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APPROPRIATE ASSESSMENT SCREENING REPORT

ST. BRIDGET'S NURSING HOME, CROOKSLING, CO. DUBLIN,

2024

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1.0 INTRODUCTION

Panther Ecology Ltd was commissioned by the client to prepare an Appropriate Assessment Screening Report. The client is seeking permission for temporary tented accommodation for International Protection Applicants (IPAs) at St. Bridget's Nursing Home, Crooksling, Co. Dublin.

The principal aim of this study is to assess whether significant effects to European sites (the Natura 2000 network) are likely to occur as a result of this project in accordance with Article 6(3) of the Habitats Directive and the Planning and Development (Amendment) Act, 2001, as amended. This report has been prepared with regards to the European Communities (Natural Habitats) Regulations 1997 (S.I. No. 94 of 1997), and the later amendment regulations (S.I. No. 233 of 1998; S.I. No. 237 of 2005; S.I. No. 477 of 2011).

A study was undertaken by Ms Paula Farrell of Panther Ecology Ltd who has a BSc in Wildlife Biology from Munster Technological University (formerly IT Tralee) and has experience in elasmobranch, amphibian, bird, invertebrate and floral surveys. This comprised a review of the proposed development, a site visit on 15th November 2023 and 19th June 2024 to examine the ecological context of the proposed development, a desk study of the information on European sites within the potential zone of influence of the site and an analysis of the information in the context of the guidance to determine if a Natura Impact Statement is required.

2.0 LEGISLATIVE CONTEXT

The EU Habitats Directive (92/43/EEC) on the conservation of natural habitats and of wild fauna by council directive 97/62/EC, 2006/105/EC, and Regulation EC1882/2003 of September 2003, as transposed into Irish law by the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477/11), provides the framework for legal protection for habitats and species of European importance. The Natura 2000 network provides an ecological infrastructure for the protection of sites that are of particular importance for rare, endangered or vulnerable habitats and species within the EU. The Natura 2000 network in Ireland is made up of European Sites which include:

- Special Areas of Conservation (SACs)
- Special Protection Areas (SPAs)

Article 6(3) of the Habitats Directive establishes the requirement for appropriate assessment when planning new developments that might affect a Natura 2000 site. Article 6(3) of the Habitats Directive states;

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

3.0 SCREENING FOR APPROPRIATE ASSESSMENT METHODOLOGY

Screening is the first stage in the Appropriate Assessment process and is carried out to determine whether a Stage 2 Appropriate Assessment and a Natura Impact Statement (NIS) is required. Screening addresses and records the reasoning and conclusions in relation to the first two tests of Article 6(3);

1. Whether a plan or project is directly connected to or necessary for the management of the European (Natura 2000) site; and

2. Whether a plan or project, alone or in combination with other plans or projects, is likely to have significant effects on a European (Natura 2000) site, in view of its conservation objectives.

Screening should be undertaken without the inclusion of mitigation measures. If the effects are deemed to be significant, potentially significant, or uncertain, or if the screening process becomes overly complicated, then the process must proceed to Stage 2 AA and an NIS.

The findings and conclusions of the screening process should be documented, with the necessary supporting evidence and objective criteria. This is of particular importance in the cases where the Appropriate Assessment process ends at the screening stage because the conclusion is that no significant effects are likely.

Screening for Appropriate Assessment involves:

- Description of the project and area characteristics (existing environment);
- Identification and description of Natura 2000 sites that could potentially be affected, and compilation of information on their qualifying interests and conservation objectives;
- Assessment of likely effects – direct, indirect and cumulative, undertaken on the basis of availability of objective information as necessary;
- Screening statement with conclusions.

3.1 METHODOLOGY GUIDELINES

This Appropriate Assessment has been carried with reference to the following guidelines:

- *Appropriate Assessment of Plans and Projects in Ireland. Guidelines for Planning Authorities*. DoEHLG, 2010.
- Circular NPWS 1/10 & PSSP 2/10 Appropriate Assessment under Article 6 of the Habitats Directive: Guidance for Planning Authorities
- *Managing Natura 2000 sites – The Provisions of Article 6 of The Habitats Directive 92/43/EEC.* European Commission, 2000.
- Circular L8/08 Water Services Investment and Rural Water Programmes – Protection of Natural Heritage and National Monuments 2 September 2008

- *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the Provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.* European Commission, 2021.
- Commission Notice "Managing Natura 2000 sites The provisions of Article 6 of the Habitats Directive 92/43/EEC. European Commission, 21.11.2018
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester.

3.2 DESKTOP RESEARCH

Desktop research was carried out to gather information on the ecology of the site and surrounding areas. The locations of the Natura 2000 sites within the potential zone of influence of the proposed development at Crooksling, Co. Dublin were identified from National Parks and Wildlife Service (NPWS) online map viewer. Other Natura sites within the potential zone of influence were also reviewed and considered for the potential for the project to have a negative effect.

Water quality data from the EPA was reviewed for the assessment of biological and environmental data collected on waterbodies in Ireland as per the Water Framework Directive (WFD) Monitoring Programme of River Ecology Monitoring Results (2021).

Information on the characteristics of the Natura 2000 sites within the potential zone of influence was reviewed from the conservation objectives documents and site synopses on the NPWS website.

3.3 SITE SURVEY

A site characterisation assessment was undertaken on the 15th November 2023 and 19th June 2024`to examine the ecological context of the development site, by systematically walking the site and boundaries and determining the habitats present. The habitat survey was undertaken in accordance with the standard methodology outlined in Fossitt's "*A Guide to Habitats in Ireland*", a hierarchical classification scheme based upon the characteristics of vegetation present. The Fossitt system also indicates when there are potential links with Annex I habitats of the E.U. Habitats Directive (92/43/EEC). Cognisance was also taken of the Heritage Council guidelines, "*Best Practice Guidance for Habitat Survey and Mapping*", (Smith *et al.*, 2011).

Bird species and signs of fauna activity were also noted. Particular attention was given to the possible presence of habitats and/or species, which are legally protected under Irish and European legislation and to assessing any potential ecological connectivity with Natura 2000 sites or supplementary or steppingstone habitats of relevance to Natura 200 sites.

4.0 DESCRIPTION OF PROPOSED DEVELOPMENT AND EXISTING SITE

4.1 PROPOSED DEVELOPMENT

The development will consist of temporary tented accommodation for International Protection Applicants (IPAs) and facilitating services at St. Bridget's Nursing Home, Crooksling, Co. Dublin, as shown in Figure 4.1. The nursing home was originally designed in 1911, modified to provide as a nursing home in 1959 and closed in 2020. No alterations are proposed within the main building, however future alterations may be required. The site is located approximately 2.33km south-west of Dublin City at Grid Reference ITM Coordinates (703782, 723977).

It is planned that temporary tented accommodation onsite will be decommissioned on a phased basis and replaced by modular accommodation. Upgrades are also planned for the onsite wastewater treatment system and the stream passing through the site. However, this report has been prepared in relation to the existing tented accommodation and services only.

The development site is accessed via the N81 National Road (Blessington Road) along the western boundary of the proposed development.

The total area of the site is 50.95 acres, however, only limited areas of the site will be utilised. Shower and toilet facilities are provided by temporary modular units with internal foul / grey water storage. Catering is provided at a large tent in the western area of the site. There is no onsite food preparation. Grey water from the catering area is directed to a c. 5000 litre tank within a concrete / block bund enclosure. An existing outbuilding is used as the site security office.

Wastewater and grey-water from the development is collected by a suitably permitted waste contractor by tanker twice per week. Wastewater is transported to municipal wastewater treatment facilities within the vicinity of the site. Waste collection dockets are retained for each collection.

Potable water is supplied from two existing wells within the in the northern area of the site. Arsenic filtration and chlorine dosing is carried out on potable water supplies.

Stormwater from the temporary tented accommodation and road network percolates to ground via permeable substrates and the surrounding landscaped areas. All additional surface water run-off from the existing buildings is connected to the combined foul system.

The site is set in a natural drainage area on the side of a mountain and flooding of the grounds and lower lying buildings is a regular occurrence. The grounds require frequent maintenance to avoid flooding of the entrance road from small stream on site. Existing buildings and the tented accommodation are at a higher elevation and would not be affected by flooding.

The heating system for the tented accommodation is provided by electrical heating systems. Electricity for the site is provided by an onsite temporary generator.

The tented accommodation area is approximately 0.65 ha. The area has been landscaped, with the removal of vegetation, including ornamental trees and bushes. The ground has been levelled with 804 hardcore material.

The closest Natura 2000 sites within the potential zone of influence are the Glenasmole Valley SAC (Site Code: 001209) located approximately 4.2km east and Wicklow Mountains SAC (Site Code: 002122) located approximately 4.6km south-east of the proposed development as shown in Figure 4.2 below.

The following project elements of the proposed development have been examined for relevance to possible effects on the Natura 2000 sites;

- Earthworks & Excavation
- Sediment & Hydrocarbon Runnoff
- Stormwater & Waste Water
- Disturbance to Protected Species
- Impact on Protected Habitats
- Dust and Noise
- Invasive Species

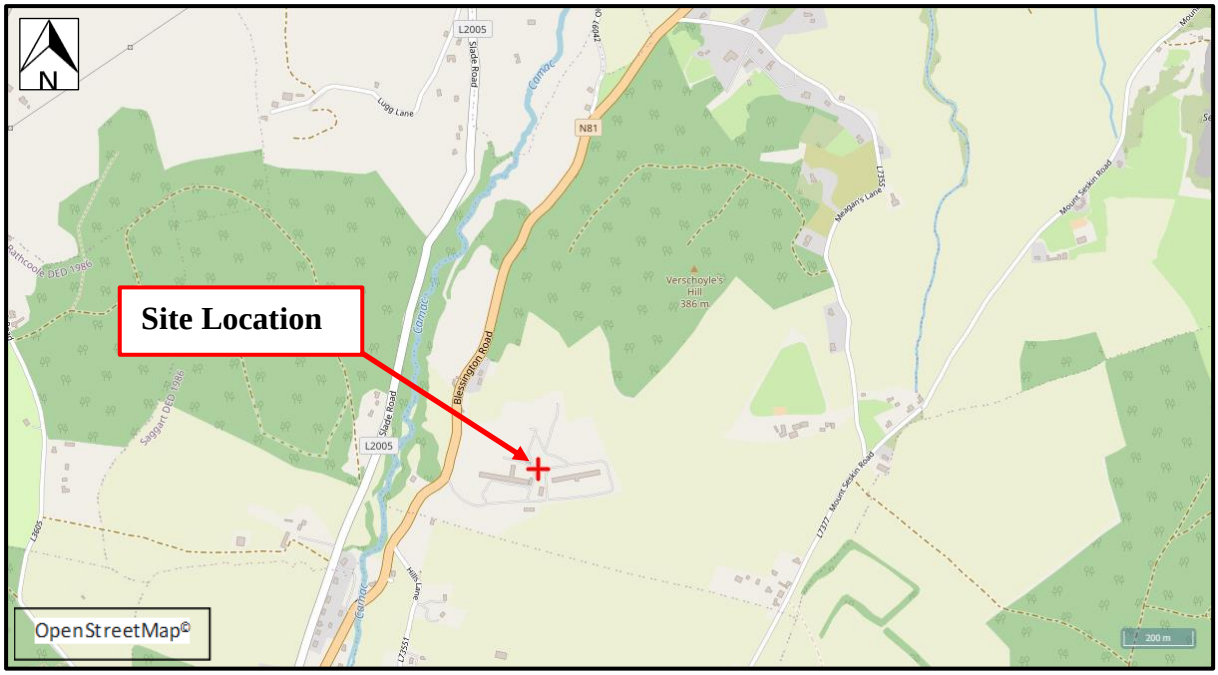

Figure 4.1: Location of Proposed Site at Crooksling, Co. Dublin

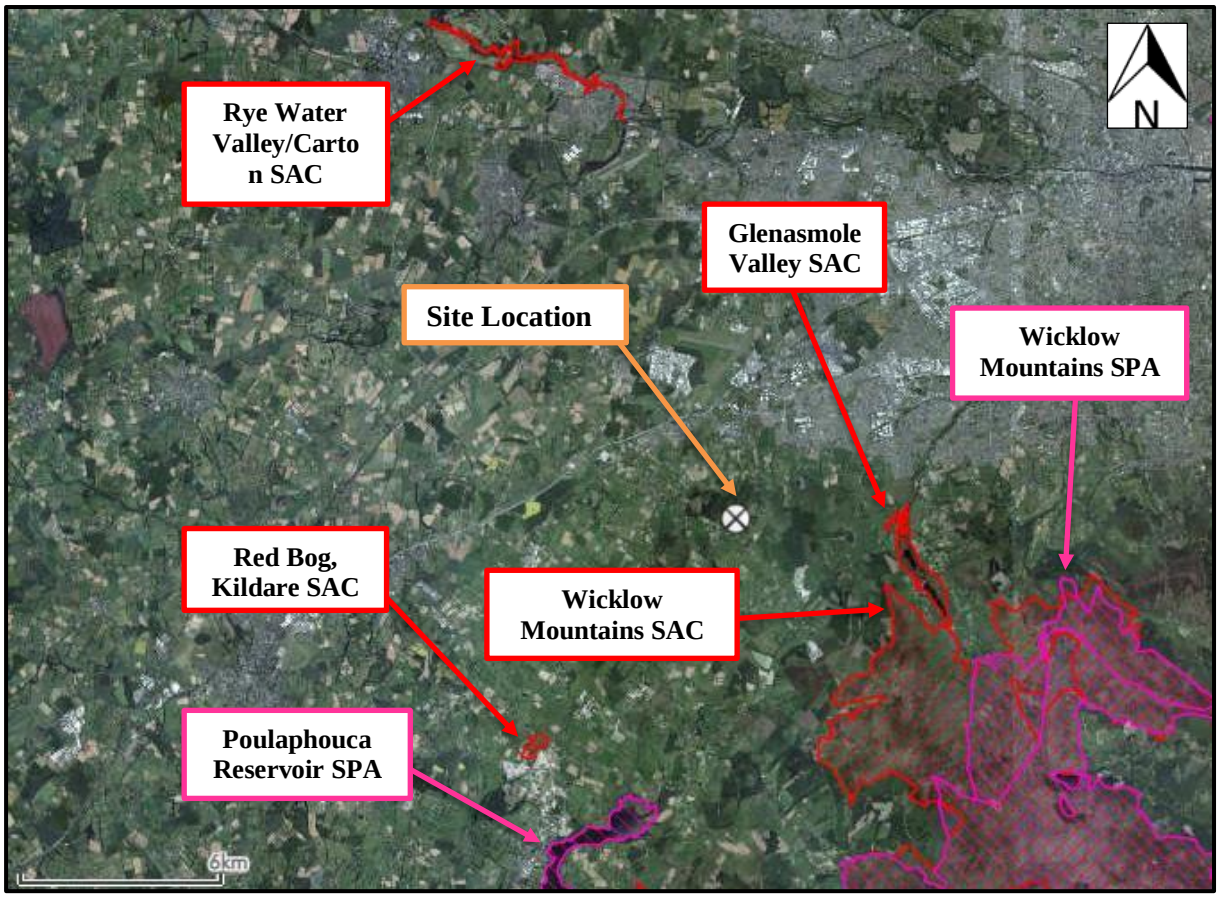

Figure 4.2: Location of Proposed Development and Natura 2000 Sites

4.2 EXISTING ENVIRONMENT

Figure 4.3: Existing temporary tented accommodation onsite

The proposed development site is comprised predominantly of buildings and artificial surfaces. There include the existing temporary tented accommodations, as well as offices and prefab buildings onsite also. The proposed development is currently in use and the landscaped areas are undergoing maintenance.

The surrounding area is predominantly rural in nature with agricultural fields, areas of natural vegetation and one-off residences located in the immediate vicinity of the site. The site is located approximately 2.33km south-west of Dublin City via the N81 National Road (Blessington Road). A small stream runs along the access road to the south of the site. The closest mapped watercourse to the proposed development site is the Camac river (EPA Code: 09C02 – Order 2).

The site is a disused nursing home compound, the landscaped areas have been unkept for quite some time and have transitioned into scrub and grassland habitats. A site assessment was undertaken on the 15th November 2023 and 19th June 2024. The following habitats were identified;

The buildings, roads, walls and carparks are classified as a **buildings and artificial surfaces habitat (BL3).** This habitat is species poor, however, the flora identified were, Ivy (*Hedera helix*), Bramble (*Rubus fruticosus*), Moss (*Bryophyta*), Meadow grasses (*Poa* spp.), Daisy (*Bellis perennis*), Dandelion (*Taraxacum* agg.), Willowherb (*Epilobium* spp.), Butterfly-bush (*Buddleja davidii*), Ragwort (*Senecio jacobaea*), Thistle (*Cirsium* spp.), Sowthistle (*Sonchus oleraceus*), Groundsel (*Senecio vulgaris*), Herb-Robert (*Geranium robertianum*), Chickweed (*Stellaria media*), Hard Fern (*Blechnum spicant*), Spurge (*Euphorbia* spp.).

During the first site assessment in 2023, the open grassland areas were classified as **Dry meadows and grassy verges (GS2)** habitat. This was comprised of areas that had been left unmanaged for quite some time. During the second site assessment in 2024, there was evidence that this habitat had been mowed however, the taller meadow grasses were still present. Species identified were, Yorkshire Fog (*Holcus lanatus*), Meadow grasses (*Poa* spp.), Fescue (*Festuca* spp.), Ryegrasses (*Lolium* spp.), Cock's foot (*Dactylis glomerata*), Clover (*Trifolium* spp.), Creeping Thistle (*Cirsium arvense*), Daisy (*Bellis perennis*), Dandelion (*Taraxacum* agg.), Ragwort (*Senecio jacobaea*), Thistle (*Cirsium* spp.), Vetch (*Vicia* spp.), Willowherb (*Epilobium* spp.), Gorse (*Ulex europaeus*), Coltsfoot (*Tussilago farfara*), Bracken (*Pteridium aquilinum*), Fleabane (*Erigeron* spp.), Sedge (*Carex* spp.) and St. John's Wort (*Hypericum perforatum*). This habitat has links to the Lowland Hay Meadows (*Alcopecurus pratensis, Sanquisorba officinalis*) [6510] however, it is absent of the characteristic high quality and positive indicator species.

Scattered trees and parkland habitat (WD5) habitat was found within proximity to the existing buildings and throughout**.** Species identified were, Tulip tree (*Liriodendron tulipifera*), Laburnum (*Laburnum* spp.), Maple (*Acer* spp.), Whitebeam (*Sorbus aria*), Oak (*Quercus* spp.), Birch (*Betula* spp.), Sycamore (*Acer pseudplatanus*), Rowan (*Sorbus aucuparia*), Cyprus (*Cupressus* spp.), Willow (*Salix* spp.), Holly (*Ilex aquifolium*), Chilean Pine (*Araucaria araucana*) and Fir (*Abies* spp.). The understory comprised of dry meadows and grassy verge species however, this grassland had been recently mowed.

Ornamental/non-native shrub (WS3) habitat was identified to the south of the site, these were intentionally planted but had been neglected. Species identified were, Viburnum, Barberry (*Mahonia* spp.), Cyprus (*Cupressus* spp.), Heather (*Calluna* spp.), Buddleia

(*Buddleja* spp.) and Red Valerian (*Centranthus ruber*). Some native plants were also identified indicating the unkept nature of this habitat. These were, Ivy (*Hedera helix*), Bramble (*Rubus fruticosus*), Creeping Buttercup (*Ranunculus repens*) and Yorkshire Fog (*Holcus lanatus*) were also identified.

Hedgerow (WL1)/ Treeline (WL2) habitats were identified throughout the site, this consisted of old boundary lines, internal landscaping features and treelines along the road network to the east. In addition, hedgerows bordered the field to the south-east. Species identified were, Cherry Laurel (*Prunus laurocerasus*), Beech (*Fagus sylvatica*), Oak (*Quercus* spp.), Sycamore (*Acer pseudoplatanus*), Cyprus (*Cupressus* spp.), Ash (*Fraxinus excelsior*), Holly (*Ilex aquifolium*) and Hawthorn (*Crataegus monogyna*) with an understory of Herb Robert (*Geranium robertianum*), Dandelion (*Taraxacum* spp.), Ragwort (*Jacobaea vulgaris*), Cocksfoot Grass (*Dactylis glomerata*) and Clover (*Trifolium* spp.).

A **mixed Broadleaved Woodland (WD1)** habitat was identified towards the north and south-west of the site. Species identified were, Ash (*Fraxinus excelsior*), Holly (*Ilex aquifolium*), Cherry Laurel (*Prunus laurocerasus*), Beech (*Fagus sylvatica*), Oak (*Quercus* spp.), Sycamore (*Acer pseudoplatanus*), Horse Chestnut (*Aesculus hippocastanum*), Beech (*Fagus* spp.) and Willow (*Salix* spp.). The understory was comprised of, Herb-Robert (*Geranium robertianum*), Creeping Buttercup (*Ranunculus repens*), Wood Sorrel (*Oxalis acetosella*), Gorse (*Ulex europaeus*), Bracken (*Pteridium aquilinum*), St. John's Wort (*Hypericum perforatum*), Ivy (*Hedera helix*), Bramble (*Rubus fruticosus*), Hard Fern (*Blechnum spicant*), Nettle (*Urtica dioica*), Ribwort Plantain (*Plantago lanceolata*), Cleavers (*Galium aparine*), Snowberry (*Symphoricarpos albus*) and Hogweed (*Heracleum mantegazzianum*).

