6 BIODIVERSITY

6.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) comprises an appraisal of the likely effects on biodiversity (flora and fauna) of the Proposed Development at Portmarnock South (known as Phase 1D).

The potential for any impacts on sites designated as European (Natura 2000) sites, under the EU Habitats and Birds Directives was also appraised, and the results of that study are presented in a separate report (Natura Impact Statement).

Brady Shipman Martin was commissioned to prepare this chapter of the EIAR on behalf of Quintain Developments Ireland Ltd. It was carried out by consultant ecologist Matthew Hague CEnv MCIEEM, with additional ecological surveys undertaken by bat, large mammal and bird specialist Brian Keeley. The bat and bird survey report is included at Appendix 6.1.

The author, Matthew Hague BSc MSc Adv. Dip. Plan. & Env. Law CEnv MCIEEM, is a highly experienced and qualified ecologist, with a master's degree in Ecosystem Conservation and Landscape Management. He has almost 20 years of experience in ecological and environmental consultancy, across a wide range of sectors. He has prepared numerous reports for AA Screening as well as Natura Impact Statements, for projects of all scales, from small residential developments to nationally important infrastructure projects. Matthew is a Chartered Environmentalist (CEnv) and a full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM). Matthew has also completed an Advanced Diploma in Planning and Environmental Law, at King's Inns and is a member of the Irish Environmental Law Association (IELA).

6.2 Assessment Methodology

A comprehensive desk-based assessment has been undertaken, and numerous site visits have been carried out by the author at the site and in the wider area of Portmarnock South since 2016, as detailed in the following sections.

6.2.1 Desk Study

This Ecological Impact Assessment (EcIA) and EIAR chapter has been prepared in accordance with the following publications: -

- EPA Guidelines on the Information to be Contained in Environmental Impact Statements (EPA, 2002) (and revised and draft guidelines 2017).
- EPA Advice Notes of Current Practice (in the Preparation of Environmental Impact Statements) (EPA, 2003) (and revised advice notes 2015).
- Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment (European Commission, 2013).
- Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment (Department of Housing, Local Government and Heritage, 2018).
- Guidelines for Assessment of Ecological Impacts of National Road Schemes (Transport Infrastructure Ireland (formerly the National Roads Authority) (2009).
- Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland: Terrestrial, Freshwater, Coastal and Marine ('the CIEEM Guidelines') published by the Chartered Institute of Ecology and Environmental Management (CIEEM), September 2018, updated in September 2019 (V1.1).

The chapter has regard to the following legislative instruments: -

- The Planning and Development Act 2000 (as amended).

- The Wildlife Act 1976 and the Wildlife (Amendment) Act 2000.
- Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the "Habitats Directive").
- Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds ("Birds Directive").
- European Communities (Birds and Natural Habitats) Regulations 2011 – 2015.
- Flora (Protection) Order 2015.
- Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment.
- Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment.
- European Union (Planning and Development) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018).

The chapter has regard to the following Policies and Plans: -

- National Biodiversity Action Plan 2017 – 2021 (Department of Culture, Heritage and the Gaeltacht, 2017).
- Planning for Watercourses in the Urban Environment (Inland Fisheries Ireland, 2020).
- Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters (Inland Fisheries Ireland, 2016).
- All-Ireland Pollinator Plan 2021 – 2025 (National Biodiversity Data Centre, 2021).
- Fingal County Development Plan 2017 – 2023, including the accompanying Natura Impact Report.

Information was collated from the sources listed below: -

- Data on rare and protected plant and animal species contained in the following databases: -
    - The National Parks and Wildlife Service (NPWS) of the Department of Culture, Heritage and the Gaeltacht (npws.ie).
    - The National Biodiversity Data Centre (NBDC) (biodiversityireland.ie).
    - Birdwatch Ireland (birdwatchireland.ie).
    - Bat Conservation Ireland (batconservationireland.org).
- Recent aerial photography and photographs taken at the site.
- Recent and historic ordnance survey (OSi) mapping (geohive.ie).
- Information on protected areas, as well as watercourses, catchments and water quality in the area available from the EPA (gis.epa.ie/EPAMaps/).
- Information on soils, geology and hydrogeology in the area available from the Geological Survey of Ireland (GSI) (gsi.ie).
- The NPWS Article 17 Reports: -
    - The Status of EU Protected Habitats and Species in Ireland – Volume 1 (NPWS, 2019a).
    - The Status of EU Protected Habitats and Species in Ireland – Volume 2 (Habitat Assessments) (NPWS, 2019b).
    - The Status of EU Protected Habitats and Species in Ireland – Volume 3 (Species Assessments) (NPWS, 2019c).

- Information on land-use zoning from the online mapping of the Department of the Environment, Community and Local Government (myplan.ie/en/index.html).

6.2.2 Field Surveys

A number of field visits have been undertaken over several years at this site between 2016 and 2021, to support previous planning applications at the site (Portmarnock South Phases 1A, 1B and 1C and related projects), as well as in the preparation of the planning application for the Proposed Development, most recently by the author on 23 September 2021.

Numerous ecological surveys have been undertaken, across all seasons, in order to provide a comprehensive baseline on the local ecological environment. The baseline surveys covered the following elements and where relevant the results are included in this document: -

- Habitat, botanical and invasive alien plant surveys and mapping;
- Badger and large mammal surveys;
- Bat activity and roosting surveys;
- Assessment of proposed lighting and its impacts on bats;
- Appraisal of site suitability for breeding birds and overwintering birds;
- Appraisal of site suitability for lepidoptera, amphibians and reptiles.

Informal consultations have also been undertaken with the Fingal County Council Biodiversity Officer. These discussions have informed the development strategy at Portmarnock South.

Habitats

During the course of the site visits the habitats were identified, described and mapped. Habitats were surveyed using the guidelines of Smith et al. (2011) and were classified using A Guide to Habitats in Ireland (Fossitt, 2000). Vascular plant nomenclature follows that of the New Flora of the British Isles 3rd Edition (Stace, 2010).

Bats

The site was examined on two occasions in summer 2021. Firstly, an overall evaluation was made of the site for bat roost potential, and this was followed by a night-time bat detector survey by one surveyor utilising ultrasonic receivers to convert bat signals used in navigation and social interaction to a recordable and measurable pulse. In the field, one piece of equipment on each night (EM3 – on May 25 and Echometer Touch 2 Pro and June 1) provided a screen for instant evaluation while the capacity to record signals allowed for bat identification to be confirmed using sound analysis software (Kaleidoscope Pro). The night survey commenced prior to sunset at 21.34 hours and continued for approximately one and a half hours on May 25 2021. Surveying re-commenced at 04.00 hours and continued up to 05.10 hours on May 26 2021. The survey commenced prior to 21.43 hours on June 1 and again continued up to 23.09 hours. The pre-dawn survey commenced at 04.00 hours and continued until 05.03 hours on June 2 2021.

