja davidii*), as well as native species like Creeping Thistle (*Cirsium arvense*), Bramble (*Rubus fruticosus*), Foxglove (*Digitalis purpurea*) and Ragwort (*Senecio jacobaea*). Scrub consists principally of dense stands of Bramble with some Elder (*Sambucus nigra*). The woodland along the southern boundary is mixed conifer and deciduous (WD2) with Ash, Alder and Sycamore predominating.

There were no invasive species recorded at the proposed development site.

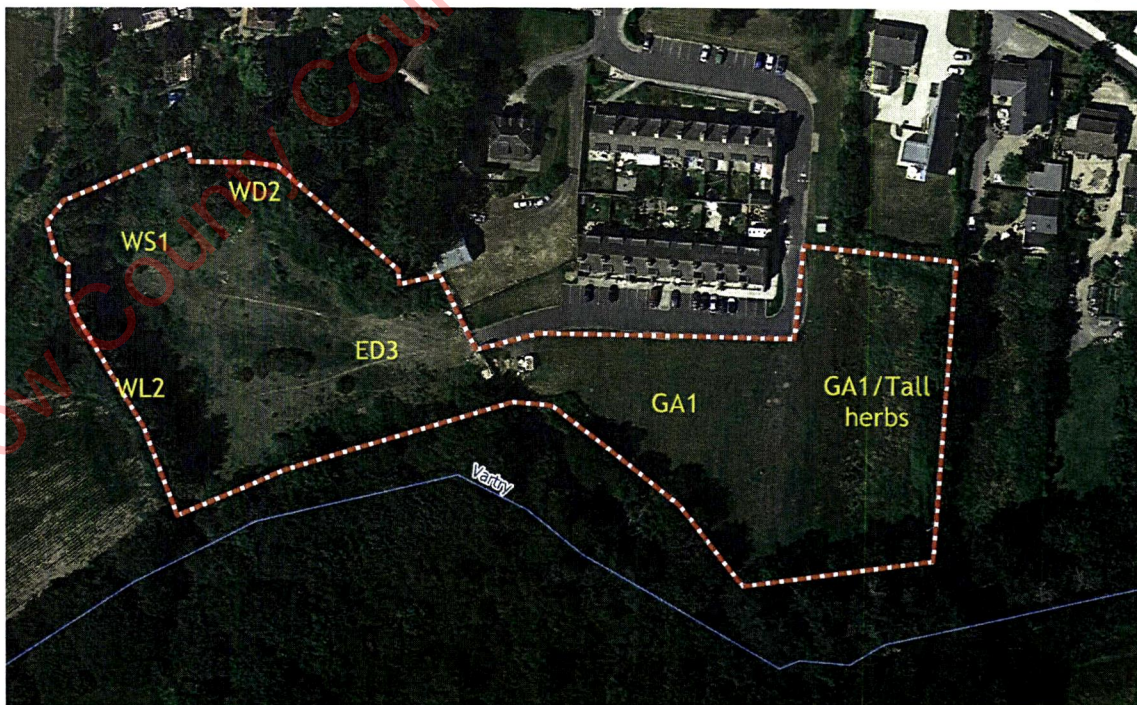


Figure 6. Habitats recorded on the site based on recent aerial photography.

4.1. FAUNA

4.1.1. Mammals

Otters

There are records for Otter within the 10km square in which the proposed development lies including historical records from Broad Lough, north-west of Wicklow Town and in Wicklow Town itself, but no records localised along the Vartry River at the proposed development site. Other records refer to sightings near Garyduff Crossroads and are likely to be associated with the Rathnew Stream flowing through Glenealy to the Broad Lough at Murrough Wetlands. The river adjacent to the development was surveyed for signs of otter, including tracks, slides and spraints, and none were recorded.

Badgers

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

Bats

There is low potential for bat habitats or bat commuting on site. The areas of scrub are low and patchy and of relatively low value to foraging bats.