A Grassland to the south-east has been classified as **Dry calcareous and neutral grassland (GS1)**. It is managed less intensively and grazed by sheep. Some areas were not as intensively grazed as others creating different swards in vegetation height. The grassland also slopes from east to north-west. This grassland fits more within the characteristics of a neutral grassland given its management and the species identified. It was somewhat species diverse. Species include Cocksfoot grass (*Dactylis glomerata*), Meadow Foxtail (*Alopecurus pratensis*), Sweet Vernal Grass (*Anthoxanthum odoratum*), False-oat Grass (*Arrhenatherum elatius*), Yorkshire Fog (*Holcus lanatus*), Creeping Buttercup (*Ranunculus repens*), Dock (*Rumex* spp.), Clover (*Trifolium* spp.), Speedwell (*Veronica* spp.), Nettle (*Urtica dioica*) and Common Milkwort (*Polygala vulgaris*) with some areas of scrub (WS1) habitat dominated by Gorse (*Ulex* spp.)

A watercourse was identified to the south of the site, this was classified as an **Eroding/upland rivers (FW1)** habitat. During the initial site assessment in 2023, the watercourse had a strong flow and was 0.5 – 1m wide, the substrate was comprised of bolder and cobble. Fool's watercress (*Apium nodiflorum*) was identified growing within the watercourse, Rushes (*Juncus* spp.) and Sedges (*Carex* spp.) were identified growing on the banks. This watercourse is potentially connected to groundwater or drains surface water run-off from the land. It should also be noted that there was no rainfall during the site assessment and therefore, the source of the water remains unclear. This watercourse is not a mapped watercourse on the online EPA maps. The watercourse onsite is potentially hydrologically connected to the Camac River to the west.

During the second site assessment in June 2024, a dry drainage ditch to the south was observed and is potentially connected to this watercourse. This drainage ditch was 0.5m in width but had no water. As there is no water to support aquatic plants, it does not fit within the FW4 Fossitt

classification, yet is it an unnatural feature within the landscape. This drain had been partially piped underground or culverted under some access routes. Where a section of this drain is culverted underground at an access route, there was no water in the drain.

The proposed development does not support areas of Molinia meadows or petrifying spring habitats. In terms of Orchid-rich Calcareous Grassland, while the site has been classified as dry calcareous and neutral grassland, it is more of a neutral grassland given the species found and management of this habitat. Therefore, the site is not considered to contain the habitats for which the Glenasmole SAC has been designated. There are no wetlands, heaths, freshwater lakes or Calaminarian grasslands within or adjacent the red line boundary that would have any links with the Wicklow Mountains SAC. While there are areas of woodland onsite, these woodlands lack prominent areas of target and positive indicator species.

No Third Schedule invasive or protected flora were noted during the site assessment.

See Table 4.1 for summary for habitats located at and adjacent the proposed development. See Appendix D for photo log of the site.

Table 4.1: Summary of Habitats Identified at the Proposed Development Site

HABITAT CLASSIFICATION HIERARCHY		
LEVEL 1	**LEVEL 2**	**LEVEL 3**
F - Freshwater	**FW -** Watercourses	**FW1 –** Eroding/upland rivers
G – Grassland and marsh	**GS –** Semi-natural grassland	**GS1 –** Dry calcareous and neutral grassland
		GS2 – Dry meadows and grassy verges
B – Cultivated and built land	**BL –** Built land	**BL3 –** Buildings and artificial surfaces
W – Woodland and scrub	**WD –** Highly modified/ non-native woodland	**WD1 –** Mixed broadleaved woodland
		WD5 – Scattered trees and parkland
	WS – Scrub / transitional woodland	**WS3 –** Ornamental/ non-native shrub
	WL – Linear woodland / scrub	**WL1 -** Hedgerows
		WL2 – Treelines

Bird species noted during both site walkovers included Blackbird (*Turdus merula*), Jackdaw (*Corvus monedula*), Robin (*Erithacus rubecula*), Jay (*Garrulus glandarius*), Hooded Crow (*Corvus cornix*), Rook (*Corvus frugilegus*), Magpie (*Pica pica*), Pied Wagtail (*Motacilla alba*), Woodpigeon (*Columba palumbus*), Wren (*Troglodytes troglodytes*), Goldfinch (*Carduelis carduelis)*, Chaffinch (*Fringilla coelebs*), Great Tit (*Parus major*), Raven (*Corvus corax*), Buzzard (*Buteo buteo*) and Thrush (*Turdus* spp.). No species is red listed or amber listed under the BoCCI classification. None of the bird species recorded are listed under Annex I of the E.U. Birds Directive.

The watercourses onsite would not offer foraging and breeding habitat for waterfowl. There are also no watercourses or wetlands adjacent the proposed development that would offer suitable habitat. There was evidence of Sika Deer (*Cervus nippon*) during the site assessment which consisted of tracks and droppings.

Evidence of mammals (footprints and snuffle holes) were observed within the woodland to the south-west of the proposed development. However, no setts, burrows, scat or latrines were observed. Only a few of the prints were good enough to assess. The prints measured approximately 7cm (L) x 8cm (w). As can be seen in the picture below, the toes are arranged in a gentle curve. Given the size of the prints, it is unlikely to be that of a Badger, Their typical footprint ranges from 4cm (L) x 5cm (W). Domestic dogs can have quite large footprints depending on the breed. As there is a residential dwelling closeby, the prints more than likely belong to a dog.

It should be noted that the majority of the woodland onsite, particularly to the north is fenced around the perimeter by a 1+m high steel fence. A fence also separates the central area of the site from the grassland and woodland to the south. The location where the prints were found is not fenced further south and roaming mammals, be that wild or domestic can enter this part of the woodland. However, as previously mentioned, this woodland is fenced off from the proposed development along the north. The southern borders of the grassland and woodland are partly fenced or contain boundary hedgerows. Evidence of deer was also noted in this same area. There are no proposed works within the southern woodland and therefore, no anticipated risks to any protected species. The tented accommodation is located a significant distance from this woodland.

Figure 4.4: Evidence of mammals

Other fauna, typical of that found throughout the rest of Ireland, which would be expected to be found in the area include Bat species, Badger (*Meles meles*), Fox (*Vulpes vulpes*), Otter (*Lutra lutra*), Wood Mouse (*Apodemus sylvaticus*), Rabbit (*Oryctalagus cuniculus*), Pine Marten (*Martes martes*), Stoat (*Mustela erminea hibernica*), American Mink (*Mustela vison*), Irish Hare (*Lepus timidus hibernicus*), Hedgehog (*Erinus europaeus*), Red Squirrel (*Sciurus vulgaris*), Grey Squirrel (*Sciurus carolinensis*) and Brown Rat (*Rattus norvegicus*).

In addition to the site walkover, flora and fauna records were reviewed on the National Biodiversity Data Centre (NBDC) website for the proposed development site and vicinity. No protected plant species under the Flora (Protection) Order, 2022 (S.I. No. 235 of 2022) were recorded within the 10km square (O02) in which the proposed development site is located. There are four endangered, vulnerable and near-threatened flora within this 10km square grid: Green-flowered Helleborine (*Epipactis phyllanthes*), Upright Brome (*Bromopsis erecta*), Yellow Bartsia (*Parentucellia viscosa*) and Round-fruited Flapwort (*Jungermannia sphaerocarpa*). Ten invasive plant species listed in the Third Schedule of the European Communities Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011) are American Skunk-cabbage (*Lysichiton americanus*), Curly Waterweed (*Lagarosiphon major*), Fringed Water-lily (*Nymphoides peltata*), Giant Hogweed (*Heracleum mantegazzianum*), Giant Knotweed (*Fallopia sachalinensis*), Indian Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*), New Zealand Pigmyweed (*Crassula helmsii*), Three-cornered Garlic (*Allium triquetrum*) and *Rhododendron ponticum*.

Protected fauna species of note are Common Frog (*Rana temporaria*), Smooth Newt (*Lissotriton vulgaris*), Freshwater White-clawed Crayfish (*Austropotamobius pallipes*), Common Lizard (*Zootoca vivipara*), Brown Long-eared Bat (*Plecotus auritus*), Daubenton's Bat (*Myotis daubentonii*), Eurasian Badger (*Meles meles*), Eurasian Pygmy Shrew (*Sorex minutus*), Eurasian Red Squirrel (*Sciurus vulgaris*), European Otter (*Lutra lutra*), Lesser Noctule (*Nyctalus leisleri*), Natterer's Bat (*Myotis nattereri*), Pine Marten (*Martes martes*), Pipistrelle (*Pipistrellus pipistrellus sensu lato*), Red Deer (*Cervus elaphus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and West European Hedgehog (*Erinaceus europaeus*).

High impact invasive species include Brown Rat (*Rattus norvegicus*), Eastern Grey Squirrel (*Sciurus carolinensis*), Fallow Deer (*Dama dama*) and Sika Deer (*Cervus nippon*).

Bird species of note include Barn Owl (*Tyto alba*), Barn Swallow (*Hirundo rustica*), Black-headed Gull (*Larus ridibundus*), Coot (*Fulica atra*), Goldeneye (*Bucephala clangula*), Kestrel (*Falco tinnunculus*), Kingfisher (*Alcedo atthis*), Linnet (*Carduelis cannabina*), Pheasant (*Phasianus colchicus*), Pochard (*Aythya ferina*), Sandpiper (*Actitis hypoleucos*), Snipe (*Gallinago gallinago*), Starling (*Sturnus vulgaris*), Swift (*Apus apus*), Wood Pigeon (*Columba palumbus*), Curlew (*Numenius arquata*), Teal (*Anas crecca*), Tree Sparrow (*Passer montanus*), Wigeon (*Anas penelope*), Woodcock (*Scolopax rusticola*), Great Black-backed Gull (*Larus marinus*), Great Cormorant (*Phalacrocorax carbo*), Great Crested Grebe (*Podiceps cristatus*), Greylag Goose (*Anser anser*), Herring Gull (*Larus argentatus*), House Martin (Delichon urbicum), House Sparrow (*Passer domesticus*), Lesser Black-backed Gull (*Larus fuscus*), Little Egret (*Egretta garze*tta), Little Grebe (*Tachybaptus ruficollis*), Mallard (*Anas platyrhynchos*), Merlin (*Falco columbarius*), Mew Gull (*Larus canus*), Mute Swan (*Cygnus olor*), Lapwing (*Vanellus vanellus*), Northern Wheatear (*Oenanthe oenanthe*), Peregrine Falcon (*Falco peregrinus*), Red Grouse (*Lagopus lagopus*), Rock Pigeon (*Columba livia*), Sand Martin (*Riparia riparia*), Sky Lark (*Alauda arvensis*), Spotted Flycatcher (*Muscicapa striata*), Tufted Duck (*Aythya fuligula*), Whooper Swan (*Cygnus cygnus*) and Yellowhammer (*Emberiza citrinella*).

4.3 WATER ENVIRONMENT

The proposed development is located within the Liffey_SC_090 sub-catchment which is part of the Liffey and Dublin Bay (Catchment ID: 09). A small stream runs along the access road to the south of the site. The closest mapped watercourse to the proposed development site is the Camac river (EPA Code: 09C02 – Order 2), which is located approximately 150m to west which flows in a mostly northerly direction. Other watercourses within the area include the Corbally stream (EPA Code: 09C10 – Order 2) located approximately 895m east of the development, Fortunestown (EPA Code: 09K07 – Order 1) and Kingswood Stream (EPA Code: 09K07 – Order 3). From Brittas pond, the Camac river flows for approximately 8.00km in a northern direction until it confluences with Corbally stream. Then, it flows for another 12.6km towards the north-east where it joins River Liffey (EPA Code: 09L01 – Order 6).

Currently, the Camac River has a Poor water quality status and is deemed to be At Risk of failing to meet its Water Framework Directive (WFD) objectives by 2027. The Environmental Protection Agency (EPA) undertakes surface water monitoring along the Camac River. The results for the nearest monitoring stations (as per Table 4.2) with available monitoring results for the period 2021-2021 are summarised in Figure 4.4 below for indicative purposes.

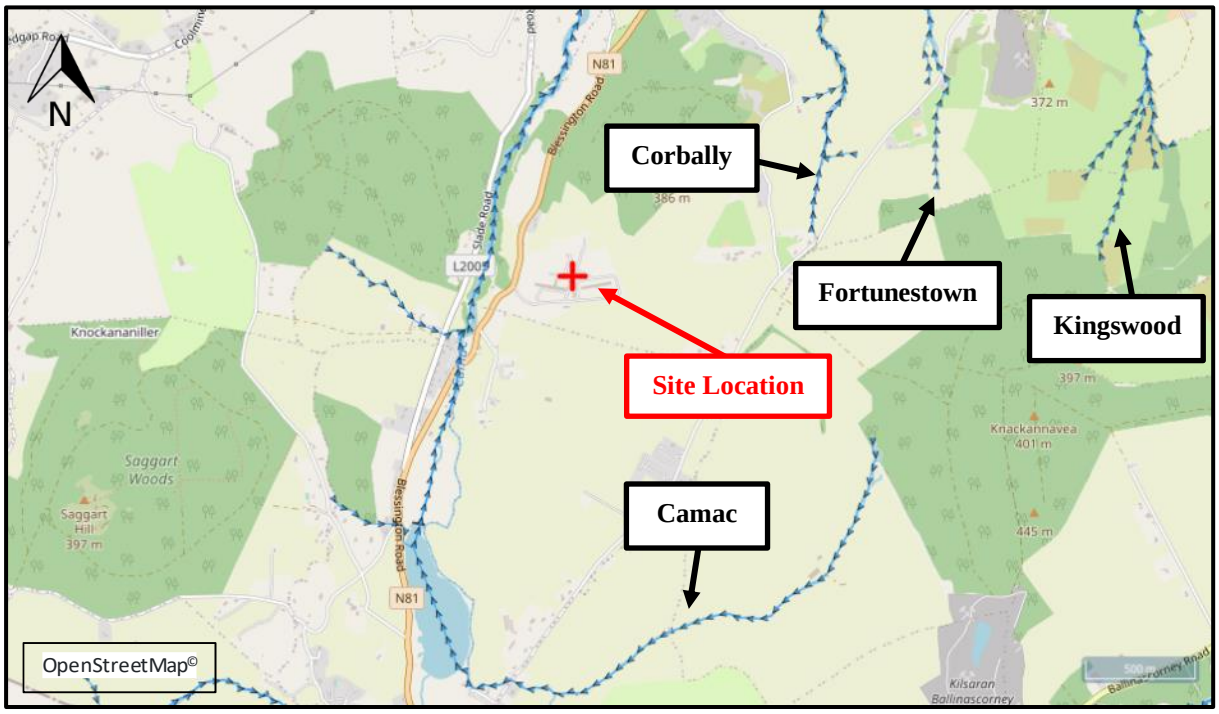

Figure 4.5: Mapped Watercourses Surrounding the Proposed Development Site

As can be seen in Figure 4.6 below, the Camac river is mainly achieving a water quality status of between Q3 (Poor) and Q4 (Good) at the monitoring locations (Table 4.2).

EPA comments on the most recent monitoring results for the Camac river as follows:

In June 2022 poor ecological conditions continued at stations 0310 and 0500. Significant coverage of sewage fungus was noted at Station 0310 suggesting organic pollution upstream. Stations 0100 and 0250 both improved to moderate and good conditions, respectively. The

improvements at station 0250 (Br SE of Baldonnell Ho) to good ecological quality is a first for this station since surveys started in 1988.

Table 4.2: Active Monitoring Stations of the River Camac

STATION NO.	STATION LOCATION	EASTING	NORTHING	APPROX. DISTANCE FROM CORBALLY CONFLUENCE
RS09C020100	Br 1 km SW (u/s) of Saggart	303418	226063	3.67km upstream
RS09C020250	Br SE of Baldonnell Ho	304913	229242	570m downstream
RS09C020310	Riversdale Estate Br	307222	231611	4.58km downstream

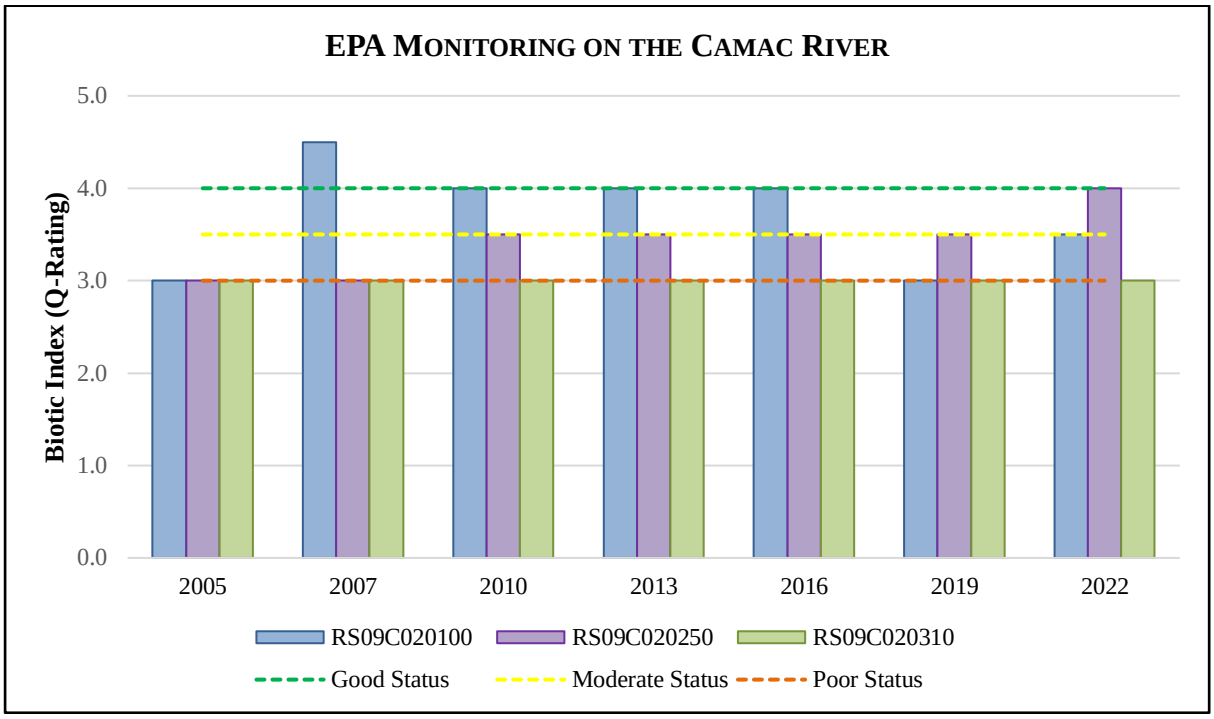

Figure 4.6: Monitoring of the Camac river from 2005-2022

According to the Preliminary Flood Risk Assessment (PFRA) Mapping tool by the OPW, the development site is not located within an area of fluvial flooding, indicative of 10% AEP (10-yr) event, 1% AEP (100-yr) event or 0.1% AEP (1000-yr) event. However, it should be noted that this map is based on broad-scale simple analysis and may not be accurate for a specific location. The site is known to be recurrently impacted by flooding associated with the small stream to the south.

5.0 EUROPEAN SITES (NATURA 2000 SITES) WITHIN ZONE OF INFLUENCE

In assessing the zone of influence of this project upon European sites, the following factors have been considered:

- Potential impacts arising from the project
- The location and nature of European sites
- Pathways between the development and European sites

The project impact sources, environmental pathways and protected site characteristics were screened to identify European sites potentially within the zone of influence of the project.

Five Special Protection Area (SPA) sites occur within the potential zone of influence of the proposed development. Six Special Area of Conservation (SAC) sites occur within the potential zone of influence of the proposed development site and are shown in the following table:

Table 5.1: Summary of Protected European Sites

SITE NAME	DESIGNATION	SITE CODE	DISTANCE TO PROPOSED SITE
Glenasmole Valley	SAC	001209	4.21km E
Wicklow Mountains	SAC	002122	4.61km SE
Wicklow Mountains	SPA	004040	7.99km SE
Red Bog, Kildare	SAC	000397	8.19km SW
Poulaphouca Reservoir	SPA	004063	8.51km S
Rye Water Valley/Carton	SAC	001398	12.1km N
South Dublin Bay	SAC	000210	17.2km NE
South Dublin Bay and River Tolka Estuary	SPA	004024	17.2km NE
North Dublin Bay	SAC	000206	20.9km NE
North Bull Island	SPA	004006	20.9km NE
North-West Irish Sea	SPA	004236	21.9km NE

Maps detailing European sites within the potential zone of influence of the proposed site are included as Appendix C below. For this assessment, the sites considered to be within the potential zone of influence of the proposed development are Glenasmole Valley SAC (Site Code: 001209), Wicklow Mountains SAC (Site Code: 002122), due to proximity, and the South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024) and the North Bull Island SPA (Site Code: 004006) due to the presence of grassland habitats within the site.

The proposed development is located approximately 8.0km north-west of Wicklow Mountains SPA (Site Code: 004040), which is in separate sub-catchments than the proposed site. The proposed development would not provide suitable foraging/nesting habitat for bird species for which the Wicklow Mountains SPA has been designated. Given the distance, lack of direct hydrological connection, the nature and scale of the works and lack of suitable habitats for protected bird species, it is not anticipated that the proposed development will have adverse effects on the designated site. Therefore, the Wicklow Mountains SPA has been screened out.

The proposed development is located 8.2km north-east of Red Bog, Kildare SAC (Site Code: 000397), which is in separate sub-catchments than the proposed site. The proposed site would not contain the habitat transition mires and quaking bogs [7140] for which this SAC has been designated. Given the distance, lack of direct hydrological connection, the nature and scale of the works and absence of habitats associated with this site, it is not anticipated that the proposed development will have adverse effects on the designated site. Therefore, the Red Bog, Kildare SAC has been screened out.

The proposed development is located approximately 8.5km north of the Poulaphouca Reservoir SPA (Site Code: 004063), which is in separate sub-catchments than the proposed site. The proposed development would not provide suitable foraging/nesting habitat for bird species for which the Poulaphouca Reservoir SPA has been designated. Given the distance, lack of direct hydrological connection, the nature and scale of the works and lack of suitable habitats for protected bird species, it is not anticipated that the proposed development will have adverse effects on the designated site. Therefore, the Poulaphouca Reservoir SPA has been screened out.