The sound analysis was later carried out by automatic identification with Kaleidoscope Pro software and then evaluation of the identifications by the bat specialist.

On May 25 2021, an EM3 was held for the entire survey period and recorded all bat signals detectable by its transducer. The D240X was used as a detector but not for recording. The transducer of this monitor is more sensitive and detects bats at a greater distance. It can be used as an additional means of determining the bat fauna over a wider radius where the bats do not approach the observer within the site. Observations on Leisler's bat activity is supplemented within the report from the notes made during the survey of D240X signals.

On June 1, an Echometer Touch 2 Pro was used to record bat signals in addition to 2 static monitors (Songmeter Mini Bat), one placed in the north-eastern corner of the site and one in the south-eastern corner. These recorded throughout the night.

Breeding Birds

A survey of the breeding and feeding birds within the site was undertaken prior to sunset and immediately prior to and following on from sunrise for a further one hour. This was undertaken on the following dates: May 25 and 26, June 1 and 2 2021.

Birds were noted based on visual observations and birdsong and approximate numbers encountered of each species were determined from determining the number of males singing (or where birds were passing through, they were recorded as present but not breeding within the site).

Large Mammals

All hedgerows, tree lines, field edges and watercourses / ditches were searched for any evidence of badgers, such as setts, commuting routes, territorial marking, latrines or feeding signs as well as paw prints, snagged hairs and piles of bedding material. In tandem with the badger surveys, examinations of the streams and drainage ditches in the wider area were undertaken to search for evidence of otters, such as tracks, slides, spraints (droppings), feeding signs and holts.

Mammal surveys followed the methodologies contained in the NRA Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes and the Guidelines for the Treatment of Otters Prior to the Construction of National Road Schemes.

Other Species

During the course of the walkover surveys the site was evaluated for the presence of and suitability for lepidoptera (butterflies and moths), amphibians (common frog and smooth newt) and reptiles (common / viviparous lizard).

Watercourses

A visual appraisal of ditches and watercourses in the vicinity of the site was undertaken. Biological kick-sampling, a method of assessing the ecological quality of a watercourse, was not carried out, due to the unsuitable substrate of the drainage ditches within the site, the flow regime and general overall condition.

6.2.3 Evaluation of Ecological Features

The methodologies used to determine the value of ecological resources, to characterise impacts of the proposed Project, and to assess the significance of impacts and any residual effects are consistent with the Draft *EPA EIAR Guidelines* (2017) and are in accordance with the NRA *Guidelines for Assessment of Ecological Impacts of National Road Schemes*[1] (the 'NRA Guidelines' hereafter). This methodology is in turn consistent with the *Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland – Terrestrial, Freshwater, Coastal and Marine*[2] (the '*CIEEM Guidelines*' hereafter). The methodology allows the baseline to be comprehensively evaluated. This then makes it possible to assess the potential impacts (including cumulative impacts) of the Proposed Development, to set out appropriate mitigation measures and to assess the residual impacts of the Proposed Development.

1 NRA (2009).

2 CIEEM (2018, as updated in 2019 (V1.1)).

In accordance with the NRA Guidelines[3], impact assessment is undertaken of sensitive ecological receptors ('Key Ecological Receptors') within the Zone of Influence of a Proposed Development. According to the NRA Guidelines, the Zone of Influence is the 'effect area' over which change resulting from the Proposed Development is likely to occur, and the Key Ecological Receptors are defined as features of sufficient value as to be material in the decision-making process for which potential impacts are likely. In the context of the Proposed Development, a Key Ecological Receptor is defined as any feature valued as follows: -

- International Importance.
- National Importance.
- County Importance.
- Local Importance (Higher Value).

Features of local importance (Lower Value) and features of no ecological value are not considered to be Key Ecological Receptors, in accordance with the NRA Guidelines.

6.3 Receiving Environment

6.3.1 General Description of the Existing Environment

The study area comprises the site, located off Station Road, Portmarnock, close to Baldoyle Bay, defined by the site boundaries for the Proposed Development (see Figure 6.1), as well as an appropriate distance outside the site (including for example potential impacts on the adjacent European sites).

The Proposed Development (Phase 1D) site is located immediately south of Phase 1A (101no. residential units, (FCC Reg. Ref.: F13A/0248 – complete and occupied); Phase 1B (150no. residential units (ABP Ref.: 300514-17 – complete and occupied) and Phase 1C (153no. residential units and local centre (ABP Ref.: 305619-19 – under construction) of the Portmarnock South development (otherwise known as St. Marnocks Bay). The Phase 1B development also included a regional wetland adjacent to the R106 Coast Road and a surface water outfall to Baldoyle Estuary. These pieces of surface water infrastructure, which were required as part of the Portmarnock South Local Area Plan (LAP), are fully operational.

The Proposed Development is located entirely to the east of the Dublin – Belfast railway and straddles the townland boundary hedgerow which runs through the centre of the residential zoning in the LAP lands. Lands to either side of the hedgerow are arable or former arable lands. The former arable lands are unmanaged and used for temporary storage of soil material. The townland boundary between Portmarnock to the west and Maynetown to the east comprises an ash and hawthorn dominated hedgerow / tree line with an associated damp ditch.

As was the case with Phases 1A, 1B, and 1C the Proposed Development is in accordance with the provisions of the detailed LAP prepared for the overall Portmarnock South lands (Fingal County Council, 2013, extended to 2023).

[3] The NRA Guidelines, while originally developed for roads projects, provide clear, comprehensive and logical methods for evaluating the potential impacts of significant projects of all kinds in Ireland. The methodologies presented in the Guidelines are reproducible and reliable and are thus appropriate to the Proposed Development.