This was reflected in the relatively low numbers of records during the dusk mobile survey. A total of 17 bat passes or contacts were recorded during the survey period with . The majority of the records (12) were of Leisler's bat (*Nyctalus leisleri*) with six positively identified by Echo Meter and the remainder identified with the Pettersson detector as likely Leisler's bats. The remainder of the records were positively identified as Common pipistrelles (*Pipistrellus pipistrellus*).

The majority of passes were over the mixed woodland in the areas between the site and the Vartry River. The level of activity with two species recorded is considered relatively low and may be considered normal for an open field habitat with nearby woodland habitats providing feeding and commuting areas.

4.1.2. Birds

All nesting birds are protected under the Wildlife Acts. A list of breeding bird species recorded during fieldwork in 2023 is presented in Table 2 below.

Table 2 Birds recorded during fieldwork in June 2023.

Birds	Scientific name	BWI Status	Habitat Type
Coal Tit	<i>Periparus ater</i>	Green	Coniferous woodland, hedges, gardens
Blackcap	<i>Sylvia atricapilla</i>	Green	Woods, gardens, mature hedgerows
Song Thrush	<i>Turdus philomelos</i>	Green	Gardens, hedgerows
Blackbird	<i>Turdus merula</i>	Green	Gardens, Hedges, woods, farmland
Great Tit	<i>Parus major</i>	Green	Woods, gardens, hedges
Woodpigeon	<i>Columba palumbus</i>	Green	Gardens, woods, hedges

It can be noted that the level of development recorded during fieldwork and distance from the coastal SPA do not present opportunities to support the bird species (predominantly waders) for which the Murrough Wetlands SPA (c. 4km) is designated.

5. ASSESSMENT OF IMPACTS

5.1. SITE EVALUATION

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

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

- Improved grassland (GA1)
- Scrub (WS1)
- Recolonising Bare Ground (ED3)
- Mixed Broadleaf/Conifer Woodland (WD2)

There were no rare or protected species recorded on the site and there were no records of invasive species.

The ecological value of the site was assessed following the guidelines set out in the Institute of Ecology and Environmental Management’s Guidelines for Ecological Impact Assessment (2019) and according

to the Natura Scheme for evaluating ecological sites (after Nairn & Fossitt, 2004). Judgements on the evaluation were made using geographic frames of reference, e.g. European, National, Regional or Local.

The habitats under the footprint of the proposed development are of low local ecological value.

5.2. IMPACT ASSESSMENT

5.2.1. Direct Impacts

Habitats

The proposed development will be as a result there will be a minor local insignificant loss of improved grassland, scrub, and recolonising bare ground.

There were no invasive species recorded in the proposed development area.

Should best practice guidelines for the prevention of invasive species spread be adhered to, no potential for the spread or introduction of high impact invasive species are foreseen as a result of this Scheme.

Fauna

Otters

There will be no direct or indirect impact on otters.

Badgers

There will be no direct or indirect impact on badgers.

Bats

No bat roosts were recorded within the proposed development site. There will be no impacts on commuting bats.

Birds

There are no predicted impacts on birds.

5.2.2. Indirect Impacts

The possibility of a pollutant event in the form of elevated suspended solids, cementitious water or hydrocarbons reaching the Vartry River will be avoided by ensuring a buffer of no development adjacent to the riparian woodland on the north side of the river.

There is no direct connectivity with the Vartry River. The development will be set back from the watercourse a minimum of 10m and impacts on the Murrough SAC and SPA, over 4 river kilometres downstream, are highly unlikely and significant adverse effects have been ruled out in AA Screening.

The proposed development includes standard SuDS design which will include additional attenuation and settlement which will cater for storm water and be put in place at the commencement of construction.

There will be no direct impacts on bats feeding or commuting in the environment. Indirect effects may be considered whereby additional levels of lighting would deter bats from feeding or commuting in the woodland along the Vartry River. However, there are no proposals for significant additional lighting at the site.

It is considered that the proposed development will not have a significant impact on commuting or feeding bats in the area of the residential development or specifically on the woodland along the Vartry River. Additional design measures to avoid light spill are addressed in Section 6 below.