The proposed development is located 12.1km south of Rye Water Valley/Carton SAC (Site Code: 001398), which is in separate sub-catchments than the proposed site. The proposed site would not contain the habitat nor the species for which this SAC has been designated. Given the distance, lack of direct hydrological connection, the nature and scale of the works and absence of habitats associated with this site, it is not anticipated that the proposed development will have adverse effects on the designated site. Therefore, the Rye Water Valley/Carton SAC has been screened out.

The South Dublin Bay SAC (Site Code: 000210) and the North Dublin Bay SAC (Site Code: 000206) are located approximately 17.2km and 20.9 km to the north-east of the site and at a greater distance hydrologically via the Camac River and River Liffey. The proposed development site does not contain the coastal habitats for which the SAC has been designated. Furthermore, and despite the hydrological connection between the protected and proposed sites, these are at a significant distance. Therefore, due to the absence of shared habitats and great distance, these sites have been screened out.

The South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024) and the North Bull Island SPA (Site Code: 004006) are similarly located approximately 17.2km and 20.9km to the north-east of the site and at a greater distance hydrologically via the Camac River and River Liffey. While the majority of bird species associated with these sites are coastal and marine, the SPA includes species which forage within grassland and arable lands. Given the presence of grassland habitats within the site, these designated sites have been screened in.

The North-West Irish Sea SPA (Site Code: 004236) is located approximately 21.9km to the north-east of the site and at a greater distance hydrologically via the Camac River and River Liffey. The proposed development site does not contain the suitable coastal or marine habitats associated with the qualifying interest species for which this site has been designated. Therefore, and given the large distance between the protected and proposed sites and lack of source-pathway-receptor relationship, this designated site has been screened out.

5.1 GLENASMOLE VALLEY SAC (SITE CODE: 001209)

Glenasmole Valley in south Co. Dublin lies on the edge of the Wicklow uplands, approximately 5 km from Tallaght. The River Dodder flows through the valley and has been impounded here to form two reservoirs which supply water to south Dublin. The non-calcareous bedrock of the Glenasmole Valley has been overlain by deep drift deposits which now line the valley sides. They are partly covered by scrub and woodland, and on the less precipitous parts, by a herb-rich grassland. There is much seepage through the deposits, which brings to the surface water rich in bases, which induces local patches of calcareous fen and, in places, petrifying springs. The site is a SAC selected for the following habitats and species listed on Annex I / II of the E.U. Habitats Directive:

Table 5.1.1: Annex I Habitats

ANNEX I HABITATS	
CODE	**DESCRIPTION**
6210	Orchid-rich Calcareous Grassland*
6410	Molinia Meadows
7220	Petrifying Springs*

**Denotes a priority habitat*.

An excerpt from the site synopsis for the SAC is included below (NPWS, 2013): "At this site, examples of calcareous fen and flush occur between the two reservoirs, where sedges (including *Carex flacca* and *C. panicea*) are joined by such species as Grass-of-parnassus (*Parnassia palustris*), Few-flowered Spike-rush (*Eleocharis quinqueflora*), Zig-zag clover (*Trifolium medium*) and the scarce Fen Bedstraw (*Galium uliginosum*). Tufa depositing springs are long-known from the site, along the valley sides, and some have substantial tufa mounds and banks. Tufa formation is also known from small streams within the woodland at the site. Within the hazel woods, and associated with the springs and flushes, a distinctive flora with Marsh Hawk's beard (*Crepis paludosa*) and luxuriant stands of Great Horsetail (*Equisetum telmateia*) has developed.

Orchid-rich grassland occurs in the drier parts of this site and in places grades into Molinia meadow. Orchids recorded in these habitats include Frog Orchid (*Coeloglossum viride*), Northern Marsh-orchid (*Dactylorhiza purpurella*), Fragrant Orchid (*Gymnadenia conopsea*), Marsh Helleborine (*Epipactis palustris*), Early-purple Orchid (*Orchis mascula*) and Greater Butterfly Orchid (*Platanthera chlorantha*). Two further orchid species, both Red Data Book-listed, have also been found here, Green-winged Orchid (*Orchis morio*) and Small-white Orchid (*Pseudorchis albida*). Common grasses in the sward include Sweet Vernal-grass (*Anthoxanthum odoratum*), Creeping Bent (*Agrostis stolonifera*) and Crested Dog's-tail (*Cynosurus cristatus*). Other species which occur are Common Bird's-foot-trefoil (*Lotus corniculatus*), Kidney Vetch (*Anthyllis vulneraria*), Common Restharrow (*Ononis repens*), Yellow-wort (*Blackstonia perfoliata*) and Autumn Gentian (*Gentianella amarella*). While much of the calcareous grassland has been improved to some extent for agriculture, a suite of typical species still remain.

The areas of *Molinia* meadows at the site occur associated with the grasslands on the valley sides, and in particular in seepage and flushed areas. Typical and indicative species include Greater Bird's-foot-trefoil (*Lotus uliginosus*), Tormentil (*Potentilla erecta*), Purple Moor-grass (*Molinia caerulea*), Sharp-flowered Rush (*Juncus acutiflorus*), Adder's-tongue (*Ophioglossum*

vulgatum), Meadow Thistle (*Cirsium dissectum*) and Fen Bedstraw. As noted above, orchids are frequent in the grasslands at this site.

Woodland occurs in patches around the site. On the east side of the valley, below the northern lake, a Hazel (*Corylus avellana*) wood has developed on the unstable calcareous slopes and includes other species such as Ash (*Fraxinus excelsior*), Downy Birch (Betula pubescens), Goat Willow (*Salix caprea*) and (Irish) Whitebeam (*Sorbus hibernica*). Spring Wood-rush (*Luzula pilosa*), Wood Speedwell (*Veronica montana*) and Bramble (*Rubus fruticosus agg*.) are present in the ground flora.

Wet semi-natural broadleaved woodland is also found around the reservoirs and includes Alder (*Alnus glutinosa*) and willow (*Salix spp*.), with Yellow Iris (*Iris pseudacorus*), horsetails (*Equisetum spp*.), Bramble and localised patches of Japanese Knotweed (*Reynoutria japonica*), an introduced and invasive species.

The lake shore vegetation is not well developed, which is typical of a reservoir. There are occasional patches of Reed Canary-grass (*Phalaris arundinacea*) and Purple-loosestrife (*Lythrum salicaria*), which are more extensive around the western shore of the northern lake, along with Common Marsh-bedstraw (*Galium palustre*) and Water Mint (*Mentha aquatica*). Other vegetation includes Shoreweed (*Littorella uniflora*) and the scarce Water Sedge (*Carex aquatilis*).

As well as the Green-winged Orchid and Small-white Orchid, two other threatened species which are listed in the Irish Red Data Book occur in the site, Yellow Archangel (*Lamiastrum galeobdolon*) and Yellow Bird's-nest (*Monotropa hypopitys*). Small-white Orchid is legally protected under the Flora (Protection) Order, 1999.

The site provides excellent habitat for bats, with at least four species recorded: Pipistrelle, Leisler's, Daubenton's and Brown Long-eared. Otter occurs along the river and reservoirs.

The site supports Kingfisher, an Annex I species under the E.U. Birds Directive.

Glenasmole Valley contains a high diversity of habitats and plant communities, including three habitats listed on Annex I of the E.U. Habitats Directive. The presence of four Red Data Book plant species further adds to the value of the site, as does the presence of populations of several mammal and bird species of conservation interest."

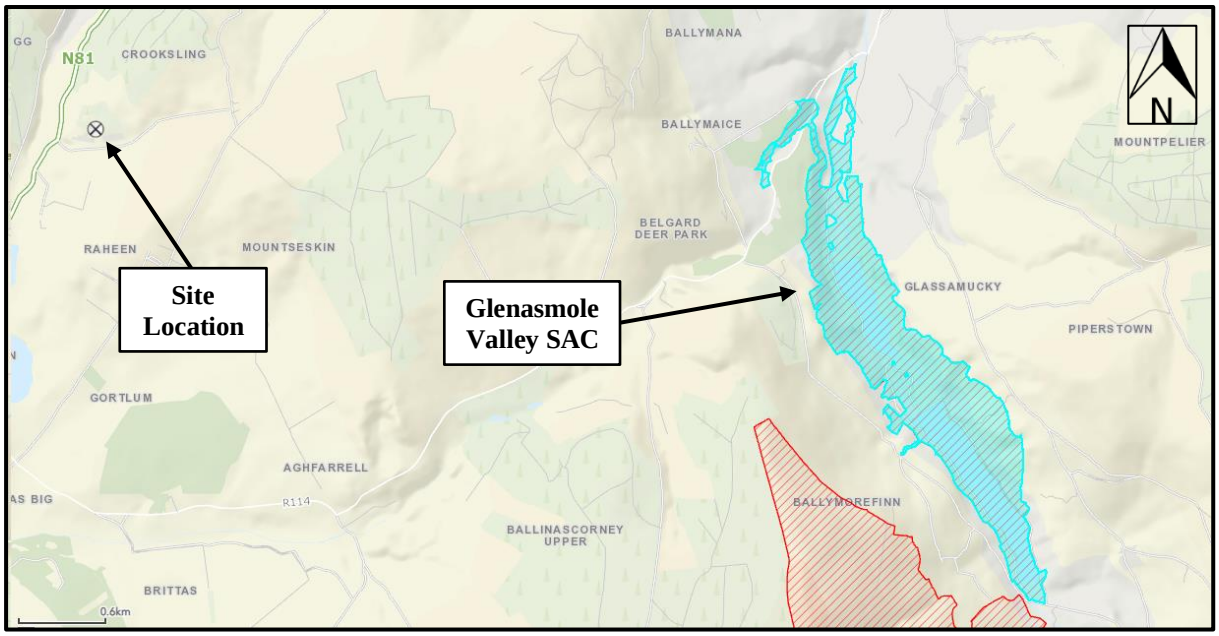

Figure 5.1: Glenasmole Valley SAC (NPWS Map Viewer)

Glenasmole Valley SAC Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in *view of the site's conservation objectives*". Site specific conservation objectives (SSCOs) for the qualifying interests of the Glenasmole Valley SAC are provided in the table below, where available from the NPWS document "*Conservation Objectives: Glenasmole Valley SAC 001209* "(NPWS, 2021).

TABLE 5.1.2: GLENASMOLE VALLEY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[6210] Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The total area of the habitat recorded in the SAC by the three surveys is 3.93ha. Further unmapped areas of the habitat are likely to be present within the SAC, particularly to the west of the reservoirs. Some areas of orchid-rich calcareous grassland were incorrectly mapped as 'lowland hay meadow'.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Vegetation composition: positive indicator species	Number at a representative number of 2m x 2m monitoring stops; within 20m surrounding area of monitoring stops	At least 7 positive indicator species present in monitoring stop or, if 5–6 present in stop, additional species within 20m of stop; this includes at least two 'high quality' positive indicator species present in stop or within 20m of stop	Woody species that can occur above 5% cover are juniper (*Juniperus communis*), burnet rose *(Rosa spinosissima*), mountain avens (*Dryas octopetala*) and hoary rock-rose (*Helianthemum oelandicum*). However, cover of these species above 25% may indicate transition to another Annex I habitat such as Alpine and Boreal heaths (4060) or *Juniperus communis* formations (5130). Bracken has been noted as being problematic in species-rich calcareous grasslands in this SAC Broadleaf herb component of vegetation between 30% and 40% may be allowed to pass on expert judgement
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Negative indicator species collectively not more than 20% cover, with cover of an individual species not more than 10%	
Vegetation composition: non-native species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of non-native species not more than 1%	
Vegetation composition: woody species and bracken	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of woody species (except certain listed species) and bracken (*Pteridium aquilinum*) not more than 5%	
Vegetation structure: broadleaf herb:grass ratio	Percentage at a representative number of 2m x 2m monitoring stops	Broadleaf herb component of vegetation between 40% and 90%	

TABLE 5.1.2: GLENASMOLE VALLEY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation structure: sward height	Percentage at a representative number of 2m x 2m monitoring stops	Litter cover not more than 25%	
Physical structure: bare soil	Percentage cover at a representative number of 2m x 2m monitoring stops	Not more than 10% bare soil	See O'Neill et al. (2013) and Martin et al. (2018)
Physical structure: grazing or disturbance	Area in local vicinity of a representative number of monitoring stops	Area of the habitat showing signs of serious grazing or disturbance less than 20m²	
[6410] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	The total current area of *Molinia* meadows Glenasmole Valley SAC is unknown, although the habitat is known to occur near the centre of the SAC, on the eastern side of the reservoirs. It is likely that it occurs in other areas also, most often associated with areas of water seepage and flushing
Habitat distribution	Occurrence	No decline, subject to natural processes	
Vegetation composition: positive indicator species	Number at a representative number of 2m x 2m monitoring stops; within 20m surrounding area of monitoring stops	At least 7 positive indicator species present in monitoring stop or, if 5–6 present in stop, additional species within 20m of stop; this includes at least one 'high quality' positive indicator species present in the stop or within 20m of stop	Purple moor-grass (*Molinia caerulea*) should be present in at least one monitoring stop, or within 20m of a monitoring stop. High-quality positive indicator marsh hawk's-beard (*Crepis paludosa*) was recorded from within the habitat in the SAC in recent years, and as an indication of the quality of this habitat within the Glenasmole Valley as a whole, five high quality indicator species were recorded in a small area of the habitat adjacent to (but outside of) the SAC
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%	

TABLE 5.1.2: GLENASMOLE VALLEY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: non-native specie	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of non-native species not more than 1%	
Vegetation composition: moss species	Percentage cover at a representative number of 2m x 2m monitoring stops	Hair mosses (*Polytrichum spp*.) not more than 25% cover	
Vegetation composition: woody species and bracken	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of woody species and bracken (*Pteridium aquilinum*) not more than 5% cover	
Vegetation structure: broadleaf herb:grass ratio	Percentage at a representative number of 2m x 2m monitoring stops	Broadleaf herb component of vegetation between 40% and 90%	
Vegetation structure: sward height	Percentage at a representative number of 2m x 2m monitoring stops	At least 30% of sward between 10cm and 80cm tall	
Vegetation structure: litter	Percentage cover at a representative number of 2m x 2m monitoring stops	Litter cover not more than 25%	
Physical structure: bare ground	Percentage cover at a representative number of 2m x 2m monitoring stops	Not more than 10% bare ground	See O'Neill et al. (2013) and Martin et al. (2018)
Physical structure: grazing or disturbance	Area in local vicinity of a representative number of monitoring stops	Area of the habitat showing signs of serious grazing or disturbance less than 20m²	

TABLE 5.1.2: GLENASMOLE VALLEY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[7220] Petrifying springs with tufa formation (Cratoneurion)*			
Habitat area	Square metres	Area stable or increasing, subject to natural processes	Total current area of the habitat in Glenasmole Valley SAC in unknown. 18 petrifying springs with a total area of 10,950m² have been mapped at the sites Glenasmole Upr Reservoir and Glenasmole Lwr Reservoir, each containing a number of sub-sites, most of which were wooded. Additional areas of the habitat may be present in the SAC, particularly on the western side of the valley
Habitat distribution	Occurrence	No decline, subject to natural processes.	
Hydrological regime: height of water table; water flow	Metres; metres per second	Maintain appropriate hydrological regimes	Petrifying springs rely on permanent irrigation, usually from upwelling groundwater sources or seepage sources. In karst areas, water tends to flow away rapidly over bare rock surfaces, even on fairly flat ground. Water flow should not be altered anthropogenically.
Physical structure: tufa formations	Seepage rate to the spring and groundwater quality (saturated calcium carbonate, pH, temperature and alkalinity conditions)	Maintain appropriate levels of tufa formation	In this SAC, the main tufa types were tufa cascades with stream crust tufa and oncoids/ooids
Ecosystem function: water quality - nitrate level	mg/l	Restore phosphate level to less than 15µg/l	All sampled sub-sites failed the attribute target, though some only marginally
Vegetation composition: community diversity	Variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	Communities of *Eucladium verticillatum-Pellia endiviifolia* tufa cascades, *Palustriella commutata-Agrostis stolonifera* springheads, *Brachythecium rivulare-Platyhypnidium riparioides* tufaceous streams and flushes,
Vegetation composition: positive indicator species	Number per spring	At least three positive/high quality indicator species as listed in Lyons and Kelly (2016) and no loss from baseline number	

TABLE 5.1.2: GLENASMOLE VALLEY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: negative indicator species	Cover (DAFOR scale)	Potentially negative indicator species should not be Dominant or Abundant; potentially negative woody species should be absent in unwooded springs; invasive species should be absent	and *Palustriella commutata-Geranium robertianum* springheads were recorded in this SAC. Positive indicators recorded at a number of sub-site springs in the SAC include red fescue (*Festuca rubra*), remote sedge (*Carex remota*), opposite-leaved saxifrage (*Chrysosplenium oppositifolium*), marsh hawk's-beard (*Crepis paludosa*), yellow pimpernel (*Lysimachia nemorum*), great horsetail (*Equisetum telmateia*) and the bryophytes *Bryum pseudotriquetrum, Didymodon tophaceus, Eucladium verticillatum, Palustriella commutata, Pellia endiviifolia* and *Philonotis calcarea* Potentially negative species recorded at a number of sub-site springs in the SAC include the potentially negative herbaceous species hemp-agrimony (*Eupatorium cannabinum*) and the potentially negative bryophytes *Brachythecium rivulare* and *Cratoneuron filicinum*, but none were Dominant or Abundant. The potentially negative woody species sycamore (*Acer pseudoplatanus*) was recorded as Occasional Algal cover is indicative of nutrient enrichment from multiple sources
Vegetation composition: algal cover	Percentage cover at, and in local vicinity of, a representative number of monitoring stops	Cover of algae less than 2%	
Vegetation structure: sward height	Centimetres	Field layer height between 10cm and 50cm (except for bryophyte-dominated ground <10cm)	
Physical structure: trampling/dung	Cover (DAFOR scale)	Cover should not be Dominant or Abundant	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with	This includes species on the Flora (Protection) Order, 2015 and/or Red Lists

TABLE 5.1.2: GLENASMOLE VALLEY SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
		the habitat; maintain features of local distinctiveness, subject to natural processes	

Glenasmole Valley SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

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

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

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

Table 5.1.3: The conservation statuses for the qualifying interests of the Glenasmole Valley SAC site are outlined in the table below.

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*
6210	Orchid-rich Calcareous Grassland	Bad
6410	*Molinia* Meadows	Bad
7220	Petrifying Springs	Inadequate

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2019b and 2019c)*

5.2 WICKLOW MOUNTAINS SAC (SITE CODE: 002122)

Wicklow Mountains SAC is a complex of upland areas in Counties Wicklow and Dublin, flanked by the Blessington reservoir to the west and Vartry reservoir in the east, Cruagh Mountain in the north and Lybagh Mountain in the south. Most of the site is over 300 m, with much ground over 600 m. The highest peak is 925 m at Lugnaquilla. The Wicklow uplands comprise a core of granites flanked by Ordovician schists, mudstones and volcanics. The form of the Wicklow Glens is due to glacial erosion. The topography is typical of a mountain chain, showing the effects of more than one cycle of erosion. The massive granite has weathered characteristically into broad domes. Most of the western part of the site consists of an elevated moorland, covered by peat. The surrounding schists have assumed more diverse outlines, forming prominent peaks and rocky foothills with deep glens. The dominant topographical features are the products of glaciation. High corrie lakes, deep valleys and moraines are common features of this area. The substrate over much of the area is peat, usually less than 2 m deep. Poor mineral soil covers the slopes, and rock outcrops are frequent. The Wicklow Mountains are drained by several major rivers including the Dargle, Liffey, Dodder, Slaney and Avonmore. The river water in the mountain areas is often peaty, especially during floods. The site is a Special Area of Conservation (SAC) selected for the following habitats and/or species listed on Annex I / II of the E.U. Habitats Directive:

Table 5.2.1: Species Conservation Interests

SPECIAL CONSERVATION INTERESTS	
CODE	**DESCRIPTION**
3110	Oligotrophic Waters containing very few minerals
3160	Dystrophic Lakes
4010	Wet Heath
4030	Dry Heath
4060	Alpine and Subalpine Heaths
6130	Calaminarian Grassland
6230	Species-rich *Nardus* Grassland*
7130	Blanket Bogs (Active)*
8110	Siliceous Scree
8210	Calcareous Rocky Slopes
8220	Siliceous Rocky Slopes
91A0	Old Oak Woodlands
1355	Otter (*Lutra lutra*)

**Denotes a priority habitat*.

An excerpt from the site's Site Synopsis (NPWS, 2017): "The vegetation over most of Wicklow Mountains SAC is a mosaic of heath, blanket bog and upland grassland (mostly on peaty soil, though some on mineral soil), stands of dense Bracken (*Pteridium aquilinum*), and small woodlands mainly along the rivers. Mountain loughs and corrie lakes are scattered throughout the site.

The two dominant vegetation communities in the area are heath and blanket bog. Heath vegetation, with both wet and dry heath well represented, occurs in association with blanket bog, upland acid grassland and rocky habitats. The wet heath is characterised by species such as Heather (*Calluna vulgaris*), Cross-leaved Heath (*Erica tetralix*), cottongrasses (*Eriophorum spp*.), Tormentil (*Potentilla erecta*), Mat-grass (*Nardus stricta*), bent grasses (*Agrostis spp*.) and bog mosses (*Sphagnum spp*.). In places the wet heath occurs in conjunction with flush communities and streamside vegetation, and here species such as Heath Rush (*Juncus squarrosus*) and sedges (*Carex spp*.) are found. Dry heath at this site is confined to shallow peaty soils on steep slopes where drainage is better and particularly in sheltered conditions. It is characterised by species such as Heather, gorse (*Ulex spp*.), Bell Heather (*Erica cinerea*), Bilberry (*Vaccinium myrtillus*), Purple Moor-grass (*Molinia caerulea*) and lichens (*Cladonia spp*.). In places the heath grades into upland grassland on mineral soil.