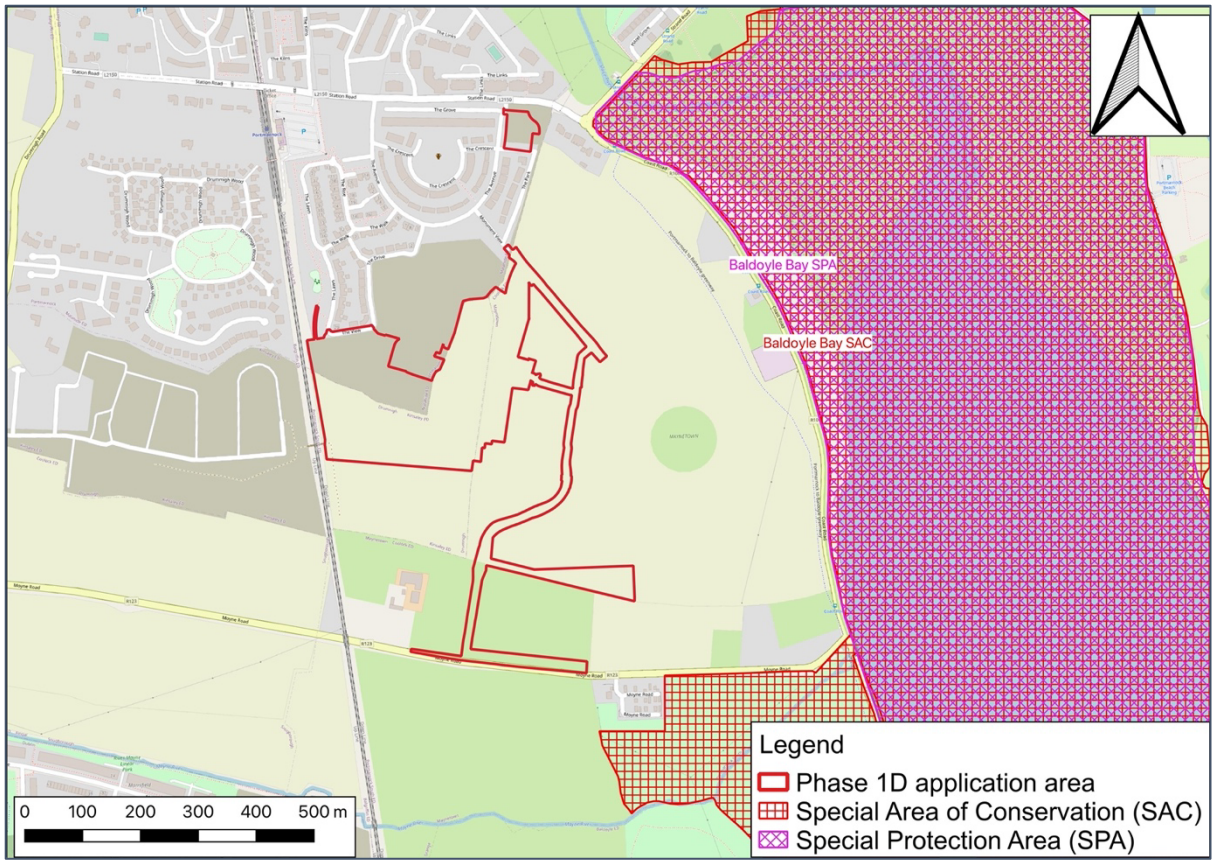

Figure 6.1 Location of the Proposed Development site, with European sites also shown (red line shows indicative Phase 1D site area – refer to accompanying documentation for full details).

6.3.2 Designated Conservation Areas

A number of European sites are located within 15km of the Proposed Development site at Portmarnock. These European sites are listed in Table 6.1 and are shown in Figure 6.2. Figure 6.1 (above) shows the European sites in close proximity to the site.

European Site (site code)	Location (closest straight-line distance from the development site at Portmarnock)[4]
Special Areas of Conservation (SAC)	
Baldoyle Bay (000199)	c. 250m to the northeast
Malahide Estuary (000205)	c. 2.5km to the north
North Dublin Bay (000206)	c. 3.3km to the south
Rockabill to Dalkey Island (003000)	c. 4.9km to the east
Ireland's Eye (002193)	c. 5.1km to the east
Howth Head (000202)	c. 5.4km to the southeast
South Dublin Bay (000210)	c. 8.4km to the south
Rogerstown Estuary (000208)	c. 9.0km to the north
Lambay Island (000204)	c. 10.9km to the northeast

[4] The red line includes the location of the existing temporary foul pumping station (c.100m west of Baldoyle Bay).

European Site (site code)	Location (closest straight-line distance from the development site at Portmarnock)[4]
Special Protection Areas (SPA)	
Baldoyle Bay (004016)	c. 250m to the northeast
Broadmeadow/Swords Estuary (Malahide Estuary) (004025)	c. 3.2km to the north
North Bull Island (004006)	c. 3.2km to the south
Ireland's Eye (004117)	c. 4.9km to the east
South Dublin Bay and River Tolka Estuary (004024)	c. 6.5km to the south
Howth Head Coast (004113)	c. 6.6km to the southeast
Rogerstown Estuary (004015)	c. 8.8km to the north
Lambay Island (004069)	c. 10.8km to the northeast
Dalkey Islands (004172)	c. 15.5km to the south

Table 6.1: European sites within 15km.