5.2.3. Cumulative Effects

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

A review of the National Planning Application Database was undertaken. The database was then queried for developments granted planning permission within 500m of the Proposed Development within the last three years, these are presented in Table 3 below.

Table 3 Planning applications granted permission in the vicinity of the Proposed Development.

Planning Ref.	Description of development	Comments
201230	sunroom to side of dwelling, kitchen and utility room extension to rear of dwelling, side window in lieu of door, domestic garage / she with car port and associated works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
201250	single storey detached garage (60.m.sq.) located to the north of the dwelling and associated driveway and site works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
20191	importation of topsoil and subsoil for the purposes of creating a spectator viewing embankment to the north of the main playing pitch and the provision of an underage training area to the west of the grounds	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.

Planning Ref.	Description of development	Comments
20306	dwelling as constructed on site which was granted under planning ref 18/10, the changes include change of roof material from metal to black slate and roof angle, removal of attic room and roof, lowering of level of first floor level floor and windows on first floor level and associate works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
20373	demolition of existing dwelling, garage and sheds, and proposed new replacement dwelling, garage, storage shed and gym, revised entrance and roadside boundary, revised site boundaries and associated works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
20386	single storey extension to side of dwelling and associated works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
20597	1) dwelling house as constructed and 2) permission for garage / garden store	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
20885	demolition of existing house, granny flat and workshop and the erection of 1 no. 2 storey terrace containing 4 no. 3-bedroom houses and 1 no. 4-bedroom house and also 1 no. 2 storey terrace containing 1 no. 4-bedroom house, 2 no. 3-bedroom houses and 1 no. 2-bedroom house and all associated siteworks and drainage connections etc.	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
211366	construction of a new detached dormer dwelling together with a new on-site waste water treatment system to current EPA standards, on-site surface water attenuation and a new site entrance and driveway, including all associated site works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
21484	extension to existing garage, consisting of 1) work from home office for personal use only 2) and all associated site works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
21795	alterations and extension to front and side of existing dwelling and all associated ancillary site works and services	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
221065	existing single storey side extension conservatory to existing two storey detached house as constructed and all associated site works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
221144	4 no., 4 bedroom detached dwellings ranging in size from c.174sqm-c.189sqm each with private rear gardens and patios.	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
221201	conversion of existing garage with single storey extension to rear along with new window in North East façade in rear bedroom	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
221323	1. new 110sqm extension to provide a glazed display area fronting onto the R764 public road, 2. relocation of public entrance to building, 3. new car parking facility, 4. provision of new vehicular entrance off R764 public road to create a new 'in-out' system for item 3 above, 5. all associated signage, 6. connection to all public services	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.
22783	the construction of a single storey side extension conservatory to existing detached dormer house and all associated site works	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.

Planning Ref.	Description of development	Comments
SH202003	the provision of 133 residential units comprising 117 no. terraced, detached and semi-detached two storey houses (21 no. two bed units, 48 no. three bed units and 48 no. 4 bed units); 16 duplex apartments in 2 no. three storey blocks (8 no. two bed and 8 no. three bed apartments). Associated infrastructure site and drainage works include foul and surface water drainage, 2 no. attenuation tanks; 263 no. car parking spaces, 4 no. bin and cycle stores, 1 no. bin store, 2 no. ESB substations. The proposal includes all other landscaping, servicing and associated works above and below ground.	No potential for in-combination effects given the proposed development will have no significant effects on biodiversity.

There are no predicted in-combination effects given that it is predicted that the Proposed Development will have no significant effects on biodiversity.

6. LIGHT DESIGN MEASURES

Site lighting will be delivered in two stages on this site. During the construction stage the appointed Main Contractor will provide site lighting that would typically be mobile tower mounted units, that reflects downward using 1000W metal halide floodlights directed at the main construction area of the site only. These floodlights will be cowled/ louvered and angled downwards to minimise light spillage to surrounding properties and roads. These floodlights would only be used during normal construction working hours on this site and a secondary security lighting system would be operational outside these hours for the duration of the works. The following measures will be applied to these systems in relation to the site lighting system:

- Lighting will be provided with the minimum luminosity sufficient for safety and security purposes.
- Motion sensor lighting and low energy consumption fittings will be installed during construction to reduce usage and energy consumption; and
- Lighting will be positioned and directed as not to unnecessarily intrude on adjacent buildings, businesses, ecological receptors, and trees possibly used by protected species in the future.