Blanket bog is usually dominated by cottongrasses, Heather and bog mosses. On steeper slopes there is some flushing and here Purple Moor-grass, Heath Rush and certain Sphagnum species become more common. The Liffey Head blanket bog is among the best of its kind in eastern Ireland, with deep peat formations and an extensive system of dystrophic pools developed among the hummocks and hollows on the bog surface. The vegetation is largely dominated by Heather and Cross-leaved Heath, with cottongrasses (*Eriophorum vaginatum* and *E. angustifolium*), Deergrass (*Scirpus cespitosus*) and Bog Asphodel (*Narthecium ossifragum*). In drier areas, Bilberry and Cowberry (*Vaccinium vitis-idaea*) are common, while the scarce Bog-rosemary (*Andromeda polifolia*) is also found. Blanket bog occurs over extensive areas of deeper peat on the plateau and also on gentle slopes at high altitudes.

Due to the underlying rock strata, the water of the rivers and streams is acid rather than alkaline. The water is generally oligotrophic and free from enrichment. The lakes within the area range from the high altitude lakes of Lough Firrib and Three Lakes, to the lower pater-noster lakes of Glendalough, Lough Tay and Lough Dan. Spectacular corrie lakes, such as Loughs Bray (Upper and Lower), Ouler, Cleevaun, Arts, Kellys and Nahanagan, exhibit fine sequences of moraine stages. The deep lakes are characteristically species-poor, but hold some interesting plants including an unusual form of Quillwort (*Isoetes lacustris var. morei*), a stonewort (*Nitella sp*.) and Floating Bur-reed (*Sparganium angustifolium*).

Alpine vegetation occurs on some of the mountain tops, notably in the Lugnaquilla area, and also on exposed cliffs and scree slopes elsewhere in the site. Here alpine heath vegetation is represented with heath species such as Crowberry (*Empetrum nigrum*) and Cowberry, and others such as Dwarf Willow (*Salix herbacea*), the grey-green moss *Racomitrium lanuginosum*, and scarce species such as Mountain Clubmoss (*Diphasiastrum alpinum*), Firmoss (*Huperzia selago*), and Starry Saxifrage (*Saxifraga stellaris*). Some rare arctic-alpine species have been recorded, including Alpine Lady's-mantle (*Alchemilla alpina*) and Alpine Saw-wort (*Saussurea alpina*).

Old lead mine workings at Glendasan support an estimated 3.6 hectares of Calaminarian Grassland, with a suite of rare metallophyte (metal-loving) bryophytes, including the moss *Ditrichum plumbicola* and the liverworts *Cephaloziella massalongi* and *C. nicholsonii*.

Small areas of old oakwood (*Blechno-Quercetum petraeae* type) occur on the slopes of Glendalough and Glenmalure, near Lough Tay and Lough Dan, with native Sessile Oak (*Quercus petraea*) trees, many of which are 100-120 years old. On wetter areas, wet broadleaved semi-natural woodlands occur which are dominated by Downy Birch (*Betula pubescens*). Mixed woodland with non-native tree species also occurs.

The site supports a range of rare plant species. Parsley Fern (*Cryptogramma crispa*), Marsh Clubmoss (*Lycopodiella inundata*), Lanceolate Spleenwort (*Asplenium billotii*), Small-white Orchid (*Pseudorchis albida*) and Bog Orchid (*Hammarbya paludosa*) are all legally protected under the Flora (Protection) Order, 2015. Greater Broomrape (*Orobanche rapum-genistae*), Alpine Saw-wort and Alpine Lady's-mantle are listed in the Irish Red Data Book. The rare Myxomycete fungus *Echinostelium colliculosum* has been recorded from the Military Road.

The Red Data Book fish species Arctic Char has been recorded from Lough Dan, but this population may now have died out.

Mammals and birds which occur are typical of the uplands. Deer are abundant, mainly hybrids between Red and Sika Deer. Other mammals include Hare, Badger and Otter, the latter being a species listed on Annex II of the E.U. Habitats Directive. Pine Marten has recently been confirmed as occurring within the site. Among the birds, Meadow Pipit, Skylark, Raven and Red Grouse are resident throughout the site. Wheatear, Whinchat and the scarce Ring Ouzel are summer visitors. Wood Warbler and Redstarts are rare breeding species of the woodlands. Dipper and Grey Wagtail are typical riparian species. Merlin and Peregrine, both Annex I species of the E.U. Birds Directive, breed within the site. Recently, Goosander has become established as a breeding species.

Large areas of the site are owned by the National Parks and Wildlife Service (NPWS) and are managed for nature conservation based on traditional land uses of upland areas. The most common land use is traditional sheep grazing, but others include turf cutting, mostly hand-

cutting but some machine-cutting also occurs. These activities are largely confined to the Military Road, where there is easy access. Large areas which had been previously hand-cut and are now abandoned are regenerating. In the last 40 years, forestry has become an important land use in the uplands, and has affected both the wildlife and the hydrology of the area. Amenity use is very high, with Dublin city close to the site. Peat erosion is frequent on the peaks. This may be a natural process, but is likely to be accelerated by activities such as grazing.

Wicklow Mountains is important as a complex, extensive upland site. It shows great diversity from a geomorphological and a topographical point of view. The vegetation provides examples of the typical upland habitats with heath, blanket bog and upland grassland covering large, relatively undisturbed areas. In all, twelve habitats listed on Annex I of the E.U. Habitats Directive are found within the site. Several rare or protected plant and animal species occur, adding further to its value."

Wicklow Mountains SAC Conservation Objectives

Site specific conservation objectives (SSCOs) for the qualifying interests of the Wicklow Mountains SAC are provided in the table below, where available from the NPWS document "*Conservation Objectives: Wicklow Mountains SAC 002122* "(NPWS, 2027).

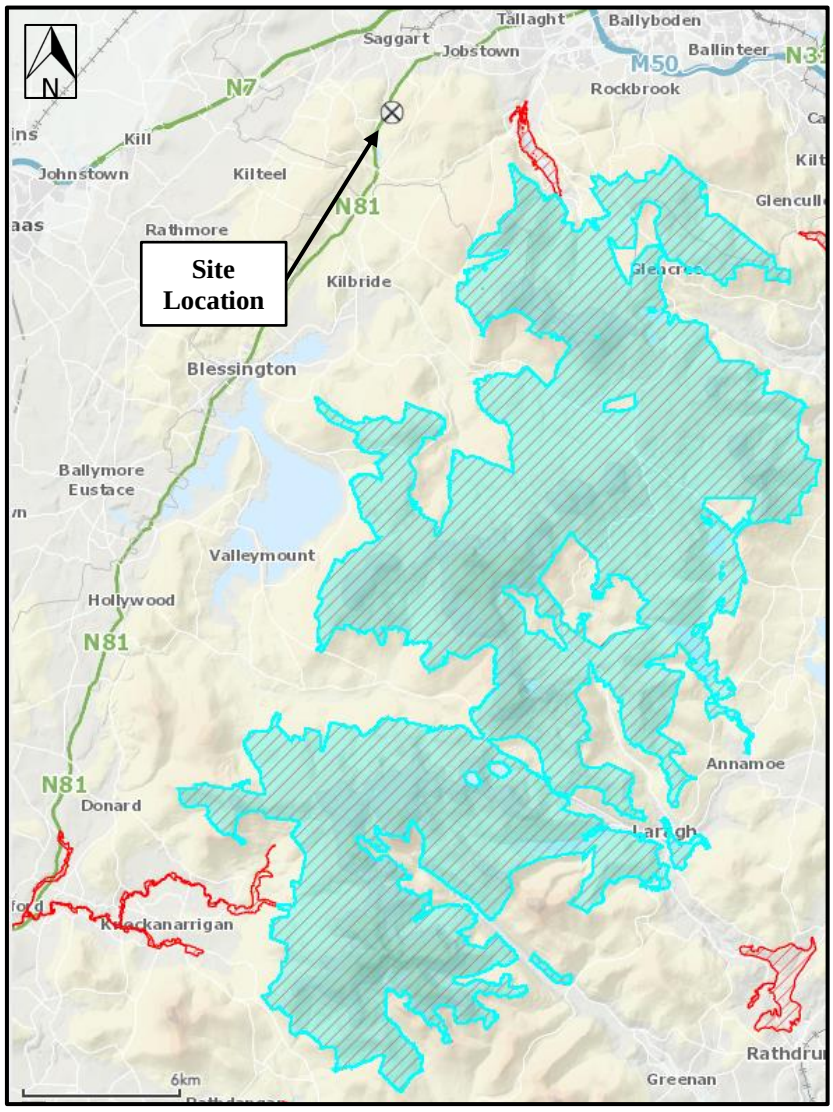

Figure 5.2: Wicklow Mountains SAC (NPWS Map Viewer)

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[3110] Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Lake habitat 3110 is likely to occur in Loughs Dan, Tay, Upper and Lower Lakes (Glendalough), and Upper and Lower Bray. All lakes larger than 1ha were mapped as potential 3110.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Typical species	Occurrence	Typical species present, in good condition, and demonstrating typical abundances and distribution	For lists of typical plant and invertebrate species, see the Article 17 habitat assessment for lake habitat 3160 (NPWS, 2013) and O Connor (2015).
Vegetation composition: characteristic zonation	Occurrence	All characteristic zones should be present, correctly distributed and in good condition	Spatial patterns are likely to be relatively simple in 3160 lakes and ponds, with limited zonation
Vegetation distribution: maximum depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	Maximum depth should be large in the SAC, as many of the lakes are deep corrie lakes and the water should be very clear
Hydrological regime: water level fluctuations	Metres	Maintain appropriate natural hydrological regime necessary to support the habitat	Fluctuations in lake water level are typical in Ireland, but can be amplified by activities such as abstraction and drainage.
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	It is likely that lake habitat 3110 is associated with a range of nutrient-poor substrates, from stones, cobble and gravel, through sands, silt, clay and peat. Substratum particle size is likely to vary with depth and along the shoreline within a single lake. Rock, coarse sand and peat are likely to dominate many lakes in the SAC, particularly at higher altitude. *Nitella gracilis* is found on peat or peaty-silt. Open-cast lead and zinc mining has affected the sediment and water chemistries of both Glendalough lakes

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Water quality: transparency	Metres	Maintain appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Specific targets have yet to be established for lake habitat 3110.
Water quality: nutrients	µg/l P; mg/l N	Maintain/restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	For lake habitat 3110, annual average total phosphorous (TP) concentration should be ≤10 µg/l TP, average annual total ammonia concentration should be ≤0.040mg/l N and annual 95th percentile for total ammonia should be ≤0.090mg/l N.
Water quality: phytoplankton biomass	µg/l Chlorophyll *a*	Maintain/restore appropriate water quality to support the habitat, including high chlorophyll *a* status	Oligotrophic and WFD 'high' status targets apply to lake habitat 3110. Where a lake has a chlorophyll a concentration that is lower than this target, there should be no decline within class.
Water quality: phytoplankton composition	EPA phytoplankton composition metric	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	As for other water quality indicators, lake habitat 3110 requires WFD high status.
Water quality: attached algal biomass	Algal cover and EPA phytobenthos metric	Maintain/restore trace/absent attached algal biomass (<5% cover) and high phytobenthos status	The cover abundance of attached algae in lake habitat 3110 should, therefore, be trace/absent (<5% cover). As for other water quality indicators, lake habitat 3110 requires high phytobenthos status.
Water quality: macrophyte status	EPA macrophyte metric (The Free Index)	Maintain/restore high macrophyte status	The target for lake habitat 3110 is high status or an Ecological Quality Ratio (EQR) for lake macrophytes of ≥0.90.
Acidification status	pH units; mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	For lake habitat 3110 minimum pH should not be <5.5 units. Maximum pH should be <9.0 pH units.
Water colour	mg/l PtCo	Maintain/restore appropriate water colour to support the habitat	Water colour can be very low (<20mg/l PtCo or even <10mg/l PtCo) in lake habitat 3110, where the peatland in the lake's catchment is intact.
Dissolved organic carbon (DOC)	mg/l	Maintain/restore appropriate organic carbon levels to support the habitat	Peatland erosion is frequent in the catchments of lakes in this SAC

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate units	Maintain appropriate turbidity to support the habitat	It is likely to be difficult to set habitat-specific targets for turbidity in lakes
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3110	Lake shorelines are likely to have upland grassland, siliceous rock and scree, heath and eroding bog communities. Poor fen and flush and active bog may also occur.
[3160] Natural dystrophic lakes and ponds			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	A small complex of large bog pools occurs at Cloghoge Bog in the SAC. Owing to their altitude, all pools and lakes, with the exception of the Lower Lake (Glendalough) and Lough Dan, have been mapped as potential 3160.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Typical species	Occurrence	Typical species present, in good condition, and demonstrating typical abundances and distribution	For lists of typical plant and invertebrate species, see the Article 17 habitat assessment for lake habitat 3160 (NPWS, 2013) and O Connor (2015).
Vegetation composition: characteristic zonation	Occurrence	All characteristic zones should be present, correctly distributed and in good condition	Further work is necessary to describe the characteristic zonation and other spatial patterns in lake habitat 3160. Spatial patterns are likely to be relatively simple in 3160 lakes and ponds, with limited zonation.
Vegetation distribution: maximum depth	Metres	Maintain maximum depth of vegetation, subject to natural processes	Further work is necessary to develop indicative targets for lake habitat 3160.
Hydrological regime: water level fluctuations	Metres	Maintain appropriate natural hydrological regime necessary to support the habitat	Owing to their size and the sensitivity of peatland, 3160 lakes and pools can easily be damaged or destroyed by drainage. The hydrological regime of 3160 lakes and pools is integrally linked to that of the surrounding blanket bog, transition mire/quaking bog and other peatland habitats

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Lake substratum quality	Various	Maintain appropriate substratum type, extent and chemistry to support the vegetation	It is likely that lake habitat 3160 is associated with nutrient-poor substrates, including peat and rock
Water quality: transparency	Metres	Maintain appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Specific targets have yet to be established for lake habitat 3160
Water quality: nutrients	µg/l P; mg/l N	Maintain/restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	For 3160 lakes and pools, annual average total phosphorus (TP) concentration should be ≤5µg/l TP, average annual total ammonia concentration should be ≤0.040mg/l N and annual 95th percentile for total ammonia should be ≤0.090mg/l N.
Water quality: phytoplankton biomass	µg/l Chlorophyll *a*	Maintain/restore appropriate water quality to support the habitat, including high chlorophyll *a* status	The OECD targets may be more appropriate for lake habitat 3160: annual average chlorophyll a concentration ≤1µg/l and annual peak chlorophyll a concentration ≤2.5µg/l
Water quality: phytoplankton composition	EPA phytoplankton composition metric	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	Lake habitat 3160 requires WFD high status.
Water quality: attached algal biomass	Algal cover and EPA phytobenthos metric	Maintain/restore trace/absent attached algal biomass (<5% cover) and high phytobenthos status	The cover abundance of attached algae in 3160 lakes and ponds should, therefore, be trace/absent (<5% cover). As for other water quality indicators, lake habitat 3160 requires high phytobenthos status.
Water quality: macrophyte status	EPA macrophyte metric (The Free Index)	Maintain/restore high macrophyte status	The target for 3160 lakes and pools is high status or an Ecological Quality Ratio (EQR) for lake macrophytes of ≥0.90.
Acidification status	pH units; mg/l	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	Although European Commission (2013) describes lake habitat 3160 as having pH 3-6, Drinan (2012) found mean pHs of 5.16 and 5.62 in upland and lowland 3160 lakes, respectively. The target for lake habitat 3160 is pH >4.5 and <9.0

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Water colour	mg/l PtCo	Maintain/restore appropriate water colour to support the habitat	Water colour can be very low (<20mg/l PtCo or even <10mg/l PtCo) in lake habitat 3160, where the peatland in the lake's catchment is intact.
Dissolved organic carbon (DOC)	mg/l	Maintain/restore appropriate organic carbon levels to support the habitat	Peatland erosion is frequent in this SAC
Turbidity	Nephelometric turbidity units/ mg/l SS/ other appropriate units	Maintain appropriate turbidity to support the habitat	It is likely to be difficult to set habitat-specific targets for turbidity in lakes
Fringing habitat: area and condition	Hectares	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3160	3160 bog pools intergrade with blanket bog, or other peatland communities, in Wicklow Mountains SAC. 3160 lakes may be surrounded by these same habitats, as well as upland grassland, siliceous rock and scree, heath and eroding bog communities.
[4010] Northern Atlantic wet heaths with *Erica tetralix*			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Northern Atlantic wet heaths with *Erica tetralix* has not been mapped in detail for Wicklow Mountains SAC, but from current available data the total area of the qualifying habitat is estimated to be approximately 8,248ha, covering 25% of the SAC The habitat is documented to occur throughout the SAC, often occurring in association with other habitats including blanket bog, upland acid grassland and rocky habitats.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See supporting document

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	A variety of wet heath vegetation communities have been recorded in this SAC
Vegetation composition: cross-leaved heath	Occurrence within 20m of a representative number of monitoring stops	Cross-leaved heath (*Erica tetralix*) present within a 20m radius of each monitoring stop	Attribute and target based on Perrin et al. (2014)
Vegetation composition: positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of positive indicator species at least 50%	
Vegetation composition: lichens and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of *Cladonia* and S*phagnum* species, *Racomitrium lanuginosum* and *pleurocarpous* mosses at least 10%	
Vegetation composition: ericoid species and crowberry	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of ericoid species and crowberry (*Empetrum nigrum*) at least 15%	
Vegetation composition: dwarf shrub species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of dwarf shrubs less than 75%	
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 20%	
Vegetation composition: bracken	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of bracken (Pteridium aquilinum) less than 10%	
Vegetation composition: soft rush	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of soft rush (*Juncus effusus*) less than 10%	
Vegetation structure: *Sphagnum* condition	Condition at a representative number of 2m x 2m monitoring stops	Less than 10% of the *Sphagnum* cover is crushed, broken and/or pulled up	
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Less than 33% collectively of the last complete growing season's shoots of ericoids, crowberry (*Empetrum nigrum*) and bog-myrtle (*Myrica gale*) showing signs of browsing	
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning	
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	
Physical structure: drainage	Percentage area in local vicinity of a	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
	representative number of monitoring stops		
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat.	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists
[4030] European dry heaths			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	European dry heaths have not been mapped in detail for Wicklow Mountains SAC, but from current available data the total area of the qualifying habitat is estimated to be approximately 4,210ha, covering 13% of the SAC. The habitat occurs throughout the SAC, often occurring in association with blanket bog, upland acid grassland and rocky habitats. It is typically present on shallow peaty soils on steep slopes and in sheltered conditions.
Habitat distribution	Occurrence	No decline, subject to natural processes	
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See supporting document
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	A variety of dry heath vegetation communities have been recorded in this SAC
Vegetation composition: lichens and bryophytes	Number of species at a representative number of 2m x 2m monitoring stops	Number of bryophyte or non-crustose lichen species present at each monitoring stop is at least three, excluding *Campylopus* and *Polytrichum* mosses	Attribute and target based on Perrin et al. (2014)
Vegetation composition: number of positive indicator species	Number of species at a representative number	Number of positive indicator species present at each monitoring stop is at least two	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
	of 2m x 2m monitoring stops		
Vegetation composition: cover of positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of positive indicator species at least 50% for siliceous dry heath and 50- 75% for calcareous dry heath	
Vegetation composition: dwarf shrub composition	Percentage cover at a representative number of 2m x 2m monitoring stops	Proportion of dwarf shrub cover composed collectively of bog-myrtle (*Myrica gale*), creeping willow (*Salix repens*) and western gorse (*Ulex gallii*) is less than 50%	
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 20%	
Cover of scattered native trees and shrubs less than 20%	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of bracken (*Pteridium aquilinum*) less than 10%	
Vegetation composition: soft rush	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of soft rush (*Juncus effusus*) less than 10%	
Vegetation structure: senescent ling	Percentage cover at a representative number	Senescent proportion of ling (*Calluna vulgaris*) cover less than 50%	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
	of 2m x 2m monitoring stops		
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Less than 33% collectively of the last complete growing season's shoots of ericoids and crowberry (*Empetrum nigrum*) showing signs of browsing	
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas	
Vegetation structure: growth phases of ling	Percentage cover in local vicinity of a representative number of monitoring stops	Outside sensitive areas, all growth phases of ling (*Calluna vulgaris*) should occur throughout, with at least 10% of cover in the mature phase	
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists
[4060] Alpine and Boreal heaths			
Habitat area	Habitat area	Area stable or increasing, subject to natural processes	Alpine and Boreal heaths has not been mapped in detail for Wicklow Mountains SAC, but from current available data the total area of the qualifying habitat is estimated to be approximately 326ha, covering 1% of the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes	Alpine and Boreal heaths occur at high altitudes within the SAC.