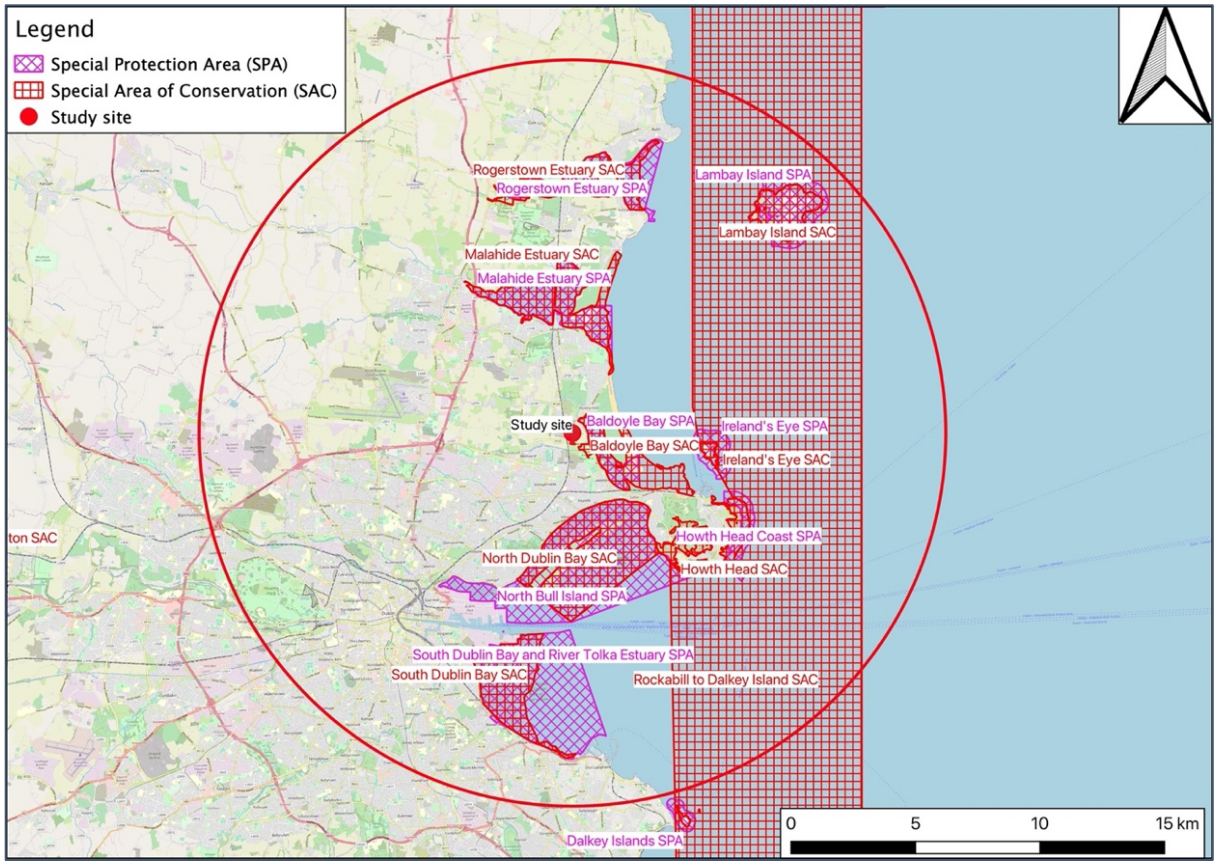

Figure 6.2: European Sites in relation to the study site, with a red line indicating a 15km radius around the site

According to the draft Guidance published by the European Commission (Managing Natura 2000 sites: The Provisions of Article 6 of the Habitats Directive 92/43/EEC, 21 November 2018) the "integrity of a site" relates to the site's conservation objectives. For example, it is possible that a plan or project will adversely affect the site only in a visual sense or only affect habitat types or species other than those listed in Annex I or Annex II.

In such cases, the effects do not amount to an adverse effect for the purposes of Article 6(3). If none of the habitat types or species for which the site has been designated is significantly affected then the site's integrity cannot be considered to be adversely affected.

In addition, plans or projects or applications for developments which have "*no appreciable effect*" on the protected site are excluded from the requirement to proceed to appropriate assessment[5] (Opinion of Advocate General Sharpston in Sweetman, para. 48).

In other words, if, following Screening, there is a possibility of there being a significant effect on a European site, this will generate the need for an appropriate assessment for the purposes of Article 6(3) of the Habitats Directive. Given the location of the Proposed Development of Portmarnock Phase 1D, as well as its nature and scale, and connections to services including water supply and surface water / foul infrastructure, it is possible to rule out potential significant adverse effects arising out of the development on the following European sites: -

- Malahide Estuary SAC.
- North Dublin Bay SAC.
- Rockabill to Dalkey Island SAC.
- Ireland's Eye SAC and SPA.
- Howth Head SAC and SPA;
- South Dublin Bay.
- Rogerstown Estuary.
- Lambay Island SAC and SPA.
- South Dublin Bay and River Tolka Estuary SPA.
- Rogerstown Estuary SPA.
- Dalkey Islands SPA.

These sites are screened out (Appropriate Assessment Screening) because they are at such a distance from the Proposed Development site that there would not be any significant effects on them as a result of: -

- Habitat loss and / or fragmentation.
- Impacts to habitat structure.
- Disturbance to species of conservation concern.
- Mortality to species (such as roadkill).
- Noise pollution.
- Emissions to air.
- Emissions to water.

However, due to out proximity and connection via surface water it is not possible to rule out (at Appropriate Assessment Screening) the potential that the Proposed Development would not have any significant effects on the following European sites: -

- Baldoyle Bay SAC.
- Baldoyle Bay SPA.
- North Bull Island SPA.
- Malahide Estuary SPA.

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A62011CC0258

Therefore, the Proposed Development is subject to Appropriate Assessment and a Natura Impact Statement (NIS) has been prepared and is submitted with the planning application under separate cover.

In addition to the European sites, a number of other sites designated for nature conservation are present in the wider area (Figure 6.3) surrounding the site. These include Baldoyle Bay proposed Natural Heritage Area (pNHA) (site code 000199), North Dublin Bay pNHA (000206) and Malahide Estuary pNHA (000205). These sites are contiguous with the European sites under appraisal. An additional site, Sluice River Marsh pNHA (001763) is located c. 600m to the north of the Proposed Development site.

Figure 6.3: Non-European Sites in relation to the study site, with a blue line indicating a 5km radius around the site.

6.3.3 Rare and Protected Species

The NPWS database was consulted with regard to rare species (Curtis & McGough, 1988) and species protected under the Flora Protection Order (2015). There are records of a number of protected species within the 10km grid square (O24) that covers the Proposed Development area, including basil thyme (*Acinos arvensis*), lesser centaury (*Centaureum pulchellum*), red hemp nettle (*Galeopsis angustifolia*), meadow barley (*Hordeum secalinum*), oyster plant (*Mertensia maritima*), round prickly-headed poppy (*Papaver hybridum*), tufted saltmarsh grass (*Puccinellia fasciculata*), meadow saxifrage (*Saxifraga granulata*), annual knawel (*Scleranthus annuus*), and hairy violet (*Viola hirta*). None of these plants are known to occur within the site itself and none have been recorded to date during any of the field surveys undertaken.

6.3.4 Habitats

The site proposed for development can be described as a number of different areas: -

- The north-western portion of the main proposed residential area, to the east of the railway corridor, comprises sections of former arable fields. This area (Fossitt category BC1 / GA1) is very heavily disturbed north of a mature hedgerow/tree line (WL1 / WL2) and townland boundary and contains no habitats of any ecological value. It is also partly occupied by spoil and bare ground (ED2 / ED3). Parts of the site have been stripped for the purpose of archaeological investigation and much of the rest is used for building material storage. These habitats are species-poor, where the earth is not bare and disturbed it is dominated by unmanaged former agricultural grassland and by ruderal plants, such as dock (*Rumex* sp.), creeping thistle (*Cirsium arvense*) and ragwort (*Senecio jacobea*).
- The south-western portion of the main residential area, also to the east of the railway corridor, comprises part of a now-disused arable field (BC1), to the south of the mature hedgerow/tree line and townland boundary. This area contains no habitats of any ecological value and is entirely occupied by previously cultivated soil and bare ground (ED2) as well as recolonising bare ground (ED3).
- Further east the site is divided by a north-south of hedgerow / tree line (WL1 / WL2) and townland boundary. To the east of this feature is more disused agricultural land (ED2 / ED3), much of which is to be developed as a park (Skylark Park). Further east again an area of land currently occupied by spoil and bare ground.
- The townland boundary hedgerow and tree line comprises native species such as hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), ash (*Fraxinus excelsior*), elm (*Ulmus minor*), goat willow (*Salix caprea*), dog rose (*Rosa canina*) and spindle (*Euonymus europaeus*). The eastern hedgerow (the section to the east of the proposed Skylark Park) is more scrubby and is dominated by blackthorn and bramble (*Rubus fruticosus* Agg.). The understorey of the hedgerows in the Proposed Development area are narrow, species poor and heavily dominated by bramble and nettle (*Urtica dioica*).
- To the south and east of the main development land at Portmarnock Phase 1D the site area includes a section of former arable land and agricultural grassland (GA1) within landscape and ecological buffer areas (previously transferred to Fingal County Council) which enclose the residential zoned lands to the east and south. Within this area it is proposed to construct a road connecting the wider residential development area to Moyne Road over 300m to the south of the main residential area.