7. CONCLUSIONS

There are no significant impacts predicted from the proposed development on habitats, flora, fauna or biodiversity.

Should best practice guidelines for the prevention of invasive species spread be adhered to, no potential for the spread or introduction of high impact invasive species are foreseen as a result of this Scheme.

8. REFERENCES

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Appendix 1

TII Evaluation of Habitats

Ecological valuation: Examples
<p>International Importance:</p> <ul style="list-style-type: none"> <input type="checkbox"/> 'European Site' including Special Area of Conservation (SAC), Site of Community Importance (SCI), Special Protection Area (SPA) or proposed Special Area of Conservation. <input type="checkbox"/> Proposed Special Protection Area (pSPA). <input type="checkbox"/> Site that fulfills the criteria for designation as a 'European Site' (see Annex III of the Habitats Directive, as amended). <input type="checkbox"/> Features essential to maintaining the coherence of the Natura 2000 Network.⁴ <input type="checkbox"/> Site containing 'best examples' of the habitat types listed in Annex I of the Habitats Directive. <input type="checkbox"/> Resident or regularly occurring populations (assessed to be important at the national level)⁵ of the following: <ul style="list-style-type: none"> <input type="checkbox"/> Species of bird, listed in Annex I and/or referred to in Article 4(2) of the Birds Directive; and/or <input type="checkbox"/> Species of animal and plants listed in Annex II and/or IV of the Habitats Directive. <input type="checkbox"/> Ramsar Site (Convention on Wetlands of International Importance Especially Waterfowl Habitat 1971). <input type="checkbox"/> World Heritage Site (Convention for the Protection of World Cultural & Natural Heritage, 1972). <input type="checkbox"/> Biosphere Reserve (UNESCO Man & The Biosphere Programme). <input type="checkbox"/> Site hosting significant species populations under the Bonn Convention (Convention on the Conservation of Migratory Species of Wild Animals, 1979). <input type="checkbox"/> Site hosting significant populations under the Berne Convention (Convention on the Conservation of European Wildlife and Natural Habitats, 1979). <input type="checkbox"/> Biogenetic Reserve under the Council of Europe. <input type="checkbox"/> European Diploma Site under the Council of Europe. <input type="checkbox"/> Salmonid water designated pursuant to the European Communities (Quality of Salmonid Waters) Regulations, 1988, (S.I. No. 293 of 1988).⁶
<p>National Importance:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Site designated or proposed as a Natural Heritage Area (NHA). <input type="checkbox"/> Statutory Nature Reserve. <input type="checkbox"/> Refuge for Fauna and Flora protected under the Wildlife Acts. <input type="checkbox"/> National Park. <input type="checkbox"/> Undesignated site fulfilling the criteria for designation as a Natural Heritage Area (NHA); Statutory Nature Reserve; Refuge for Fauna and Flora protected under the Wildlife Act; and/or a National Park. <input type="checkbox"/> Resident or regularly occurring populations (assessed to be important at the national level)⁷ of the following: <ul style="list-style-type: none"> <input type="checkbox"/> Species protected under the Wildlife Acts; and/or <input type="checkbox"/> Species listed on the relevant Red Data list. <input type="checkbox"/> Site containing 'viable areas'⁸ of the habitat types listed in Annex I of the Habitats Directive.

County Importance:

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

Local Importance (higher value):

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

Local Importance (lower value):

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

Appendix 2

Site Photos



Photo 1. The western section with disturbed ground, spoil mounds, scrub and tree lines.



Photo 2. The eastern field and previously disturbed lay down area for the existing estate with mixed woodland along the perimeter looking south toward the Vartry River area.



Photo 3. The Vartry River to the south of the Proposed Development.



Photo 4. Showing the existing level of street lighting after dusk and Proposed Development area to the right (south).