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See supporting document
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	Alpine and Boreal heath vegetation communities have been recorded in this SAC
Vegetation composition: lichens and bryophytes	Number of species at a representative number of 2m x 2m monitoring stops	Number of bryophyte or non-crustose lichen species present at each monitoring stop is at least three	Attribute and target based on Perrin et al. (2014)
Vegetation composition: positive indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of positive indicator species at least 66%	
Vegetation composition: dwarf shrub species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of dwarf shrub species at least 10%	
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 10%	
Vegetation composition: non-native specie	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	
Vegetation structure: signs of grazing	Percentage of leaves grazed at a representative number of 2m x 2m monitoring stops	Less than 10% collectively of the live leaves of specific graminoids showing signs of grazing	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Less than 33% collectively of the last complete growing season's shoots of ericoids and crowberry (*Empetrum nigrum*) showing signs of browsing	
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning within the habitat	
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 and/or the red data lists
[6130] Calaminarian grasslands of the *Violetalia calaminariae*			
Habitat area	Hectares	No decline, subject to natural processes	The area of this habitat is estimated to be 3.6ha at Glendasan, Mine, 0.6ha at Foxrock and 0.1ha at East of Lough Nahanagan. Several other small areas of 6130 habitat are known to occur on mine-spoil in upper Glendassan, each mainly less than 1ha in area. The habitat is also thought to occur at the old lead mine workings at Glendalough in the SAC Further unsurveyed areas are present within the SAC
Distribution	Location	No decline, subject to natural processes	
Physical structure: bare ground	Percentage cover	Maintain adequate open ground	At Glendasan, the habitat is well developed over most of the open lead mine spoil area and the whole area is very open with no

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
			trees and very little scrub. The extent of bare soil and rock ranged between 0% and 36%. At Foxrock Mine, the habitat occurs on low mine spoil, although some of the spoil slopes are too steep for vegetation to establish. The extent of bare soil and rock ranged between 0% and 50%. At East of Lough Nahanagan, the habitat is mainly present in narrow strips the base of spoil heaps. The extent of bare soil and rock was 25-50%
Soil toxicity: copper content	µg Cu/g dry weight soil	Maintain high copper (Cu) levels in soil	Total copper content in a sample of mine spoil taken from Glendasan was 477.5µg/g dry weight. Mine spoil with similar vegetation from Cornwall had available copper of 151–3220µg/g dry weight
Vegetation structure: height and cover	Centimetres; percentage cover	Maintain low and open vegetation	At Glendasan, herbaceous vegetation height was recorded as relatively short (0-13cm) and cover was 0-75%. Bryophyte cover was high (34-75%). At Foxrock Mine, herbaceous vegetation height was 7-38cm and cover was 11- 50%. Bryophyte cover was high (26-100%). At East of Lough Nahanagan, herbaceous vegetation height was short (7cm) and cover was low (34-50%). Bryophyte cover was 26- 33%
Vegetation composition: metallophyte bryophytes	Number	Maintain diversity and populations of metallophyte bryophytes	*Cephaloziella massalongi* and *C. nicholsonii*, liverworts listed on the Flora (Protection) Order, 2015 (FPO) and classified as Vulnerable, occur at Glendasan. The Near Threatened *C. stellulifer*) occurs at Glendasan, Foxrock Mine and East of Lough Nahanagan and at Glendalough. The

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
			Endangered and FPO listed moss *Ditrichum plumbicola* is found at Glendalough.
[6230] Species-rich *Nardus* grasslands, on siliceous substrates in mountain areas (and submountain areas, in Continental Europe)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Species-rich *Nardus* grassland, on siliceous substrates in mountain areas has not been mapped in detail for Wicklow Mountains SAC. Total area of the qualifying habitat is estimated to be approximately 2ha, covering less than 1% of the SAC. The habitat is documented to occur on the north-eastern slopes of Carrigshouk Mountain and on the north-western slopes of Ballineddan Mountain
Habitat distribution	Occurrence	No decline, subject to natural processes	
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See supporting document
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	The diversity of species-rich *Nardus* grassland* communities within this SAC is unknown.
Vegetation composition: positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species present at each monitoring stop is at least seven	Attribute and target based on Perrin et al. (2014)
Vegetation composition: high quality indicator species	Number of species at a representative number of 2m x 2m monitoring stops	At least two high quality indicator species for base-rich examples of the habitat and at least one for base-poor examples of the habitat	
Vegetation composition: species richness	Number of species at a representative number of 2m x 2m monitoring stops	Species richness at each monitoring stop at least 25	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than or equal to 1%	
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of negative indicator species individually less than or equal to 10% and collectively less than or equal to 20%	
Vegetation composition: *Sphagnum* cover	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of *Sphagnum* species less than or equal to 10%	
Vegetation composition: *Polytrichum* cover	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of *Polytrichum* species less than or equal to 25%	
Vegetation composition: shrubs, bracken and heath cover	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of shrubs, bracken (*Pteridium aquilinum*) and heath collectively less than or equal to 5%	
Vegetation structure: forb to graminoid ratio	Percentage cover at a representative number of 2m x 2m monitoring stops	Forb component of forb:graminoid ratio is 20-90%	
Vegetation structure: sward height	Sward height at a representative number of 2m x 2m monitoring stops	Proportion of the sward between 5cm and 50cm tall is at least 25%	
Vegetation structure: litter cover	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of litter less than or equal to 20%	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Physical structure: disturbed bare ground	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than or equal to 10%	
Physical structure: grazing or disturbance	Area in local vicinity of a representative number of monitoring stops	Area of the habitat showing signs of serious grazing or disturbance less than 20m²	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists
[7130] Blanket bogs (* if active bog)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Blanket bog has not been mapped in detail for Wicklow Mountains SAC. Total area of the qualifying habitat is estimated to be approximately 12,376ha, covering 38% of the SAC Blanket bog is documented to occur throughout the SAC, often occurring in association with other habitats including heath and upland acid grasslands. Well-developed examples are present at Liffey Head Bog, Castlekelly Bog, Shankill Bog, Cloghoge Bog, Ballynultagh Bog and Brockagh Bog. A large stretch of this habitat is also present in the area from Lugnaquilla northwards towards Table Mountain, and stretching east towards Laragh
Habitat distribution	Occurrence	No decline, subject to natural processes	
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Ecosystem function: peat formation	Active blanket bog as a proportion of the total area of Annex I blanket bog habitat	At least 99% of the total Annex I blanket bog area is active	See supporting document
Ecosystem function: hydrology	Flow direction, water levels, occurrence of drains and erosion gullies	Natural hydrology unaffected by drains and erosion	
Community diversity	Abundance of variety of vegetation communities	Maintain variety of vegetation communities, subject to natural processes	A variety of blanket bog vegetation communities have been recorded in this SAC
Vegetation composition: positive indicator species	Number of species at a representative number of 2m x 2m monitoring stops	Number of positive indicator species present at each monitoring stop is at least seven	Attribute and target based on Perrin et al. (2014)
Vegetation composition: lichens and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of bryophytes or lichens, excluding *Sphagnum fallax*, at least 10%	
Vegetation composition: potential dominant species	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of each of the potential dominant species less than 75%	
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Total cover of negative indicator species less than 1%	
Vegetation composition: non-native species	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of non-native species less than 1%	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Cover of scattered native trees and shrubs less than 10%	
Vegetation structure: *Sphagnum* condition	Condition at a representative number of 2m x 2m monitoring stops	Less than 10% of the *Sphagnum* cover is crushed, broken and/or pulled up	
Vegetation structure: signs of browsing	Percentage of shoots browsed at a representative number of 2m x 2m monitoring stops	Last complete growing season's shoots of ericoids, crowberry (*Empetrum nigrum*) and bog-myrtle (*Myrica gale*) showing signs of browsing collectively less than 33%	
Vegetation structure: burning	Occurrence in local vicinity of a representative number of monitoring stops	No signs of burning in sensitive areas, into the moss, liverwort or lichen layer or exposure of peat surface due to burning	
Physical structure: disturbed bare ground	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Cover of disturbed bare ground less than 10%	
Physical structure: drainage	Percentage area in local vicinity of a representative number of monitoring stops	Area showing signs of drainage from heavy trampling, tracking or ditches less than 10%	
Physical structure: erosion	Percentage area in local vicinity of a representative number of monitoring stops	Less than 5% of the greater bog mosaic comprises erosion gullies and eroded areas	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[8110] Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*)			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Siliceous scree of the montane to snow levels (*Androsacetalia alpinae* and *Galeopsietalia ladani*) has not been mapped in detail for Wicklow Mountains SAC. Total area of the qualifying habitat is estimated to be approximately 54ha, covering less than 1% of the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes	The habitat is documented to occur at Glen of Imaal, Ballineddan Mountain, Lough Nahanagan and Lugnaquilla including the North and South Prison
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See supporting document
Vegetation composition: lichens and bryophytes	Percentage cover at a representative number of 2m x 2m monitoring stops	Cover of bryophytes and non-crustose lichen species at least 5%	Attribute and target based on Perrin et al. (2014)
Vegetation composition: negative indicator species	Percentage cover at a representative number of 2m x 2m monitoring stops	Proportion of vegetation composed of negative indicator species less than 1%	
Vegetation composition: non-native species	Percentage cover at a representative number of 2m x 2m monitoring stops	Proportion of vegetation composed of non-native species less than 1%	
Vegetation composition: positive indicator species	Number of species in local vicinity of a representative number of monitoring stops	At least one positive indicator species present in vicinity of each monitoring stop in block scree	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: grass species and dwarf shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of grass species and dwarf shrubs less than 20%	
Vegetation composition: bracken, native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of bracken (*Pteridium aquilinum*), native trees and shrubs less than 25%	
Vegetation structure: grazing and browsing	Percentage of leaves/ shoots grazed/browsed at a representative number of 2m x 2m monitoring stops	Live leaves of forbs and shoots of dwarf shrubs showing signs of grazing or browsing collectively less than 50%	
Physical structure: disturbance	Percentage cover at, and in local vicinity of, a representative number of 2m x 2m monitoring stops	Ground disturbed by human and animal paths, scree running, vehicles less than 10%	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 (FPO) and/or the red data lists
[8210] Calcareous rocky slopes with chasmophytic vegetation			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Calcareous rocky slopes with chasmophytic vegetation has not been mapped in detail for Wicklow Mountains SAC and thus total area of the qualifying habitat in the SAC is unknown. The habitat is documented to occur within the corrie associated with Lough Ouler and close to the summit of Lugnaquilla
Habitat distribution	Occurrence	No decline, subject to natural processes	
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a	Maintain soil nutrient status within natural range	See supporting document

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
	representative number of monitoring stops		
Vegetation composition: positive indicator fern and *Saxifraga* species	Number of species in local vicinity of a representative number of monitoring stops	Number of ferns and *Saxifraga* indicators at each monitoring stop is at least one	Attribute and target based on Perrin et al. (2014)
Vegetation composition: positive indicator species	Number of species in local vicinity of a representative number of monitoring stops	Number of positive indicator species at each monitoring stop is at least three	
Vegetation composition: non-native species	Percentage cover in local vicinity of a representative number of monitoring stops	Proportion of vegetation composed of non-native species less than 1%	
Vegetation composition: bracken, native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of bracken (*Pteridium aquilinum*), native trees and shrubs less than 25%	
Vegetation structure: grazing and browsing	Percentage of leaves/ shoots grazed/browsed in local vicinity of a representative number of monitoring stops	Live leaves of forbs and shoots of dwarf shrubs showing signs of grazing or browsing collectively less than 50%	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 and/or the red data lists
[8220] Siliceous rocky slopes with chasmophytic vegetation			
Habitat area	Hectares	Area stable or increasing, subject to natural processes	Siliceous rocky slopes with chasmophytic vegetation has not been mapped in detail for Wicklow Mountains SAC. Total area of the qualifying habitat is estimated to be approximately 36ha, covering less than 1% of the SAC
Habitat distribution	Occurrence	No decline, subject to natural processes	

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
			The habitat is documented to occur in locations with significant rock exposures such as Lugnaquilla, Glendalough Valley, Lough Ouler, cliffs to the north-east of Table Mountain, Lough Tay and the two Lough Brays
Ecosystem function: soil nutrients	Soil pH and appropriate nutrient levels at a representative number of monitoring stops	Maintain soil nutrient status within natural range	See supporting document
Vegetation composition: positive indicator species	Number of species in local vicinity of a representative number of monitoring stops	At least one positive indicator species present in vicinity of each monitoring stop	Attribute and target based on Perrin et al. (2014)
Vegetation composition: non-native species	Percentage cover in local vicinity of a representative number of monitoring stops	Proportion of vegetation composed of non-native species less than 1%	
Vegetation composition: bracken, native trees and shrubs	Percentage cover in local vicinity of a representative number of monitoring stops	Total cover of bracken (*Pteridium aquilinum*), native trees and shrubs less than 25%	
Vegetation structure: grazing and browsing	Percentage of leaves/ shoots grazed/browsed in local vicinity of a representative number of monitoring stops	Live leaves of forbs and shoots of dwarf shrubs showing signs of grazing or browsing collectively less than 50%	
Indicators of local distinctiveness	Occurrence and population size	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	This includes species listed in the Flora (Protection) Order, 2015 and/or the red data lists
[91A0] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles			

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Habitat area	Hectares	Area stable or increasing, subject to natural processes, at least 215.4ha for sites surveyed	The minimum area of old oak woodland within the SAC is estimated to be 215.4ha. It is important to note that further unsurveyed areas may be present within the SAC.
Habitat distribution	Occurrence	No decline, subject to natural processes.	
Woodland size	Hectares	Area stable or increasing. Where topographically possible, "large" woods at least 25ha in size and "small" woods at least 3ha in size	The target areas for individual woodlands aim to reduce habitat fragmentation and benefit those species requiring 'deep' woodland conditions. In some cases, topographical constraints may restrict expansion
Woodland structure: cover and height	Percentage and metres	Diverse structure with a relatively closed canopy containing mature trees; subcanopy layer with semi-mature trees and shrubs; and well-developed herb layer	Described in Perrin et al. (2008)
Woodland structure: community diversity and extent	Hectares	Maintain diversity and extent of community types	
Woodland structure: natural regeneration	Seedling:sapling:pole ratio	Seedlings, saplings and pole age-classes occur in adequate proportions to ensure survival of woodland canopy	Oak (*Quercus petraea*) generally regenerates poorly. In suitable sites, ash (*Fraxinus excelsior*) can regenerate in large numbers although few seedlings reach pole size
Woodland structure: dead wood	m^3 per hectare; number per hectare	At least 30m^3/ha of fallen timber greater than 10cm diameter; 30 snags/ha; both categories should include stems greater than 40cm diameter	Dead wood is a valuable resource and an integral part of a healthy, functioning woodland ecosystem
Woodland structure: veteran trees	Number per hectare	No decline	Mature and veteran trees are important habitats for bryophytes, lichens, saproxylic organisms and some bird species.
Woodland structure: indicators of local disctinctiveness	Occurrence	No decline	Two sites within the SAC, Baltynanima and Derrybawn, were identified as possible ancient woodland
Vegetation composition: native tree cover	Percentage	No decline. Native tree cover not less than 95%	Species reported in Perrin et al. (2008)

TABLE 5.2.2: WICKLOW MOUNTAINS SAC CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Vegetation composition: typical species	Occurrence	A variety of typical native species present, depending on woodland type, including oak (*Quercus petraea*) and birch (*Betula pubescens*)	
Vegetation composition: negative indicator species	Occurrence	Negative indicator species, particularly non-native invasive species, absent or under control	Common non-native invasive species in this woodland type: beech (*Fagus sylvatica*), sycamore (*Acer pseudoplatanus*) and rhododendron (*Rhododendron ponticum*).
[1355] Otter *Lutra lutra*			
Distribution	Percentage positive survey sites	No significant decline	Measure based on standard otter survey technique. Favourable Conservation Status (FCS) target, based on 1980/81 survey findings, is 88% in SACs. Current range is estimated at 93.6%
Extent of terrestrial habitat	Hectares	No significant decline. Area mapped and calculated as 716.6ha along river banks/lake shoreline/ around ponds	Areas mapped to include 10m terrestrial buffer along river banks and around water bodies identified as critical for otters
Extent of freshwater (river) habitat	Kilometres	No significant decline. Length mapped and calculated as 359.1km	River length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters
Extent of freshwater (lake) habitat	Hectares	No significant decline. Area mapped and calculated as 141.8ha	Area mapped based on evidence that otters tend to forage within 80m of the shoreline
Couching sites and holts	Number	No significant decline	Otters need lying up areas throughout their territory where they are secure from disturbance
Fish biomass available	Kilograms	No significant decline	Broad diet that varies locally and seasonally, but dominated by fish, in particular salmonids, eels and sticklebacks in freshwater
Barriers to connectivity	Number	No significant increase	Otters will regularly commute across stretches of open water up to 500m e.g. between the mainland and an island; between two islands; across an estuary

Wicklow Mountains SAC Conservation Status

According to the Habitat's Directive, favourable conservation status of a habitat is achieved when:

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

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

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

Table 5.2.3: The conservation statuses for the special conservation interest of the Wicklow Mountains SAC are outlined below.

CODE	QUALIFYING INTEREST	NATIONAL CONSERVATION STATUS*
3110	Oligotrophic Waters containing very few minerals	Bad
3160	Dystrophic Lakes	Inadequate
4010	Wet Heath	Bad
4030	Dry Heath	Bad
4060	Alpine and Subalpine Heaths	Bad
6130	Calaminarian Grassland	Inadequate
6230	Species-rich *Nardus* Grassland	Bad
7130	Blanket Bogs (Active)	Bad
8110	Siliceous Scree	Inadequate
8210	Calcareous Rocky Slopes	Inadequate
8220	Siliceous Rocky Slopes	Inadequate
91A0	Old Oak Woodlands	Bad
1355	Otter (*Lutra lutra*)	Favourable

**Sourced from the Status of EU Protected Habitats and Species in Ireland (NPWS, 2019b and 2019c)*

5.3 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA (SITE CODE: 004024)

The South Dublin Bay and River Tolka Estuary SPA comprises a substantial part of Dublin Bay. It includes the intertidal area between the River Liffey and Dun Laoghaire, and the estuary of the River Tolka to the north of the River Liffey, as well as Booterstown Marsh. A portion of the shallow marine waters of the bay is also included.

TABLE 5.3.1: South Dublin Bay and River Tolka Estuary SPA		
SPECIAL CONSERVATION INTERESTS		
CODE	COMMON NAME	SCIENTIFIC NAME
A046	Light-bellied Brent Goose	*Branta bernicla hrota*
A130	Oystercatcher	*Haematopus ostralegus*
A137	Ringed Plover	*Charadrius hiaticula*
A141	Grey Plover	*Pluvialis squatarola*
A143	Knot	*Calidris canutus*
A144	Sanderling	*Calidris alba*
A149	Dunlin	*Calidris alpina*
A157	Bar-tailed Godwit	*Limosa lapponica*
A162	Redshank	*Tringa totanus*
A179	Black-headed Gull	*Chroicocephalus ridibundus*
A192	Roseate Tern	*Sterna dougallii*
A193	Common Tern	*Sterna hirundo*
A194	Arctic Tern	*Sterna paradisaea*
A999	Wetland and Waterbirds	-

An excerpt from the site synopsis for South Dublin Bay and River Tolka Estuary SPA (NPWS, 2015) is included below:

In the south bay, the intertidal flats extend for almost 3 km at their widest. The sediments are predominantly well-aerated sands. Several permanent channels exist, the largest being Cockle Lake. A small sandy beach occurs at Merrion Gates, while some bedrock shore occurs near Dun Laoghaire. The landward boundary is now almost entirely artificially embanked. There is a bed of Dwarf Eelgrass (*Zostera noltii*) below Merrion Gates which is the largest stand on the east coast. Green algae (*Ulva* spp.) are distributed throughout the area at a low density. The macroinvertebrate fauna is well-developed, and is characterised by annelids such as Lugworm (*Arenicola marina*), *Nephthys* spp. and Sand Mason (*Lanice conchilega*), and bivalves, especially Cockle (*Cerastoderma edule*) and Baltic Tellin (*Macoma balthica*). The small gastropod Spire Shell (*Hydrobia ulvae*) occurs on the muddy sands off Merrion Gates, along with the crustacean *Corophium volutator*. Sediments in the Tolka Estuary vary from soft thixotrophic muds with a high organic content in the inner estuary to exposed, well-aerated sands off the Bull Wall. The site includes Booterstown Marsh, an enclosed area of saltmarsh and muds that is cut off from the sea by the Dublin/Wexford railway line, being linked only by a channel to the east, the Nutley stream. Sea water incursions into the marsh occur along this stream at high tide. An area of grassland at Poolbeg, north of Irishtown Nature Park, is also included in the site. The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Light-bellied Brent Goose, Oystercatcher, Ringed Plover, Grey Plover, Knot, Sanderling, Dunlin, Bar-tailed Godwit, Redshank, Black-headed Gull, Roseate Tern, Common Tern and Arctic Tern. The E.U. Birds

Directive pays particular attention to wetlands, and as these form part of the SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds. The site is an important site for wintering waterfowl, being an integral part of the internationally important Dublin Bay complex – all counts for wintering waterbirds are five year mean peaks for the period 1995/96 to 1999/2000. Although birds regularly commute between the south bay and the north bay, recent studies have shown that certain populations which occur in the south bay spend most of their time there.