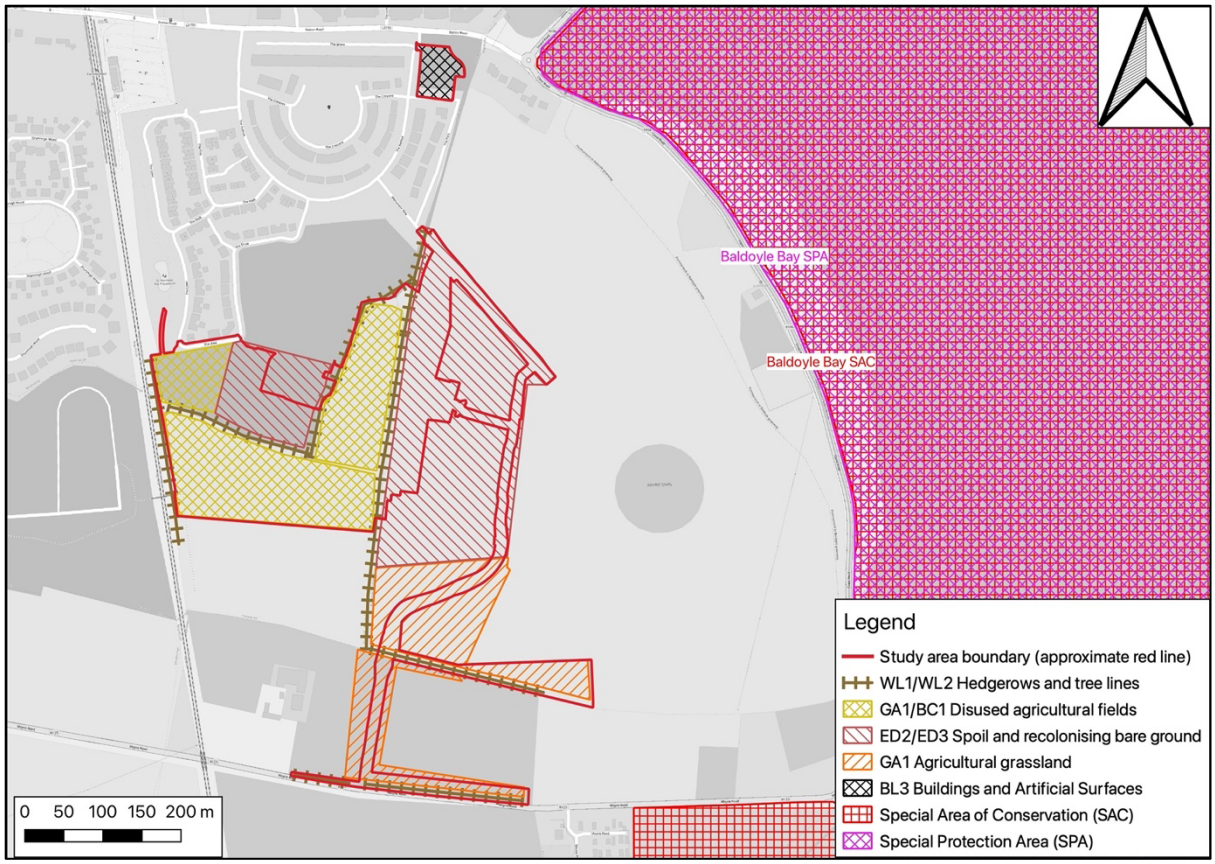

Figure 6.4: Habitat map (source: OpenStreetMap).

6.3.5 Fauna

All Irish bat species are fully protected under the Wildlife Act (1976) and subsequent amendments, and under the EU Habitats Directive, via the European Communities (Birds and Natural Habitats) Regulations, 2011 – 2015. The trees on the site, in particular along the townland boundary, are suitable for use by commuting and foraging bats. A total of four bat species (common pipistrelle, soprano pipistrelle, Leisler's bat and brown long-eared bat) were recorded foraging on site during the surveys undertaken in 2021.

No roosts were recorded on the site in 2021 and surveys confirmed that the bat boxes installed previously within the townland boundary remain unused by bats.

Birds, as well as their nests and eggs, are fully protected under the Wildlife Act (1976) and subsequent amendments. The bird community present is quite typical of such a site, with blackbird, blackcap, blue tit, buzzard, chaffinch, dunnock, goldfinch, bullfinch, great tit, robin, song thrush, mistle thrush, woodpigeon, collared dove, wren, jackdaw, magpie, pheasant, , rook and hooded crow (all species of least conservation concern – green listed on the list of Birds of Conservation Concern in Ireland 2020 to 2026[6]) regularly present. Three amber listed species, of medium conservation concern (starling, swallow and skylark) were recorded during the field visits, and no red list species (of high conservation concern) were recorded.

Appraisals of the site were undertaken in in 2021 to assess its suitability for use by birds that favour open farmland or rough pasture, such as lapwing and curlew (red list species) or pale-bellied Brent goose (amber list). However, no signs of these or any similar species were recorded and the site itself is not of any significant value for these species.

6 Gilbert *et al*. (2021).

Badgers are fully protected under the Wildlife Act (1976) and subsequent amendments. No signs of badgers have been recorded since surveys were first carried out at Portmarnock South in 2016. No signs of badger activity were recorded on the site in 2021, this finding is consistent with the results of all of the previous surveys.

While otters are known to frequent the shoreline in Baldoyle Bay, no evidence of otters, protected under the Wildlife Act (1976) and subsequent amendments, and under the EU Habitats Directive, via the European Communities (Birds and Natural Habitats) Regulations, 2011 – 2015, was recorded. The habitats are not suitable for the species.

No amphibians (common frog and smooth newt) have been observed during the surveys undertaken to date at Portmarnock South. Nevertheless, even minor wet areas and temporary ponds may be of value for amphibians, in particular during the spring breeding season. Similarly, no evidence of common lizard has been recorded, however, it is possible that lizards may occur within the site, although the area of suitable habitat (such as exposed rock) is limited.

Amphibians and reptiles are fully protected under the Wildlife Act (1976) and subsequent amendments.

The site was assessed for the presence of butterflies and for the suitability of the habitats for butterfly abundance and diversity. Since 2016 four butterfly species, small tortoiseshell, red admiral, ringlet and meadow brown have been recorded on the site. However the site is of only limited value for lepidoptera.

6.3.6 Overall Evaluation of the Proposed Development Site

With the exception of the mature hedgerow / tree line that forms the townland boundary within the site, no habitats of high ecological value are present within any of the areas proposed for development. No rare plants have been recorded during the site visits undertaken to date. No evidence of bats, badgers, reptiles or amphibians has been recorded and no significant features suitable for use by these species was recorded on or in the vicinity of the site.

As stated, the townland boundary running through the centre of the Proposed Development site is the only feature of any ecological interest in the immediate vicinity. Other than a number of breaks, required to facilitate access in line with the LAP requirements, this hedgerow/tree line is to be retained and incorporated within purposed open space (Skylark Park and Linear parks – as per the LAP) and will be protected during the construction of Phase 1D.

Overall with the exception of the hedgerow / tree line, which is of Local Importance (Higher Value) the site is of Local Importance (Lower Value), in accordance with the ecological resource valuations presented in the National Roads Authority Guidelines for Assessment of Ecological Impacts of National Road Schemes (NRA/TII, 2009 (Rev. 2)).

Full details of the European sites of Baldoyle Bay and further afield are addressed in the NIS, which accompanies the SHD Planning Application.

Sluice River Marsh pNHA includes a total of seven notable habitats, including wet willow-alder wetland, reedbed and swamp, wet grassland, marsh and upper saltmarsh. The nationally rare curved hard grass (*Parapholis incurva*) is known from the site, which is also utilised by a number of bird species in winter, including light-bellied Brent geese, redshank, bar-tailed godwit, little egret, kingfisher and merlin. The bird species that utilise the Sluice River Marsh pNHA are likely to form part of the overall bird assemblage of Baldoyle Bay SPA and are therefore considered in the accompanying NIS. Given its location relative to the Proposed Development area it is not considered remotely likely that the other habitats and species within and associated with this pNHA will be impacted upon.

6.4 Characteristics of the Proposed Development

The Proposed Development will comprise of the construction of a new residential scheme and associated infrastructure.

During the Construction Phase the main source of impacts will be as a result of habitat loss and disturbance from site activities. Once operational, the main sources of impacts on biodiversity arise from the replacement of existing habitats with development, and ongoing disturbance via human activity. A full project description is provided in Chapter 3: Description of Proposed Development.

6.5 Potential Impact of the Proposed Development

6.5.1 Previous Development

Each element of the development under appraisal is required to conform to the Objectives and Policies of the Portmarnock South Local Area Plan (2013 (extended to 2023)) and Fingal Development Plan (2017 – 2023). In particular, Portmarnock South LAP has at its core a requirement to provide new, high quality urban residential development while protecting and enhancing the existing biodiversity features of the area, as well as maintaining the integrity of the European sites of Baldoyle Bay. Significant elements of these objectives have already been implemented, as part of developments under Portmarnock Phases 1A and 1B and are continuing under permitted Phase 1C. This includes habitat protection measures in the ecological buffer zone (Phase 1A) and the delivery of new surface water management infrastructure (Phase 1B, incorporating Sustainable urban Drainage Systems (SuDS). This infrastructure includes a SuDS-designed wetland which is located within the eastern section of the ecological buffer zone, as well as filter strips, swales, green roofs, porous paving and bio-retention areas which have been provided throughout the Phase 1A, 1B, 1C developments.

The new SuDS regional wetland, which is fully operational, outfalls to Baldoyle Estuary. It is designed to serve the majority of the LAP area (which provides for up to 1,200no. residential units). This is in compliance with *LAP Objective GI 43 (Ensure the early completion of the proposed regional SuDS wetland)*. The wetland has been designed for the benefit of biodiversity and incorporates a permanent area of water, with a maximum depth of c. 600mm. A detailed wetland planting scheme for the water body, comprising native wetland (aquatic and marginal aquatic) species appropriate to the site, was agreed with Fingal County Council and has been undertaken on site.

6.5.2 Proposed Development

6.5.2.1 Construction Phase

Disturbance via Noise, Vibration and Human Activities

Noise, vibration and visual disturbance may impact on birds in the vicinity of the construction site, for example by reducing feeding time or causing birds to temporarily avoid certain areas. While this may occur during site clearance and construction of the houses associated with the Proposed Development, given the Proposed Development location and the activities currently being carried out at the site these impacts are expected to be negligible, particularly given the mitigation measures that have already been implemented as part of the Portmarnock South Local Area Plan and associated with the Phase 1A, Phase 1B and Phase 1C developments.

Water Quality, Dust and Other Emissions

Estuaries and coastal sites such as Baldoyle Bay rely on large quantities of sediment to function. Regardless, all construction activities pose a potential risk to watercourses as surface water arising at any site may contain contaminants. The main contaminants arising from construction and demolition activities may include suspended solids, hydrocarbons and concrete / cement products. If not properly managed, such pollutants could pose a temporary risk to surface water quality in local watercourses during the Construction Phase. In addition there is a potential risk to flora and fauna arising from dust deposition, which in extreme cases can inhibit photosynthesis in plants and can increase turbidity in water courses.

Given the nature, scale and duration of the Construction Phase for the Proposed Development there is the potential for temporary slight negative impacts on water quality arising during the Construction Phase of the Proposed Development.

Site Compound and Haulage Routes

The proposed site compound will be located to the north east of the Proposed Development site, on the northern side of the vehicle access road from Mayne Road. This is the site of the established construction compound, currently servicing the Phase 1C development works. The area is not used by SPA bird species, and it is not expected that there will be any significant impacts on any SPA bird species, however there remains the potential for temporary slight negative impacts on Baldoyle Bay SAC and SPA, via potential visual disturbance of birds on the estuary. No other impacts are expected. Access to the site for construction traffic will be via the construction haul road from Moyne Road, permitted under FCC Reg. Ref F20A/0700. The construction haul road is expected to be operational in December 2021.

Lighting

Lighting during the Construction Phase will be limited to the site compound (already in place) and residential development areas only. It is not expected that there will be any impacts on bats or any other protected species. Similarly, there will be new public lighting associated with the new road connection to Moyne Road. Again, given the location of this feature there will be no impacts on the bird species of the SPA or on any other biodiversity receptors.

6.5.2.2 Operational Phase

Habitat Loss and Disturbance Within the Site

The Proposed Development will involve the removal of parts of fields of low ecological value. The removal of these habitats will have no long-term impacts on biodiversity.

The creation of additional gaps in the townland boundary hedgerow, for footpath and road crossings would represent a local, permanent moderate negative impact. It is however not expected that significant numbers of trees will be removed to facilitate the development, and the townland boundary will be protected for the duration of the proposed Construction Phase. This hedgerow is to be retained and managed as an ecological feature within a proposed public park and associated linear parks located along the townland boundary.