An internationally important population of Light-bellied Brent Goose (368) occurs regularly and newly arrived birds in the autumn feed on the Eelgrass bed at Merrion. At the time of designation the site supported nationally important numbers of a further nine species: Oystercatcher (1,145), Ringed Plover (161), Grey Plover (45), Knot (548), Sanderling (321), Dunlin (1,923), Bar-tailed Godwit (766), Redshank (260) and Black-headed Gull (3,040). Other species occurring in smaller numbers include Great Crested Grebe (21), Curlew (127) and Turnstone (52). Little Egret, a species which has recently colonised Ireland, also occurs at this site. South Dublin Bay is a significant site for wintering gulls, with a nationally important population of Black-headed Gull, but also Common Gull (330) and Herring Gull (348). Mediterranean Gull is also recorded from here, occurring through much of the year, but especially in late winter/spring and again in late summer into winter. Both Common Tern and Arctic Tern breed in Dublin Docks, on a man-made mooring structure known as the E.S.B. dolphin – this is included within the site. Small numbers of Common Tern and Arctic Tern were recorded nesting on this dolphin in the 1980s. A survey in 1995 recorded nationally important numbers of Common Tern nesting here (52 pairs). The breeding population of Common Tern at this site has increased, with 216 pairs recorded in 2000. This increase was largely due to the ongoing management of the site for breeding terns. More recent data highlights this site as one of the most important Common Tern sites in the country with over 400 pairs recorded here in 2007. South Dublin Bay is an important staging/passage site for a number of tern species in the autumn (mostly late July to September). The origin of many of the birds is likely to be the Dublin breeding sites (Rockabill and the Dublin Docks) though numbers suggest that the site is also used by birds from other sites, perhaps outside the state. This site is selected for designation for its autumn tern populations: Roseate Tern (2,000 in 1999), Common Tern (5,000 in 1999) and Arctic Tern (20,000 in 1996). The South Dublin Bay and River Tolka Estuary SPA is of ornithological importance as it supports an internationally important population of Light-bellied Brent Goose and nationally important populations of a further nine wintering species. Furthermore, the site supports a nationally important colony of breeding Common Tern and is an internationally important passage/staging site for three tern species. It is of note that four of the species that regularly occur at this site are listed on Annex I of the E.U. Birds Directive, i.e. Bar-tailed Godwit, Common Tern, Arctic Tern and Roseate Tern. Sandymount Strand/Tolka Estuary is also a Ramsar Convention site.

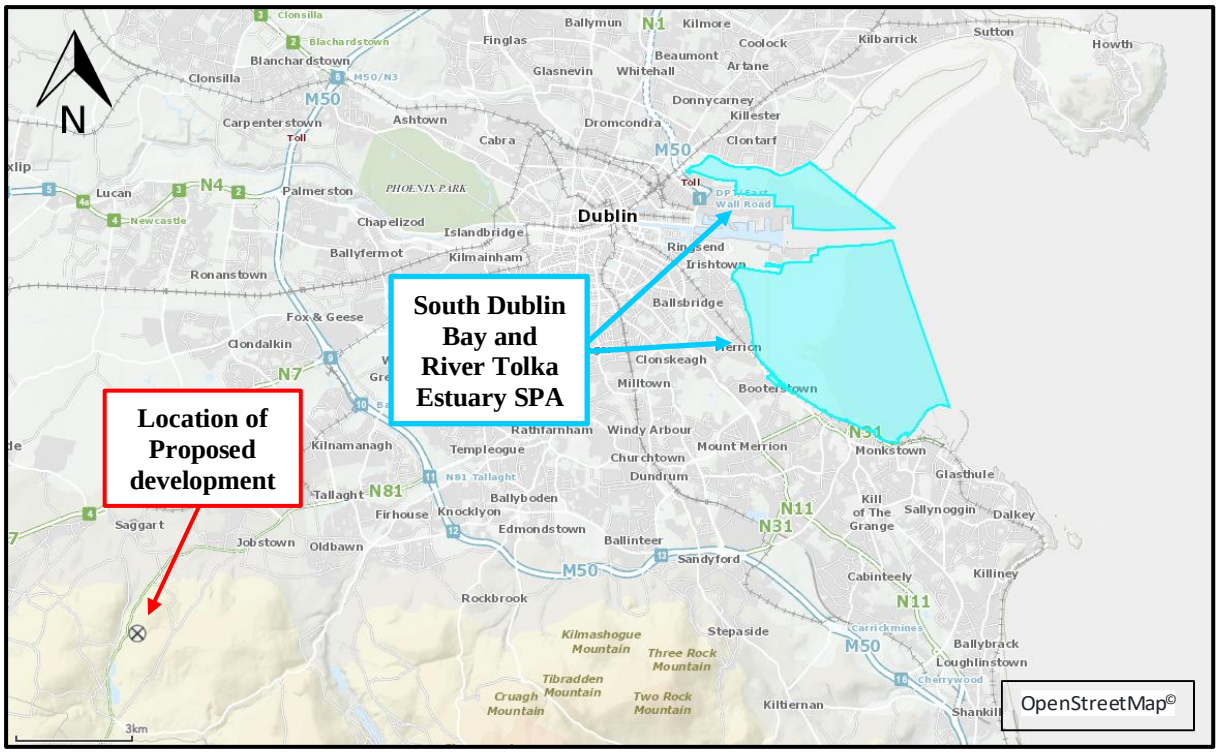

Figure 5.3: South Dublin Bay and River Tolka Estuary SPA (NPWS Map Viewer)

South Dublin Bay and River Tolka Estuary SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in view of the site's conservation objectives". Site specific conservation objectives (SSCOs) for the qualifying interests of the South Dublin Bay and River Tolka Estuary SPA are provided in the Table 5.3.2 below, where available from the NPWS document "Conservation Objectives: South Dublin Bay and River Tolka Estuary SPA 004024" (NPWS, 2015).

TABLE 5.3.2 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[A046] Light-bellied Brent Goose *Branta bernicla hrota*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	
[A130] Oystercatcher *Haematopus ostralegus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation.	
[A137] Ringed Plover *Charadrius hiaticula*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by golden plover, other than that occurring from natural patterns of variation	
[A141] Grey Plover *Pluvialis squatarola*			

TABLE 5.3.2 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
There are no current Conservation Objectives listed for this species.			
[A143] Knot *Calidris canutus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation.	
[A144] Sanderling *Calidris alba*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by sanderling, other than that occurring from natural patterns of variation.	
[A149] Dunlin *Calidris alpina alpina*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by sanderling, other than that occurring from natural patterns of variation.	
[A157] Bar-tailed Godwit *Limosa lapponica*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	

TABLE 5.3.2 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[A162] Redshank *Tringa totanus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A179] Black-headed Gull *Chroicocephalus ridibundus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A192] Roseate Tern *Sterna dougallii*			
Passage population: individuals	Number	No significant decline	Up to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively.
Distribution: roosting areas	Number; location; area (hectares)	No significant decline	Main roosting areas: the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown.
Prey biomass available	Kilogrammes	No significant decline	Terns associated with the roost are thought to feed during the day in the wider Dublin Bay area.
Barriers to connectivity	Number; location; shape; area (hectares)	No significant decline	Terns associated with the roost are thought to feed during the day in the wider Dublin Bay area.

TABLE 5.3.2 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of roseate tern among the post-breeding aggregation of terns	Peak roosting activity: mid-August and mid-September.
[A193] Common Tern *Sterna hirundo*			
Breeding population abundance: apparently occupied nests (AONs)	Number	No significant decline	-
Productivity rate: fledged young per breeding pair	Mean number	No significant decline	-
Passage population: individuals	Number	No significant decline	Up to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively.
Distribution: breeding colonies	Number; location; area (Hectares)	No significant decline	The common tern breeding colony in Dublin Bay is primarily sited on an artificial structure known as the 'ESB Dolphin'.
Distribution: roosting areas	Number; location; area (Hectares)	No significant decline	Main roosting areas: the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown.
Prey biomass available	Kilogrammes	No significant decline	Key prey items: Small fish, crustaceans, insects and occasionally squid. Key habitats: forage in/over shallow coastal waters, bays, inlets, shoals, tidal-rips, drift lines, beaches, saltmarsh creeks, lakes, ponds or rivers. Foraging range: max. 37km; mean max. 33.81km; mean 8.67km.

TABLE 5.3.2 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Barriers to connectivity	Level of impact	Human activities should occur at levels that do not adversely affect the breeding common tern population	The common tern breeding colony in Dublin Bay is primarily sited on an artificial structure known as the 'ESB Dolphin'.
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of common tern among the post-breeding aggregation of terns	Significant disturbance events to roosting terns: people with dogs off the leash and kite surfing.
[A194] Arctic Tern *Sterna paradisaea*			
Passage population	Number of individuals	No significant decline	Up to 11,700, 9,025 and 8,020 terns were recorded in 2006, 2007 and 2010 respectively.
Distribution: roosting areas	Number; location; area (hectares)	No significant decline	Main roosting areas: the exposed sand banks in south Dublin Bay primarily between the Martello Towers at Sandymount and Williamstown.
Prey biomass available	Kilogrammes	No significant decline	Key prey items: Small fish, crustaceans and other invertebrates. Key habitats: forage in/over open waters and shallow bays, rocky shores, tidal flats, shoals, tide rips and ocean fronts.
Barriers to connectivity	Number; location; shape; area (hectares)	No significant decline	Foraging range: max. 20.6km, mean max. 12.24km, mean 11.75km
Disturbance at roosting site	Level of impact	Human activities should occur at levels that do not adversely affect the numbers of Arctic tern among the post-breeding aggregation of terns	Significant disturbance events to roosting terns: people with dogs off the leash and kite surfing.
[A999] Wetlands			

TABLE 5.3.2 SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 2,192 hectares, other than that occurring from natural patterns of variation.	The wetland habitat area was estimated as 2,192ha.

South Dublin Bay and River Tolka Estuary SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

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

TABLE 5.3.3: CONSERVATION STATUS: SOUTH DUBLIN BAY AND RIVER TOLKA ESTUARY SPA

CODE	SPECIAL CONSERVATION INTEREST	NATIONAL CONSERVATION STATUS*
A046	Light-bellied Brent Goose	Amber List
A130	Oystercatcher	Red List
A137	Ringed Plover	Amber List
A141	Grey Plover	Red List
A143	Knot	Red List
A144	Sanderling	Green List
A149	Dunlin	Red List
A157	Bar-tailed Godwit	Red List
A162	Redshank	Red List
A179	Black-headed Gull	Amber List
A192	Roseate Tern	Amber List
A193	Common Tern	Amber List
A194	Arctic Tern	Amber List
A999	Wetland and Waterbirds	-

** Birds of Conservation Concern in Ireland 2020-2026 (Gilbert et al, 2021) and Bird Atlas 2007 – 2011*

5.4 NORTH BULL ISLAND SPA (SITE CODE: 004006)

This site covers all of the inner part of north Dublin Bay, with the seaward boundary extending from the Bull Wall lighthouse across to Drumleck Point at Howth Head. The North Bull Island sand spit is a relatively recent depositional feature, formed as a result of improvements to Dublin Port during the 18th and 19th centuries. It is almost 5 km long and 1 km wide and runs parallel to the coast between Clontarf and Sutton. Part of the interior of the island has been converted to golf courses.

Saltmarsh extends along the length of the landward side of the island and provides the main roost site for wintering birds in Dublin Bay. The island shelters two intertidal lagoons which are divided by a solid causeway. These lagoons provide the main feeding grounds for the wintering waterfowl. The sediments of the lagoons are mainly sands with a small and varying mixture of silt and clay. Green algal mats (*Ulva* spp.) are a feature of the flats during summer. These sediments have a rich macro-invertebrate fauna, with high densities of Lugworm (*Arenicola marina*) and Ragworm (*Hediste diversicolor*).

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

TABLE 5.4.1: North Bull Island SPA		
SPECIAL CONSERVATION INTERESTS		
CODE	COMMON NAME	SCIENTIFIC NAME
A046	Light-bellied Brent Goose	*Branta bernicla hrota*
A048	Shelduck	*Tadorna tadorna*
A052	Teal	*Anas crecca*
A054	Pintail	*Anas acuta*
A056	Shoveler	*Anas clypeata*
A130	Oystercatcher	*Haematopus ostralegus*
A140	Golden Plover	*Pluvialis apricaria*
A141	Grey Plover	*Pluvialis squatarola*
A143	Knot	*Calidris canutus*
A144	Sanderling	*Calidris alba*
A149	Dunlin	*Calidris alpina*
A156	Black-tailed Godwit	*Limosa limosa*
A157	Bar-tailed Godwit	*Limosa lapponica*
A160	Curlew	*Numenius arquata*
A162	Redshank	*Tringa totanus*
A169	Turnstone	*Arenaria interpres*
A179	Black-headed Gull	*Chroicocephalus ridibundus*
A999	Wetland and Waterbirds	-

An excerpt from the site synopsis for North Bull Island SPA (NPWS, 2014) is included below:

The North Bull Island SPA is of international importance for waterfowl on the basis that it regularly supports in excess of 20,000 waterfowl. The site supports internationally important populations of three species, Light-bellied Brent Goose (1,548), Black-tailed Godwit (367) and

Bar-tailed Godwit (1,529) - all figures are mean peaks for the five winters between 1995/96 and 1999/2000. The site is one of the most important in the country for Light-bellied Brent Goose. A further 14 species have populations of national importance – Shelduck (1,259), Teal (953), Pintail (233), Shoveler (141), Oystercatcher (1,784), Grey Plover (517), Golden Plover (2,033), Knot (2,837), Sanderling (141), Dunlin (4,146), Curlew (937), Redshank (1,431), Turnstone (157) and Black-headed Gull (2,196). The populations of Pintail and Knot are of particular note as they comprise 14% and 10% respectively of the all-Ireland population totals. Other species that occur regularly in winter include Grey Heron, Little Egret, Cormorant, Wigeon, Goldeneye, Red-breasted Merganser, Ringed Plover and Greenshank. Gulls are a feature of the site during winter and, along with the nationally important population of Black-headed Gull (2,196), other species that occur include Common Gull (332) and Herring Gull (331). While some of the birds also frequent South Dublin Bay and the River Tolka Estuary for feeding and/or roosting purposes, the majority remain within the site for much of the winter. The wintering bird populations have been monitored more or less continuously since the late 1960s and the site is now surveyed each winter as part of the larger Dublin Bay complex.

The North Bull Island SPA is a regular site for passage waders, especially Ruff, Curlew Sandpiper and Spotted Redshank. These are mostly observed in single figures in autumn but occasionally in spring or winter.

The site formerly had an important colony of Little Tern but breeding has not occurred in recent years. Several pairs of Ringed Plover breed, along with Shelduck in some years. Breeding passerines include Skylark, Meadow Pipit, Stonechat and Reed Bunting. The island is a regular wintering site for Short-eared Owl, with up to 5 present in some winters.

The North Bull Island SPA is an excellent example of an estuarine complex and is one of the top sites in Ireland for wintering waterfowl. It is of international importance on account of both the total number of waterfowl and the individual populations of Light-bellied Brent Goose, Black-tailed Godwit and Bar-tailed Godwit that use it. Also of significance is the regular presence of several species that are listed on Annex I of the E.U. Birds Directive, notably Golden Plover and Bar-tailed Godwit, but also Ruff and Short-eared Owl. North Bull Island is a Ramsar Convention site, and part of the North Bull Island SPA is a Statutory Nature Reserve and a Wildfowl Sanctuary

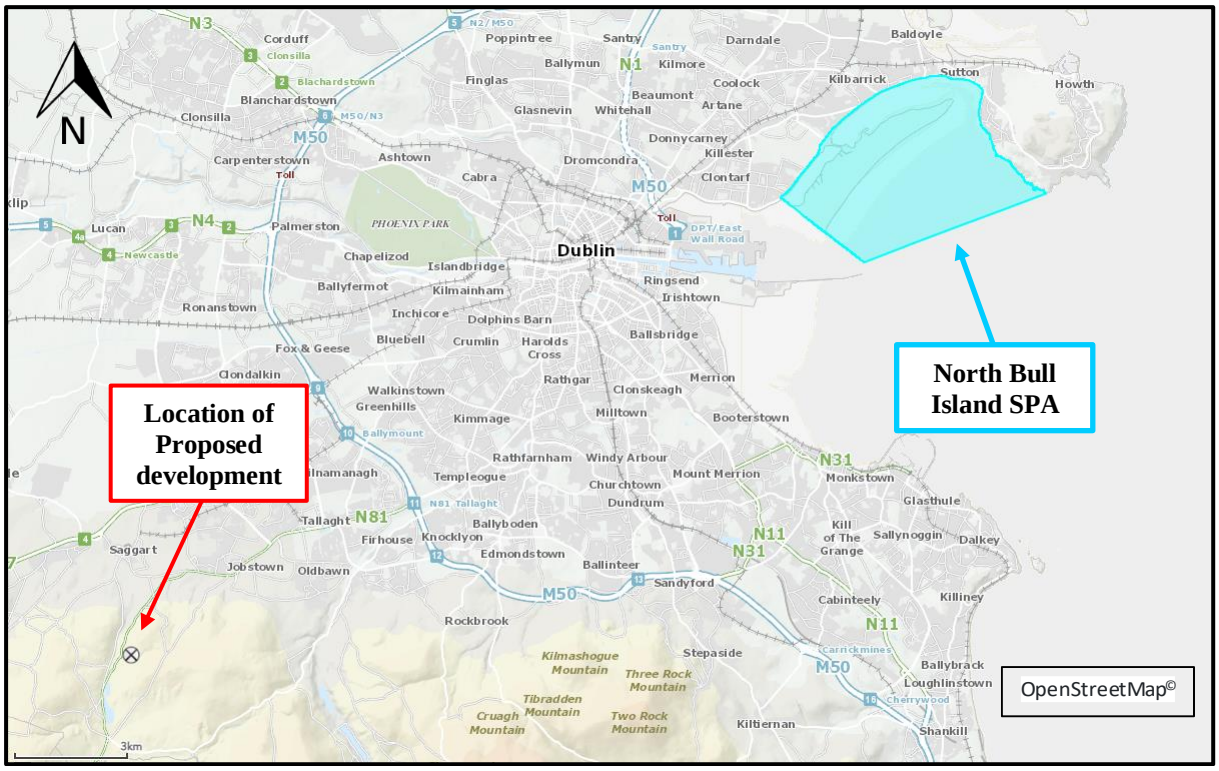

Figure 5.4: North Bull Island SPA (NPWS Map Viewer)

North Bull Island SPA Conservation Objectives

The Habitats Directive requires the Appropriate Assessment process to assess the potential impacts of the development "in view of the site's conservation objectives". Site specific conservation objectives (SSCOs) for the qualifying interests of the North Bull Island SPA are provided in the Table 5.4.2 below, where available from the NPWS document "Conservation Objectives: North Bull Island SPA 004006" (NPWS, 2015).

TABLE 5.4.2 NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[A046] Light-bellied Brent Goose *Branta bernicla hrota*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by light-bellied brent goose, other than that occurring from natural patterns of variation	
[A048] Shelduck *Tadorna tadorna*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by shelduck, other than that occurring from natural patterns of variation	
[A052] Teal *Anas crecca*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by teal, other than that occurring from natural patterns of variation	
[A054] Pintail *Anas acuta*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by pintail, other than that occurring from natural patterns of variation	
[A056] Shoveler *Anas clypeata*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by shoveler, other than that occurring from natural patterns of variation	
[A130] Oystercatcher *Haematopus ostralegus*			

TABLE 5.4.2 NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing and intensity of use of areas by oystercatcher, other than that occurring from natural patterns of variation.	
[A140] Golden Plover *Pluvialis apricaria*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by golden plover, other than that occurring from natural patterns of variation	
[A141] Grey Plover *Pluvialis squatarola*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by grey plover, other than that occurring from natural patterns of variation	
[A143] Knot *Calidris canutus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by knot, other than that occurring from natural patterns of variation.	
[A144] Sanderling *Calidris alba*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by sanderling, other than that occurring from natural patterns of variation.	

TABLE 5.4.2 NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
[A149] Dunlin *Calidris alpina alpina*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by dunlin, other than that occurring from natural patterns of variation.	
[A156] Black-tailed Godwit *Limosa limosa*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by black-tailed godwit, other than that occurring from natural patterns of variation	
[A157] Bar-tailed Godwit *Limosa lapponica*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by bar-tailed godwit, other than that occurring from natural patterns of variation	
[A160] Curlew *Numenius arquata*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by curlew, other than that occurring from natural patterns of variation	
[A162] Redshank *Tringa totanus*			
Population trend	Percentage change	Long term population trend stable or increasing	-

TABLE 5.4.2 NORTH BULL ISLAND SPA CONSERVATION OBJECTIVES			
ATTRIBUTE	**MEASURE**	**TARGET**	**SELECTED NOTES**
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A169] Turnstone *Arenaria interpres*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by turnstone, other than that occurring from natural patterns of variation	
[A179] Black-headed Gull *Chroicocephalus ridibundus*			
Population trend	Percentage change	Long term population trend stable or increasing	-
Distribution	Range, timing and intensity of use of areas	No significant decrease in the range, timing or intensity of use of areas by redshank, other than that occurring from natural patterns of variation	
[A999] Wetlands			
Habitat area	Hectares	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 1,713 hectares, other than that occurring from natural patterns of variation.	The wetland habitat area was estimated as 1,713ha.

North Bull Island SPA Conservation Status

According to the Habitat's Directive, favourable conservation status of a species is achieved when:

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

TABLE 5.4.3: CONSERVATION STATUS: NORTH BULL ISLAND SPA

CODE	SPECIAL CONSERVATION INTEREST	NATIONAL CONSERVATION STATUS*
A046	Light-bellied Brent Goose	Amber List
A048	Shelduck	Amber List
A052	Teal	Amber List
A054	Pintail	Amber List
A056	Shoveler	Red List
A130	Oystercatcher	Red List
A140	Golden Plover	Red List
A141	Grey Plover	Red List
A143	Knot	Red List
A144	Sanderling	Green List
A149	Dunlin	Red List
A156	Black-tailed Godwit	Red List
A157	Bar-tailed Godwit	Red List
A160	Curlew	Red List
A162	Redshank	Red List
A169	Turnstone	Amber List
A179	Black-headed Gull	Amber List
A999	Wetland and Waterbirds	-

** Birds of Conservation Concern in Ireland 2020-2026 (Gilbert et al, 2021) and Bird Atlas 2007 – 2011*

6.0 ASSESSMENT OF LIKELY IMPACTS

6.1 DISTURBANCE TO PROTECTED HABITATS AND SPECIES

The proposed development does not directly impinge on any part of a European site, and as such would not be expected to have any in-situ effects upon a protected site through loss or destruction of habitat, fragmentation of habitat, disturbance of habitat or direct reduction in species density. Glenasmole Valley SAC and Wicklow Mountains SAC boundaries are located approximately 4.2 and 4.6km from the proposed development site. Given the proximity and indirect hydrological connection through the larger catchment system to this site, potential ex-situ impacts must also be considered. See Appendix A & B for summary of the Qualifying Interests and summary of potential impact from the proposed sites.