Short sections of the existing roadside boundary hedgerow at Moyne Road will also be removed for visibility at the new junction. However, new hedgerows will be reinstated along the back of setback line.

It is not expected that there will be any significant impacts on ecological receptors such as nesting birds or commuting or foraging bats as a result of the Proposed Development. There will be no impacts on badgers and other large mammals, amphibians, reptiles, lepidoptera or other species groups as a result of the Proposed Development.

Surface Water Quality

Once operational, the Proposed Development could have impacts on water quality, as there is potential for surface water runoff to contain contaminants such as petrol and oil from vehicles, home heating oil spillages and other contamination. However, the development will be in full compliance with all legislative requirements and best practice guidance. Contamination of water from foul water, hydrocarbons, silt or other pollutants will not be allowed. Provided that site facilities are correctly designed and proper working procedures are strictly adhered to, no impacts on existing watercourses are expected, either during the construction or operation of the Proposed Development. The regional wetland, to which Phase 1D will be connected, is operational in compliance with the planning conditions related to the Phase 1B development. This will ensure that there will be no long term impacts on surface water quality once the Proposed Development is operational.

6.5.2.3 Do-Nothing Impact

As noted in this EIAR, the Proposed Development site is of local ecological importance. Should the site remain undeveloped, and the current uses continue, no significant changes to the biodiversity value of the site can be expected.

Should the site be re-developed at a later stage, it is reasonable to expect that any potential impacts would be similar to those predicted to arise as a result of the Proposed Development.

6.5.3 Cumulative Development

Neither the development proposed nor any other developments will give rise to any significant impacts on biodiversity and there are no predicted cumulative impacts in relation to biodiversity, for example in terms of habitat loss or disturbance to protected species, as a result of the Proposed Development in combination with existing / proposed plans or projects.

6.6 Mitigation Measures (Ameliorative, Remedial or Reductive Measures)

6.6.1 Previous Works

The Proposed Development is in accordance with the provisions of the detailed Local Area Plan (LAP) prepared for the overall Portmarnock South lands (Fingal County Council, 2013).

As part of the Phase 1A development, and again in accordance with the provisions of the LAP, significant mitigation measures were put in place, both within the Phase 1A lands itself, and within the wider lands covered by Portmarnock South LAP. These included the following, which were designed to mitigate any potential impacts on the Special Conservation Interests and Qualifying Interests of Baldoyle Bay SPA and SAC resulting from residential development to be delivered as part of Portmarnock South Local Area Plan: -

- Provision of a large area of Ecological buffer / parkland, located between residential zoned lands within the LAP to the west and the boundary with Coast Road to the east and with Mayne Road to the south.
- Provision of a 'Quiet Zone' for birds, in the southern part of the Portmarnock South Local Area Plan lands.
- Provision of an arable plot and retention of an existing small attenuation pond located between the above 'Bird Quiet Zone' and Mayne Road.
- Clearing of bramble scrub and reseeding of areas to grassland within the Murragh Spit east of the R106 Coast Road (within Baldoyle Bay SAC and SPA), undertaken in 2016 and 2017. This was undertaken, in agreement with Fingal County Council and NPWS, to provide additional areas of foraging habitat for bird species, in particular overwintering light-bellied Brent geese. This area is regularly maintained and remains suitable for use by protected birds.
- Treatment of invasive species listed on Schedule 3 of the Birds and Habitats Regulations, 2011 – 2015 specifically a small area of Japanese knotweed (*Fallopia japonica*) on the Murragh Spit and giant hogweed (*Heracleum mantegazzianum*) located within the Phase 1A lands. The stand of Japanese knotweed is being effectively managed in conjunction with Fingal County Council. A giant hogweed management plan has been in force for the Phase 1A lands over the past 4 years and no giant hogweed growth was observed during 2021. Nevertheless the site will continue to be managed during future Construction Phases to ensure that giant hogweed is fully and permanently eradicated.

These measures have been implemented and are subject to ongoing management, including mowing of the reseeded grass areas within the Murragh and grazing of the grass within the Bird Quiet Zone so as to ensure that the sward length is suitable for foraging light-bellied Brent geese. These measures along with the mitigation measures set out below ensure that no significant impacts arise as a result of the Proposed Development or in combination with other cumulative development.

6.6.2 Proposed Development

6.6.2.1 Construction Phase

Designated Conservation Areas

Specific mitigation measures for the European sites are contained within the accompanying NIS and the Construction and Environmental Management Plan (CEMP) (prepared by Quintain Developments Ireland Ltd) for the Proposed Development. These include strict measures to ensure the protection of water quality as well as measures to ensure no impact outside the working area and in particular on the habitats and bird species that form the Qualifying Interests and Special Conservation Interests of Baldoyle Bay SAC and SPA.

No mitigation measures are required to prevent any impacts on Sluice Marsh pNHA.

Habitats

All construction works will comply with legislative requirements and best practice as well as Portmarnock South Local Area Plan.

All site clearance and landscaping works will comply with current legislative requirements and best practice. In particular, where it is intended to retain trees within the development, that is along the townland boundary, trees to be retained will be treated in accordance with British Standard BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations, with protective fencing being installed prior to commencement of development.

The planting proposed for the development will, wherever possible, comprise an appropriate mixture of native trees and shrubs, preferably of local provenance (refer to the accompanying drawings: Brady Shipman Martin drawing no. 6842-300 series). The planting will also incorporate a range of species that will attract feeding invertebrates, including moths, butterflies and bees. It will take account of and implement the relevant objectives of the All-Ireland Pollinator Plan 2021 – 2025[7].

All planting plans and landscaping proposals will ensure that no invasive species (in particular Japanese knotweed and giant hogweed) are introduced, either deliberately or inadvertently, to the site. The planting will, over time, provide additional habitat of benefit to bats and birds that will continue to use the site.

The lighting will be in compliance with Section 5.7 and Objective PL 1 of the LAP, which requires light intensity zones for the plan lands to ensure that environmental impact is minimised as far as possible in development schemes. Taking this into account, all new lighting for the Proposed Development at Portmarnock Phase 1D will take account of the recommendations of Bat Conservation Ireland (2010). The lighting scheme for the Proposed Development will adhere to the following lighting design characteristics:

- The minimum level of appropriate / required lighting level will be provided within the developed/residential areas;
- Light standards will be fitted with low intensity, horizontal cut-off LED light fittings employing a narrow directional light or cowled light. This will avoid the effect of light spill arising;
- Light standards and associated lighting will be directed away from areas of open space;
- No floodlighting will be used in the development.