It is not considered that the proposed development site would contain the habitats or species for which the Glenasmole Valley SAC has been designated. No areas of Orchid-rich Calcareous Grassland [6210], Molinia Meadows [6410] and Petrifying Springs [7220] are within the proposed development boundary. The total current area of these habitats is unknown, however, they are known to be a feature of the designated site. It is not considered that the proposed development site would contain the habitats or species for which the Wicklow Mountains SAC has been designated. No habitats associated with this designated site were found within the proposed development boundary.

The development involved the landscaping, ground levelling and hardcore surfacing of approximately 0.65 ha of managed grassland (lawn), ornamental trees and bushes. The pre-existing vegetation within this area was heavily modified and managed. Therefore, these habitats would not be associated with protected habitats and would not provide suitable habitat for protected species.

The proposed development is located approximately 17.2km from the South Dublin Bay and River Tolka Estuary SPA and 20km from the North Bull Island SPA. There is a potential hydrological connection between the proposed development and the protected sites via a watercourse onsite. However, the location of the tented accommodation is located away from the part of the watercourse to the south-west where water was observed.

The bird species listed as qualifying interests of both SPA's are mostly associated with coastal habitats however, some are associated with grasslands such as Light-bellied Brent Geese. No species associated with these Natura 2000 sites were recorded onsite. The existing grassland within the central area of the site would not support these qualifying interests. While they have been classified as dry meadows and grassy verges, the grasslands have been cut and will continue to be managed for the foreseeable future. The grassland to the south, as mentioned before is more of a neutral grassland. It is managed for sheep. Given the large distance, nature of the works, distance to the nearest watercourse and limited area that the tented accommodation encompasses, it is not considered that the proposed development would have a significant impact on the qualifying interests. There are also extensive areas of grasslands surrounding the proposed development should any species be present.

During the operational phase there is no potential for significant impact on water quality, as stormwater will be directed to the combined sewer, which discharges to a treatment plant in the southwest corner of the site. The treated effluent is discharged to an irrigation area in the wooded area adjacent to the plant.

It is not envisaged that protected species would be adversely impacted upon by the development due to noise generated by the proposed development given the residential nature of the development and the distances to European sites. Fauna in the area would be accustomed to human generated noise from residential activities during the operational phase of the development. While there would have been increased noise emissions during the construction phase of the development, these would not be considered to pose a significant risk owing to the transient nature of works and the small scale of proposed works. Construction works were be mainly carried out during daylight hours away from the Camac river main channel, therefore would not cause significant disturbance to nocturnal species foraging at the river. Fauna in the area would also be accustomed to noise from vehicular traffic during the operational phase of the development. Earthworks were confined to the site, greater than 100m from the onsite stream, were not up-gradient of the stream and topsoil was used for site levelling.

There was no evidence of potential disturbance on protected habitats and species due to dust during the construction phase, given the transient nature of construction works and the type and scale of the proposed development. It is not considered that the operational phase of the development would have the potential to adversely impact upon designated sites due to air emissions given the residential nature of the development.

It is therefore considered that the proposed development would not result in any significant risk to the protected habitats and species of the Glenasmole Valley SAC, Wicklow Mountains SAC, South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA due to habitat fragmentation or loss, disturbance or reduction in species density.

6.2 INVASIVE SPECIES

Under Regulation 49(2) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011), save in accordance with a licence granted under paragraph (7), any person who plants, disperses, allows or causes to disperse, spreads or otherwise causes to grow in any place specified in relation to any plant which is included in Part 1 of the Third Schedule shall be guilty of an offence. Materials containing invasive species such as Japanese Knotweed are considered "controlled waste", and, as such, there are legal restrictions on their handling and disposal. Under Regulation 49(7) of the European Communities (Birds and Natural Habitats) Regulations 2011, it is a legal requirement to obtain a license to move "vector materials" listed in the Third Schedule, Part 3.

Table 6.1: National Biodiversity Data Centre records of high impact invasive species within 10km square (O02) of the proposed development.

INVASIVE FLORA SPECIES	
Indian Balsam (*Impatiens glandulifera*),	New Zealand Pigmyweed (*Crassula helmsii*),
Giant Hogweed (*Heracleum mantegazzianum*)	Three-cornered Garlic (*Allium triquetrum*)
Japanese Knotweed (*Fallopia japonica*)	*Rhododendron ponticum*
American Skunk-cabbage (*Lysichiton americanus*)	Fringed Water-lily (*Nymphoides peltate*)
Curly Waterweed (*Lagarosiphon major*)	Giant Knotweed (*Fallopia sachalinensis*)

The spread of invasive plant and animal species can negatively impact on the conservation objectives of certain Annex I habitats and species designated within SACs.

There are no high impact invasive species within or adjacent the site boundary.

The risk of invasive species being introduced onto the site during the operational phase of the project is considered to be low, with no import of materials with the potential to contain invasive flora species. Any additional topsoil will be thoroughly checked and screened before being imported into the site. Therefore, it is considered that there would be no significant risk to protected habitats and species as a result of invasive species from the site.

6.3 POTENTIAL IMPACTS ON WATER QUALITY

The proposed development is located within the Liffey and Dublin Bay Catchment; thus the proposed development would be hydrologically linked to the Glenasmole Valley SAC and Wicklow Mountains SAC. It should also be noted that these Natura 2000 sites are located upstream from the proposed development. However, the proposed development would not be considered to impact upon the listed habitats and species of the SAC sites due to deleterious effects on water quality, owing to the location of the development and the nature of the works on the development site.

As discussed in Section 4.2, the development site is located approximately 150m from the Camac river main channel. A small stream runs along the access road to the south of the site, which is connected to the Camac River.

Wastewater and grey-water from the development is collected by a suitably permitted waste contractor by tanker twice per week from the internal storage on sanitary units and the canteen grey-water tank. Wastewater is transported to municipal wastewater treatment facilities within the vicinity of the site. Waste collection dockets are retained for each collection. Wastewater is treated to compliance with each facility discharge licence prior to discharge to receiving watercourses and no ecological impacts would be expected.

Storm & Surface Water Drainage: Run-off from existing buildings is connected to the combined foul system, which discharges to a treatment plant. The treated effluent is discharged to an irrigation area in the wooded area adjacent to the plant. The site is set in a natural drainage area on the side of a mountain and flooding of the grounds. The grounds require frequent maintenance to avoid flooding from small stream on site. Rainwater within the tented accommodation areas and existing roads percolated directly to ground.

During the construction phase of projects, a deterioration in water quality can arise through the release of suspended solids during soil disturbance works, the release of uncured concrete and the release of hydrocarbons (fuels and oils). The unnamed watercourse is a tributary of the Camac River, the Camac is a main tributary of the River Liffey, which is not designated as an SAC or SPA. There are protected sites downstream of the River Liffey, mainly River Tolka Estuary and South Dublin Bay SPA and the North Bull Island SPA. The only ground works which have occurred at the site are within the tented accommodation area. This area is not directly upgradient of the onsite open stream and runoff during ground works percolated directly to ground. There was no evidence of hydrocarbon spillage within the site. Therefore, given the small scale of construction works, any potential deleterious effect on water quality would be localised. Additionally, the large hydrological distance to the downstream protected sites would ensure no qualifying interests for which those sites have been designated will be negatively impacted.

During the operational phase, it is not anticipated that the drainage systems have the potential to impact upon the listed habitats and species of a Natura 2000 site due to deleterious effects on water quality.

It is therefore considered that, due to the nature and location of the development, the scale and extent of construction works, the proposed development would not pose a significant risk upon the Glenasmole Valley SAC, Wicklow Mountains SAC, South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA sites due to a deleterious effect on water quality during either the construction or operational phases.

6.4 IN COMBINATION EFFECTS

The following plans and projects were reviewed and considered for in-combination effects with the proposed development:

- South Dublin County Development Plan 2022-2028;
- Proposed and permitted developments in the area available on South Dublin County Council planning system.

The proposed development site is located 2.33km south-west of Dublin City via the N81 National Road (Blessington Road) along the western boundary. The N81 provides access to the site. The surrounding area is predominantly rural in nature with agricultural fields, areas of natural vegetation and one-off residences located in the immediate vicinity of the site. The following plans and projects were reviewed and considered for in-combination effects with the proposed development.

Table 6.2: Recent Planning Applications Close to the Proposed Site

Application No.	Development Type	Outcome	Approximate Distance
SD19B/0022	Retain and complete single storey extension to rear (40sq.m) and porch extension to front (2sq.m) to existing bungalow; alterations to elevations; associated works and connection to existing services.	Granted	Immediately south
SD23A/0205	(i) The continued seasonal use of land/farm sheds associated with family entertainment events to be held at Christmas, Easter and Halloween. The dates for such use sought will recur annually between 14th March - 25th April, 24th - 31st October and 24th November to 23rd December. (ii) 3 no. temporary signs located at the entrance, (iii) 2 no. containers with covered area, (iv) 4 no. single storey portaloo toilets, (v) 4 no. single storey portacabins, (vi) Festoon lighting set 10 to 15 metres apart and (vii) Provision of 99 car parking spaces in total including 2 accessible spaces, 94 visitor spaces and 3 staff spaces. All of the above works are temporary and removable. Limited site enabling works are also proposed. The existing entrance accessing Lugg Woods from Slade Road will provide vehicular access for the public.	Request Additional Information	175m west
SD20A/0267	Single storey dwelling and detached garage with bored well and packaged waste water treatment	Refused	610m east

Application No.	Development Type	Outcome	Approximate Distance
	system & polishing filter to EPA Code of Practice 2009, accessed from existing right of way.		
SD23A/0030	New detached bungalow type dwelling house, (B) New vehicular recessed entrance off L7377 Mount Seskin Road, (C) New onsite domestic wastewater treatment system, (D) Landscaping and all associated site development works on lands at Intersection of Meagan's Lane and L7377 Mount Seskin Road, Crooksling, Saggart, Co. Dublin.	Refused	725m east
SD21A/0017	New vehicular entrance to existing farm including the construction of new 1.8 metre high pillars and the erection of a new roller gate and all associated site works; the proposed new entrance will be set back 6.5 metres from the edge of the road to allow 90 metre sightlines in both direction.	Granted	990m north-west

The existing heating system consists of an electric heating system powered by an onsite electrical generator. The rental generator is well serviced and air emissions would be minor. It is also noted that this emission would be temporary as future development would be connected to the sites electricity mains supply. In-combination residential impacts would be controlled by national energy policies, grant schemes and motor fuel emission targets. Continued implementation of the Water Framework Directive would result in achieving, or maintaining, improvements to water quality in the Liffey and Dublin Bay Catchment. Developments such as this proposed development could act in combination with existing environmental pressures on the Liffey and Dublin Bay Catchment, including agriculture, anthropogenic, domestic and urban wastewater, urban run-off, industry and forestry. However, as noted in Section 6.3, it is not considered that the development would pose a significant risk upon any Natura 2000 site due to a deleterious effect on water quality, during either the construction or operational phase. It is not considered that the proposed development would have a significant in-combination effect with existing or proposed developments in the area.

As discussed in Sections 6.1 – 6.3 above, it is considered that there would be no significant in-combination risk to any European site owing to the development. As there are no anticipated significant risks from the development and proposed works given the scale and nature of recent nearby developments, the type of proposed development (emergency accommodation), the distances of other developments in the area, it is considered that there would be no cumulative water, noise or air impacts which would pose a significant risk to designated sites or species.

7.0 SCREENING STATEMENT AND CONCLUSIONS

This report identified the presence of European sites (Natura 2000) within the potential zone of influence of the proposed development and noted that the proposed development site is approximately 4.2km from Glenasmole Valley SAC (Site Code: 001209), 4.6km from Wicklow Mountains SAC (Site Code: 002122), 17.2 km from South Dublin Bay and River Tolka Estuary SPA (Site Code: 004024) and 20.9 km from the North Bull Island SPA (Site Code: 004006). The potential for impacts to European sites as a result of the proposed development such as potential water quality impacts, introduction of invasive species, habitat destruction and impacts from noise and dust were considered and the level of risk posed assessed.

During Stage 1 Screening for Appropriate Assessment, it was considered that there would be no potential for a significant impact upon the qualifying interests / special conservation interests of the Glenasmole Valley SAC, Wicklow Mountains SAC, South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA during both the construction and operational phase of the proposed development.

This report presents a Stage 1 Appropriate Assessment Screening for the Proposed Development, outlining the information required for the competent authority to screen for appropriate assessment and to determine whether or not the Proposed Development, either alone or in combination with other plans and projects, in view of best scientific knowledge, is likely to have a significant effect on any European or Natura 2000 site. It is considered that there would be no significant risk of negative impact, either alone or in combination with other plans or projects, to the integrity of the Natura 2000 network. Therefore, a Natura Impact Statement is not required.

Accordingly, having carried out the Stage 1 Appropriate Assessment Screening, the competent authority may determine that a Stage 2 Appropriate Assessment of the Proposed Development is not required as it can be excluded, on the basis of objective scientific information following screening under this Regulation 42 of the European Communities (Birds and Natural Habitats) Regulations 2011, as amended, that the Proposed Development, individually or in combination with other plans or projects, will not have a significant effect on any European site.

It can be objectively concluded that no significant effects arising from the proposed development are likely to occur in relation to Glenasmole Valley SAC, Wicklow Mountains SAC, South Dublin Bay and River Tolka Estuary SPA and North Bull Island SPA or indeed any other Natura 2000 site in the wider hinterland.

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APPENDIX A

ALL QUALIFYING INTERESTS

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
[6210] Orchid-rich Calcareous Grassland	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, unmapped areas of the habitat are likely to be present within the SAC, particularly to the west of the reservoirs. It is therefore possible that this qualifying interest is located within the vicinity of the development site. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[6410] *Molinia* Meadows	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, total current area of *Molinia* meadows Glenasmole Valley SAC is unknown, although the habitat is known to occur near the centre of the SAC. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[7220] Petrifying Springs	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, the total current area of the habitat in Glenasmole Valley SAC in unknown. There is a freshwater habitat in the immediate vicinity of the site in the form of a small stream. However, the Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[3110] Oligotrophic Waters containing very few minerals	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat is potentially present in all lakes larger than 1ha within the SAC. The Conservation Objectives for this qualifying interest include water quality attributes. Therefore, there is potential	Yes	Yes

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.		
[3160] Dystrophic Lakes	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat is potentially present in all pools and lakes, with the exception of the Lower Lake (Glendalough) and Lough Dan within the SAC. The Conservation Objectives for this qualifying interest include water quality attributes. Therefore, there is potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	Yes	Yes
[4010] Wet Heath	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat has not been mapped in detail for this SAC but is estimated to cover approximately 25% of the total area. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[4030] Dry Heath	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat has not been mapped in detail for this SAC but is estimated to cover approximately 13% of the total area. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[4060] Alpine and Subalpine Heaths	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat has not been mapped in detail for this SAC but is estimated to cover approximately 13% of the total area. The Conservation Objectives for this qualifying interest do not include water quality	No	No

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.		
[6130] *Calaminarian* Grassland	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, unsurveyed areas are present within the SAC. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[6230] Species-rich *Nardus* Grassland*	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, the total area of the qualifying habitat is estimated to be approximately 2ha, covering less than 1% of the SAC. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[7130] Blanket Bogs (Active)*	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat has not been mapped in detail for this SAC but is estimated to cover approximately 38% of the total area. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[8110] Siliceous Scree	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, total area of the qualifying habitat is estimated to be approximately 54ha, covering less than 1% of the SAC. The Conservation Objectives for this qualifying interest do not include water quality	No	No

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.		
[8210] Calcareous Rocky Slopes	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, this habitat has not been mapped in detail total area in the SAC is unknown. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[8220] Siliceous Rocky Slopes	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, the total area of the qualifying habitat is estimated to be approximately 36ha, covering less than 1% of the SAC. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[91A0] Old Oak Woodlands	The proposed development is located outside the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, the minimum area of old oak woodland within the SAC is estimated to be 215.4ha and further unsurveyed areas may be present. The Conservation Objectives for this qualifying interest do not include water quality attributes. Therefore, there is no significant potential for the proposed development to have an impact upon this qualifying interest due to a potential deterioration in water quality.	No	No
[1355] Otter (*Lutra lutra*)	The proposed development is located within the current known distribution, current range and favourable reference range of this qualifying interest (NPWS, 2019b). According to the SAC Conservation Objectives report, According to data from NBCD, otter have been recorded in watercourses near the development site. The Conservation Objectives for this qualifying interest do not include water quality	Yes	Yes

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	attributes. A significant impact on water quality could indirectly impact upon this qualifying interest by causing a reduction in prey populations and availability.		
[A046] Light-bellied Brent Goose (*Branta bernicla hrota*)	Winter migrant from high-Arctic Canada. Most occur in Ireland between October and April. This population winters almost entirely in Ireland, with small numbers in parts of Britain and France. During the winter, it feeds mostly on eel-grass, which grows on muddy estuaries, and also on grasslands, usually when coastal supplies have been depleted at estuarine sites. Nests in small, loose colonies by coastal tundra, with pools and small inlets. Mostly found on coastal estuaries during the autumn and early winter, and also on grasslands from mid-winter, until departure for the breeding grounds begins in late April. A deterioration in water quality could have an impact on this species.	Yes	Yes
[A048] Shelduck (*Tadorna tadorna*)	Resident and winter migrant. Chief prey source is *Hydrobia ulvae* (a type of mudsnail), which is present in almost all estuaries, and often in large numbers. Spatial distribution is strongly influenced by the behaviour of this prey, particularly in relation to water depth. Breeds in open areas along seashores, larger lakes and rivers. Nest in holes in banks, trees, occasionally strawstacks or buildings. Winters in sheltered estuaries or tidal mudflats. A deterioration in water quality could have an impact on this species.		
[A052] Teal (*Anas crecca*)	Feeds predominantly on small seeds, but *Enteromorpha* sp. and molluscs are also frequently taken. Occasionally feed on chironomid larvae where available, though usually during the summer months. They usually nest near small freshwater lakes or pools and small upland streams away from the coast, and also in thick cover. Widespread on wetlands with good cover, such as reedbeds. Wide variety of habitats, both coastal and inland, and usually below an altitude of 200 metres, including coastal lagoons and estuaries and inland marshes, lakes, ponds and turloughs. A deterioration in water quality could have an impact on this species.		
[A054] Pintail (*Anas acuta*)	Local winter visitor to wetlands throughout Ireland from October to March. Their diet consists largely of plant seeds and underwater plants, while insects and crustaceans are also eaten. They also feed on farmland, particularly stubble. Nest in shallow freshwater marshes, small lakes and rivers, preferably with dense vegetation cover. In		

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	winter, they form large flocks on brackish coastal lagoons, in estuaries and on large inland lakes. A deterioration in water quality could have an impact on this species.		
[A056] Shoveler (*Anas clypeata*)	Resident & winter migrant. Feed predominantly on zooplankton which are found mostly on ephemeral wetlands, particularly turloughs and callows. They also feed on small molluscs, insects and larvae, seeds and plant material and are frequently seen dabbling around the edges of waterpools. Nests on the ground among waterside vegetation, often many nests in close proximity. Breeding in Ireland is centred around Lough Neagh and the mid- Shannon basin. Shoveler prefer shallow eutrophic waters rich in plankton, and occur on a variety of habitats while wintering in Ireland, including coastal estuaries, lagoons and inland lakes and callows. A deterioration in water quality could have an impact on this species.		
[A130] Oystercatcher (*Haematopus ostralegus*)	Resident & winter visitor (from Iceland and the Faeroes). The main food resource includes the larger invertebrates, particularly mussels and cockles that proliferate along sandy coasts. Nests principally on shingle beaches, dunes, salt marshes and rocky shores around the coast, but also on some large inland lakes. A deterioration in water quality could have an impact on this species.		
[A137] Ringed Plover (*Charadrius hiaticula*)	Resident & winter visitor from areas further north where this population also breeds (Iceland, the Baltic & southern Scandinavia). Peak numbers between August and early October. It feeds on a variety of invertebrates, particularly polychaete worms and crustaceans. Mostly coastal breeding distribution, preferring to nest on exposed wide sandy or shingle beaches. Some breed inland, particularly in the west, where their preferred nesting habitat is on short-grazed pasture beside rivers and along lake. Winter around the entire coastline. Mostly recorded along sandy stretches or along the upper shores of estuaries and non-estuarine coastline. A deterioration in water quality could have an impact on this species.		
[A140] Golden Plover (*Pluvialis apricaria*)	Summer visitor from France & Iberia & winter visitor from Iceland. Feed on a variety of soil and surface-living invertebrates, principally beetles and earthworms, but also on plant material such as berries, seeds and grasses. Breed in heather moors, blanket bogs & acidic grasslands. Distribution limited to the uplands of northwest counties in Ireland. Throughout the winter, Golden Plovers are regularly found in large, densely-packed flocks, and in a variety of habitats, both coastal and inland. Their distribution		

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
	is widespread in Ireland. A deterioration in water quality could have an impact on this species.		
[A141] Grey Plover *(Pluvialis squatarola)*	Winter visitor from Siberia - first birds arrive in Ireland and Britain towards the end of July but most here between September & April. Distribution in Ireland is widespread, but exclusively coastal. They occur mostly along eastern and southern coasts, most often on large muddy estuaries. A deterioration in water quality could have an impact on this species.		
[A143] Knot (*Calidris canutus*)	Winter visitor from northern Greenland and from the Queen Elizabeth Islands of high Arctic Canada west to Prince Patrick Island. Feeds predominantly on bivalve mussels and crustaceans. Breed at low density, and often close to the coast, nesting on well concealed and sparsely vegetated gravel and rocky slopes. The wintering distribution is entirely coastal, and their preferred habitat mostly includes estuarine sites with extensive areas of muddy sand. They occur mostly in large flocks and on fewer estuaries than other wader species. A deterioration in water quality could have an impact on this species.		
[A144] Sanderling (*Calidris alba*)	Winter visitor. Feeds predominantly on small invertebrates. They have a highly characteristic feeding technique of rushing along the tidal edge (as though on wheels) foraging for prey items such as small polychaete worms and shrimp-like crustaceans. Breeds across Arctic tundra, preferring small patches of vegetation. Mostly found along sandy coastlines, especially non-estuarine. A deterioration in water quality could have an impact on this species.		
[A149] Dunlin (*Calidris alpina*)	Summer visitor from NW Africa/SW Europe, winter visitor from Scandinavia to Siberia, passage migrant from Greenland (heading south to winter in Africa). Most occur during the mid-winter period. Feed predominantly on small invertebrates of estuarine mudflats, particularly polychaete worms and small gastropods. Nests on the ground in sparse, low vegetation - in Ireland favours machair habitats. Common along all coastal areas - especially on tidal mudflats and estuaries. A deterioration in water quality could have an impact on this species.		