A total of five bat boxes (Schwegler 2F) were installed in the tree lines to the south and west of the Proposed Development area, as part of the Phase 1A development. There is no evidence of bats ever having used the boxes erected as part of Phase 1A. Regardless, based on the based on the evidence gathered and presented in Appendix 6.1, it is proposed to install an additional 9 bat boxes to provide new roosting opportunities.

[7] https://pollinators.ie/wp-content/uploads/2021/03/FINAL-All-Ireland-Pollinator-Plan-2021-2025-WEB.pdf

Water

All hazardous substances, such as fuels, oils, cement and concrete products will be stored on-site in secure and bunded areas remote from drainage connections to the existing surface water drainage network. Petrol interceptors will be incorporated. Land disturbance will be limited to the works area, and site entry and egress points will be limited. Vegetation will be maintained as appropriate in and around run-off areas.

The contractor will take adequate precautions as part of the construction methodology to avoid any pollution from construction activities via run-off to the surface water drainage network. These measures may include temporary attenuation and settlement facilities as well as silt fences. The silt fencing, if required, will be regularly cleaned and maintained in good working condition for the duration of development works.

Full details are set out in the accompanying Construction and Environmental Management Plan.

The implementation and effectiveness of the measures proposed will be inspected and recorded regularly during the entire works period and where deficiencies or faults are identified the contractor will immediately remedy them. These measures will ensure that there will be no impacts on water quality as a result of the Proposed Development works.

Other Issues

Japanese knotweed and giant hogweed, species listed on Schedule 3 of the Birds and Habitats Regulations, 2011 – 2015, have been recorded in the past in the local area, including within the Murragh Spit (within Baldoyle Bay SAC and SPA) and within development areas Phase 1A and 1B (but not Phase 1C or Phase 1D). Long-term management of these species has been undertaken and will continue to be carried out into the future, until it is confirmed that the species are eradicated from the subject area.

6.6.2.2 Operational Phase

Surface Water

As noted in 6.5.2.2 the regional wetland, to which Phase 1D will be connected, is operational in compliance with the planning conditions related to the Phase 1B development. This will ensure that there will be no long term impacts on surface water quality once the Proposed Development is operational.

The overall development is designed in accordance with the principles of SuDS as embodied in the recommendations of the GDSDS, which addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimize the impact of urbanization, by replicating the run-off characteristics of the greenfield site. The criteria provide a consistent approach to addressing the increase in both rate and volume of run-off, as well as ensuring the environment is protected from any pollution from roads and buildings. No corresponding mitigation measures are required.

Foul Water

As set out in detail in the Water Services Report (JB Barry) that accompanies the SHD Planning Application and is submitted under separate cover, the lands in Portmarnock South lie within the North Fringe Sewer catchment, which discharges to the Ringsend Wastewater Treatment Plant, which is undergoing significant upgrades.

It is intended to connect the foul sewerage from the proposed 172no. residential units of this Proposed Development to the existing foul sewer network in the Portmarnock South LAP lands. The connection will be to the permitted Phase 1C development, which is currently under construction, immediately to the north of this proposed Phase 1D development.

Foul water discharge from the site will connect to the public sewer network. It will be directed to the Irish Water Wastewater Treatment Plant (WwTP) at Ringsend prior to discharge to Dublin Bay. The Ringsend WwTP operates under licence from the EPA (Licence no. D0034-01) and received planning permission (ABP Ref.: 301798) in 2019 for upgrade works, which are expected to be completed within five years. This will increase the plant capacity from 1.65m PE (population equivalent) to 2.4m PE. Regardless of the status of the WwTP upgrade works, the peak discharge from the Proposed Development is not significant in the context of the existing capacity available at Ringsend. Though the WwTP is currently over capacity (the plant is currently accommodating 1.9m PE), recent water quality assessment undertaken in Dublin Bay (published by the EPA) confirms that Dublin Bay is classified as "unpolluted" and there is no evidence that the over-capacity issues at Ringsend are affecting the conservation objectives of the European sites in Dublin Bay.

Operational impacts related to foul water management, in the context of biodiversity, as a result of the Proposed Development, will not be significant.

6.7 Residual Impact of the Proposed Development

6.7.1 Proposed Development

6.7.1.1 Construction Phase

During the Construction Phase there will be a limited loss of feeding within the site for bats and birds and a loss of nesting areas for birds. Vegetation will establish over time and these losses will be reduced considerably. There will still be less cover for birds following all mitigation. There will be very limited (negligible to slight negative) impact upon bats within the site given the low level of bat activity noted. There will be limited or no loss of roost potential as the site develops and with the provision of bat boxes.

6.7.1.2 Operational Phase

Overall, although the Proposed Development may have some temporary negative impacts at the local level, these impacts will be fully mitigated through the implementation of the landscaping scheme. Once the development is operational and over time these impacts will be rendered negligible.

6.7.2 Cumulative

Neither the development proposed nor any other developments will give rise to any significant impacts on biodiversity and there are no predicted cumulative impacts in relation to biodiversity, for example in terms of habitat loss or disturbance to protected species, as a result of the Proposed Development in combination with existing / proposed plans or projects.

6.7.3 Worst Case Impact

The predicted overall residual impact of the proposed cumulative development on biodiversity during the Construction and Operational Phases will be imperceptible.

6.8 Monitoring

A suitably experienced Project Ecologist will be appointed for the duration of the Construction Phase and regular monitoring of all related works will take place to ensure the correct and full implementation of all mitigation measures. The Project Ecologist will ensure that all construction works take place in accordance with the project CEMP, the Construction Surface Water Management Plan and the mitigation measures set out in this EIAR.

Should vegetation clearance be required during the bird nesting season, this work will take place only after the Project Ecologist has undertaken a survey to ensure that no active bird nests or recently fledged birds are present. Similarly, no evidence of roosting bats was recorded on the site during any of the surveys undertaken. Regardless, a pre-construction survey will be required to ensure that work continues to have no impact on roosting bats.

No long-term ecological monitoring is required.

6.9 Reinstatement

The majority of the site area to be removed comprises parts of disused agricultural fields and areas of heavily disturbed land. No reinstatement is required. Short sections of the townland boundary hedgerow will be removed in order to facilitate access and to create a permeable environment. It is not possible to reinstate these permanent gaps, however the landscape planting proposed will mitigate this loss. The key ecological feature on the wider site – the townland boundary tree line and hedgerow – will be retained as part of the Proposed Development and habitat connectivity will be maintained as far as is practicable along this feature.

As noted in Section 6.5.1.2, short sections of the existing roadside boundary hedgerow at Moyne Road will also be removed for visibility at the new junction. However, new hedgerows will be reinstated along the back of setback line.

6.10 Difficulties Encountered

No difficulties were encountered in compiling the Biodiversity Chapter of this EIAR. All surveys were undertaken to an appropriate level, given the nature of the site and the Proposed Development.