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
[A156] Black-tailed Godwit (*Limosa limosa*)	Winter visitor from Iceland. Feed on a range of invertebrates, including bivalves, polychaete worms and shore crabs. Prefer to feed on muddier estuaries, but also feed in brackish pools and on nearby rough pasture. While on pasture, they feed on the larvae of crane fly (*Tipulidae*) and on the amphipod *Corophium volutator*. Breed in lowland wet grassland and marshes. Winters in a variety of habitats, both inland (particularly grassland and river deltas) and coastal (particularly estuaries), though seldom seen along non-estuarine coast. A deterioration in water quality could have an impact on this species.		
[A157] Bar-tailed Godwit (*Limosa lapponica*)	Winter visitor to coastal estuaries from October to April from Russia and Scandinavia. Feed along the tidal edge, or in shallow water. Breeds in northern Norway, Finland and further to the north and east. Wintering distribution entirely coastal. A deterioration in water quality could have an impact on this species.		
[A160] Curlew (*Numenius arquata*)	Winter visitor to wetlands throughout Ireland, as well as breeding in small numbers in floodplains and boglands. They feed mostly on invertebrates, particularly ragworms, crabs and molluscs. They are usually well dispersed across the estuary while feeding, but roost communally, usually along salt marshes and sand banks. Nests on the ground in rough pastures, meadows and heather. Not a common breeder, but found in most parts of the country. Winters in a wide range of wetland habitats (coastal and inland) and other good feeding areas including damp fields. A deterioration in water quality could have an impact on this species.		
[A162] Redshank (*Tringa totanus*)	Resident, winter visitor from Iceland and passage migrant (birds on passage from Scandinavia/the Baltic breeding areas to west African wintering areas). Feeds mostly during the day along the upper shore of estuaries and along muddy river channels. Nests on the ground in grassy tussock, in wet, marshy areas and occasionally heather. Breeds mainly in midlands (especially Shannon Callows) and northern half of the country, but not commonly anywhere in Ireland. Winters all around the coasts of Ireland, Britain and many European countries. Favours mudflats, large estuaries and inlets. Smaller numbers at inland lakes and large rivers. A deterioration in water quality could have an impact on this species.		

QUALIFYING INTEREST	LOCATION IN THE NATURA 2000 SITE RELATIVE TO APPLICATION SITE	POTENTIAL FOR IMPACTS FROM THE DEVELOPMENT	LISTED FOR FURTHER EXAMINATION IN APPENDIX B
[A169] Turnstone (*Arenaria interpres*)	Winter visitor from northeast Canada and northern Greenland. Feeds on sandhoppers & other marine invertebrates. Also fish carrion washed up on shore. Does not breed in Ireland - breeding range all around shores of Scandinavia and Canada. Winters all around the Irish coast. A deterioration in water quality could have an impact on this species.		
[A179] Black-headed Gull (*Chroicocephalus ridibundus*)	Resident along all Irish coasts, with significant numbers arriving from the Continent in winter. Breeds in small numbers on islands in larger lakes in western Ireland. Feeds on insects especially in arable fields. Will also exploit domestic and fisheries waste. Breeds both on the coast and inland where they will often nest in colonies. Usually, nests on the ground in wetland areas, such as bogs and marshes and will also use manmade lakes. The largest colonies in Ireland are in Northern Ireland on Lough Neagh. The development is located within the current range and favourable reference range of this qualifying interest (NPWS, 2019b). A deterioration in water quality could have an impact on this species.		

APPENDIX B

QUALIFYING INTERESTS WITHIN THE ZONE OF INTEREST

CONSERVATION OBJECTIVES (NPWS 2011)	THREATS AND PRESSURES (NPWS 2019)	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
[3110] Oligotrophic Waters containing very few minerals	• Agricultural activities generating diffuse pollution to surface or ground waters • Forestry activities generating pollution to surface or ground waters • Peat extraction • Drainage for use as agricultural land • Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) • Discharge of urban waste water (excluding storm overflows and/or urban run-offs) generating pollution to surface or ground water	A potential deterioration in Water Quality could potentially impact on this habitat. Key Conservation Measures None taken	No potential for a significant impact on water quality as there is no potential for significant groundwater contamination or significant runoff (sediments or hydrocarbons) from the proposed site that would enter any watercourse or drainage system that is hydrologically connected to the SAC.
[3160] Dystrophic Lakes	• Forestry activities generating pollution to surface or ground waters • Peat extraction • Agricultural activities generating diffuse pollution to surface or ground waters • Modification of hydrological conditions, or physical alteration of water bodies and drainage for forestry (including dams) • Drainage for use as agricultural land • Energy production and transmission activities generating pollution to surface or ground waters	A potential deterioration in Water Quality could potentially impact on this habitat. Key Conservation Measures None taken	No potential for a significant impact on water quality as there is no potential for significant groundwater contamination or significant runoff (sediments or hydrocarbons) from the proposed site that would enter any

CONSERVATION OBJECTIVES (NPWS 2011)	THREATS AND PRESSURES (NPWS 2019)	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
			watercourse or drainage system that is hydrologically connected to the SAC.

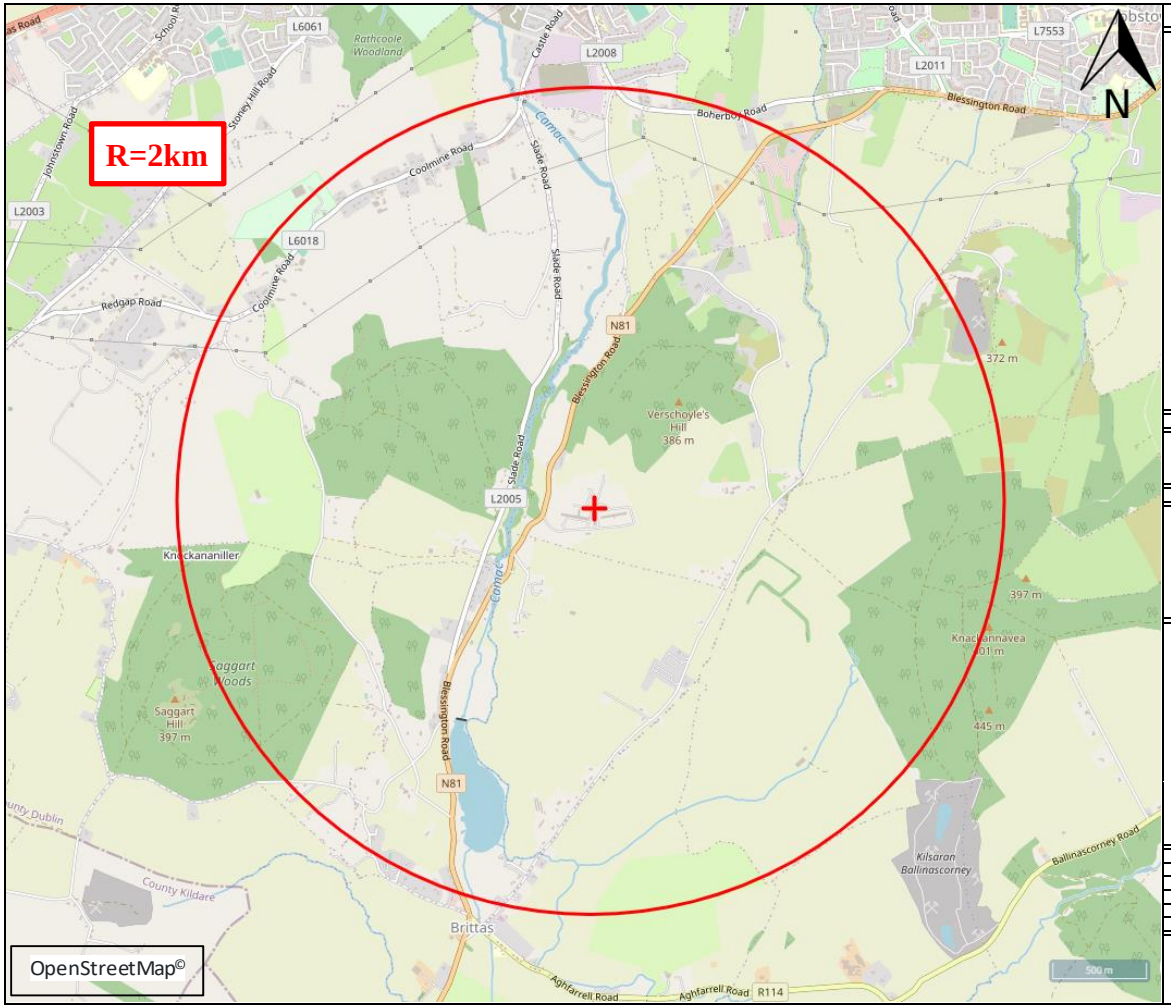
SPECIES	STATUS THREATS AND PRESSURES	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
[1355] Otter (*Lutra lutra*)	None listed	A significant impact on water quality could indirectly impact upon this qualifying interest by causing a reduction in prey populations and availability. <u>Key Conservation Measures</u> • The network of mammal underpasses on new roads are examples of positive measures that have been taken to reduce otter roadkill. • Diffuse and point-source pollution of freshwaters and coastal waters is likely to impact otters indirectly through changes to prey abundance.	No potential for a significant impact on water quality as there is no potential for significant groundwater contamination or significant runoff (sediments or hydrocarbons) from the development site that would enter any watercourse or drainage system that is hydrologically connected to the SAC.
[A046] Light-bellied Brent	• Deterioration & loss of habitat	A significant impact on water quality could indirectly impact upon this qualifying	

SPECIES	STATUS THREATS AND PRESSURES	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
Goose (*Branta bernicla hrota*) [A048] Shelduck (*Tadorna tadorna*) [A052] Teal (*Anas crecca*) [A054] Pintail (*Anas acuta*) [A056] Shoveler (*Anas clypeata*) [A130] Oystercatcher (*Haematopus ostralegus*) [A137] Ringed Plover (*Charadrius hiaticula*) [A140] Golden Plover (*Pluvialis apricaria*) [A141] Grey Plover *(Pluvialis squatarola)* [A143] Knot (*Calidris canutus*) [A144] Sanderling (*Calidris alba*)	• Hunting • Overfishing of food source • Impact on water quality • Disturbance of nesting birds • Residential or recreational activities and structures generating marine pollution	interest by causing a reduction in prey populations and availability. <u>Key Conservation Measures</u> • Reduce/eliminate marine pollution from marine aquaculture; • Protect from hunting and disturbance; • Protect habitat for foraging and nesting birds Reduce/eliminate point source pollution to surface or ground waters from industrial, commercial, residential and recreational areas and activities	No potential for a significant impact on water quality as there is no potential for significant groundwater contamination or significant runoff (sediments or hydrocarbons) from the proposed site that would enter any watercourse or drainage system that is hydrologically connected to the SAC or SPA's.

SPECIES	STATUS THREATS AND PRESSURES	KEY ENVIRONMENTAL CONDITIONS	POTENTIAL IMPACTS FROM THE DEVELOPMENT
[A149] Dunlin (*Calidris alpina*)			
[A156] Black-tailed Godwit (*Limosa limosa*)			
[A157] Bar-tailed Godwit (*Limosa lapponica*)			
[A160] Curlew (*Numenius arquata*)			
[A162] Redshank (*Tringa totanus*)			
[A169] Turnstone (*Arenaria interpres*)			
[A179] Black-headed Gull (*Chroicocephalus ridibundus*)			

APPENDIX C

PROTECTED SITES & SITE PLANS



Notes

– Location of Development

- SAC

- SPA

Project Title:

PROTECTED SITES MAP

Client Name:

ST. BRIDGET'S NURSING HOME,
CROOKSLING,
CO. DUBLIN

PANTHER ECOLOGY LTD

UNITS 3 & 4
S.E.T.U CARLOW CAMPUS
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Drawing Status:	Scale:	NTS	A4
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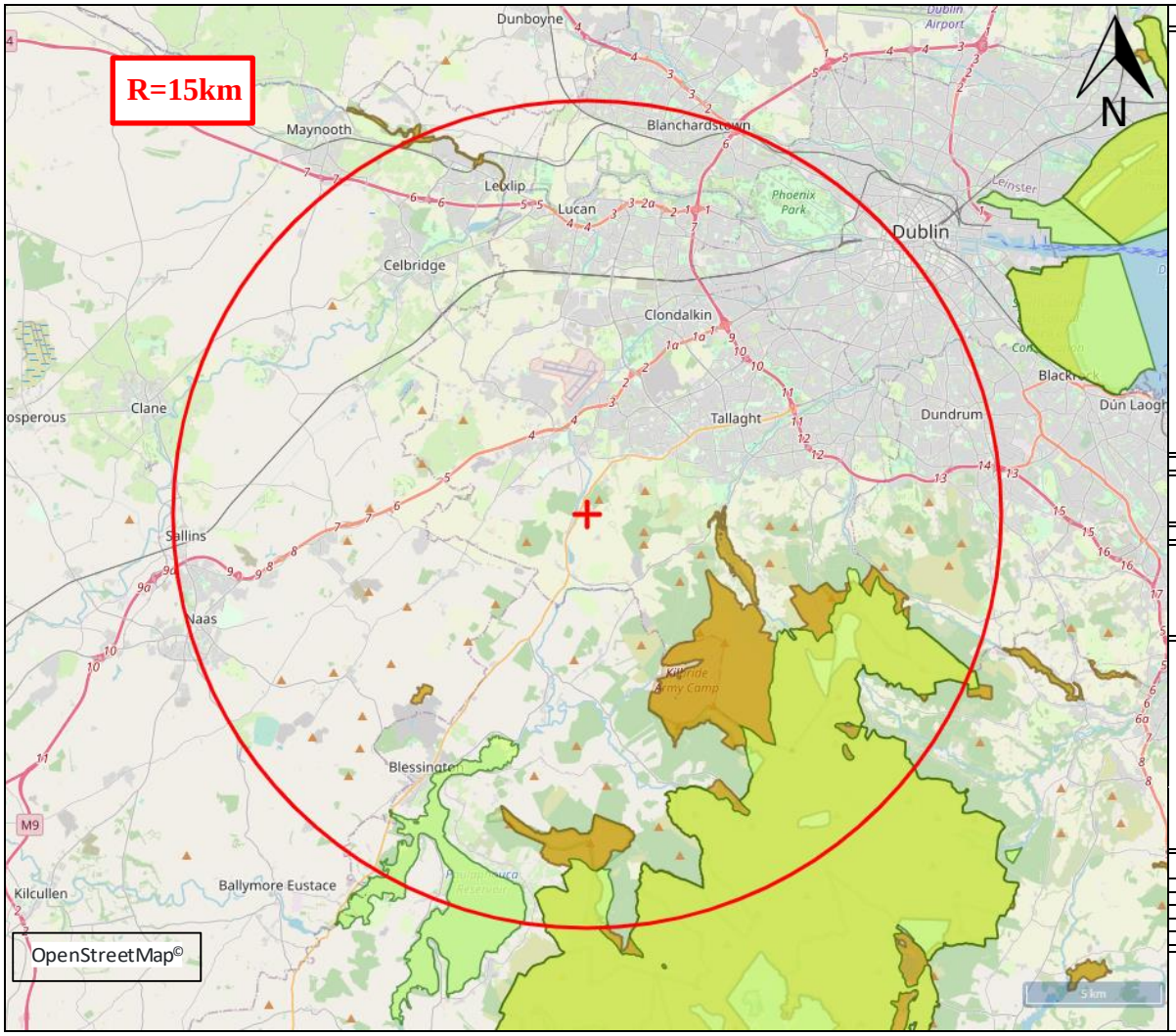
Revision:	Approved:	-	
	Date:	28/11/2023	



Notes

– Location of Development

- SAC

- SPA

Project Title:

PROTECTED SITES MAP

Client Name:

ST. BRIDGET'S NURSING HOME,
CROOKSLING,
CO. DUBLIN

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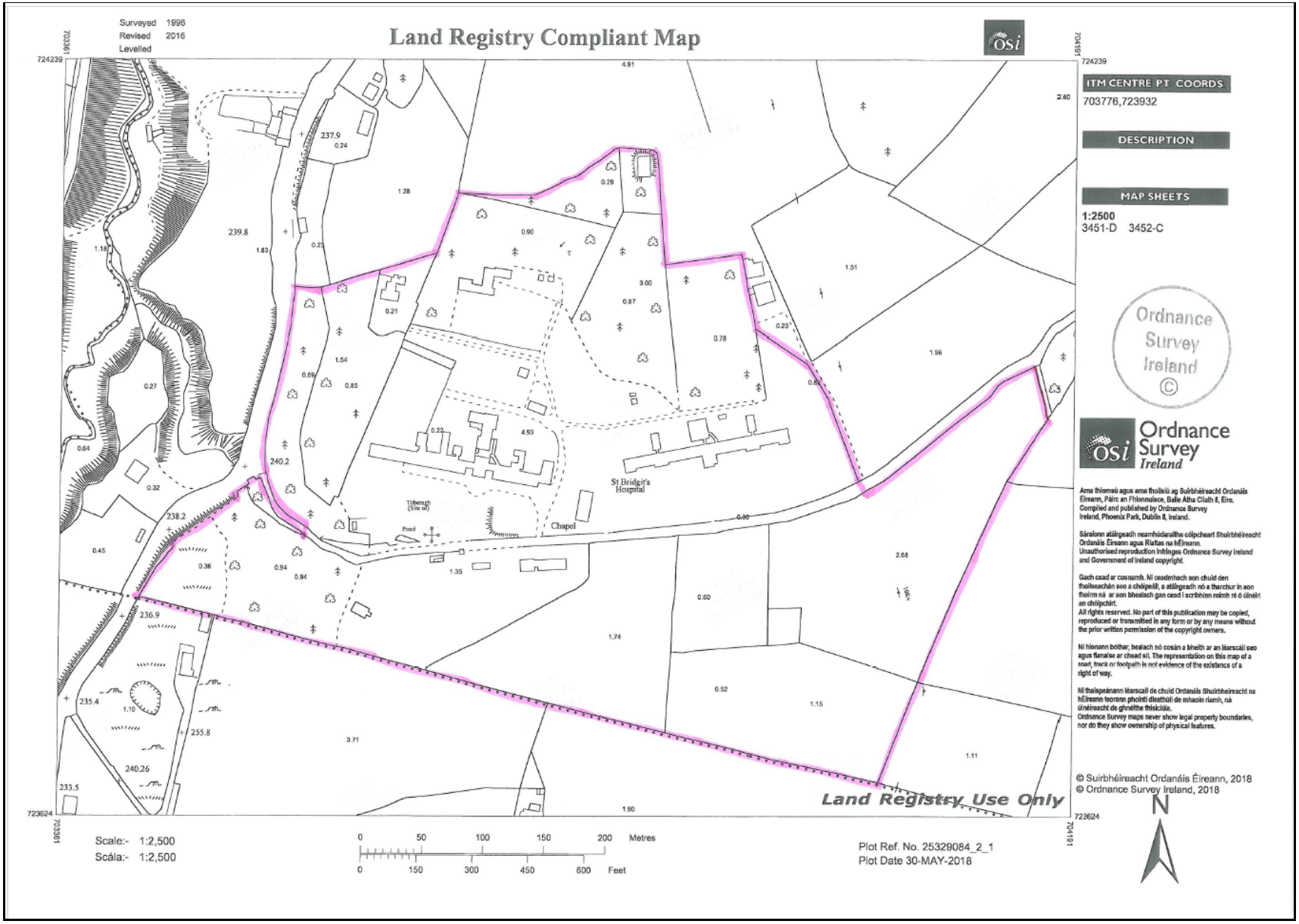
AA_10140	Checked:	PE	
Revision:	Approved:		
	Date:	28/11/2023	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Ordnance Survey Ireland
St Bridgit's Hospital
Chapel
Tobernagh (Site of)
Pond
Land Registry Use Only
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Plot Ref. No. 25329084_2_1
Plot Date 30-MAY-2018
© Suirbhéireacht Ordanáis Éireann, 2018
© Ordnance Survey Ireland, 2018
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APPENDIX C

PHOTO LOG

Plate 1: Site entrance, Buildings and artificial surfaces (BL3)

Plate 2: GS1 habitat to south-east

Plate 3: Ornamental and non-native shrub (WS3)

Plate 4: Scattered trees and parkland (WD5)

Notes:

APPENDIX D
PHOTO LOG

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drawing no.	rev	checked: RDS	
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		date: 19/06/2024	

Plate 5: Eroding/upland rivers (FW1) south-west of site

Plate 6: Recently mowed GS2 habitat and BL3

Plate 7: Mixed broadleaved woodland (WD1)

Plate 8: Treelines (WL2) and Buildings and artificial surfaces (BL3)

Notes:

APPENDIX D
PHOTO LOG

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