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Introduction

5.1 SLR Consulting (Ireland) Ltd. has prepared this Biodiversity chapter which forms part of the Environmental Impact Assessment Report (EIAR) prepared in support of the proposed extraction of sand and gravel at Derryarkin townland, Rhode, Co. Offaly (hereafter referred to as "the Site").

Site Description

5.2 The application area covers a total area of approximately 19.5 hectares (48.2 acres) and comprises reclaimed agricultural land, currently under pasture. The site is a reclaimed former cutaway bog, with a thin layer of residual organic rich clay material remaining, below which there are reserves of sand and gravel both above and below the underlying water table.

5.3 The Site is flat with elevations only varying between c. 78m –79m AOD over the proposed extraction area. The access road and existing site entrance are slightly elevated from the main site area being at an elevation of c. 80m AOD. There are no hedgerows within the application area; and the proposed extraction area consists of one large agricultural field sub-divided by stockproof fencing.

5.4 The northern boundary consists of a stockproof fence and field drain. Beyond this is an area of slightly elevated higher ground within which turbine T7 of the Yellow River Windfarm is located.

5.5 The entire eastern landholding boundary is denoted by the Yellow River. The application boundary runs along the western bank of the river and consists of a post and wire stockproof fence and intermittent trees and vegetation.

5.6 The southern application boundary consists of a stockproof fence. Beyond this is an agricultural access track that runs along the southern boundary before taking a ninety degree turn north along a small section of the eastern boundary to a bridge access over the Yellow River to access the lands on the eastern side of the river.

5.7 The western application boundary is set back slightly and runs parallel to the western edge of the existing agricultural access track which provides access within the overall landholding from the landowners farm to the northern application area.

5.8 The surrounding landscape is comprised of a mix of agricultural land, cutover bog with recolonising vegetation and commercial forestry stands.

Project Description

5.9 The applicant is seeking planning permission for the following development at the Site:

- An overall application area of c. 19.5 hectares;
- Phased extraction of sand and gravel (wet working) over an area of c. 11.7 hectares with processing that includes crushing and screening and all ancillary works and structures;
- Provision of new site facilities to include wheelwash (c. 35m²), weighbridge (c. 69m²); mobile welfare pod facility (c. 16m²) consisting of office, canteen, toilet and drying room; dedicated parking area, perimeter vegetation planting and fencing.
- Access to the site will be via an existing entrance onto the local access road to the north of the site;

- Progressive restoration of the site to naturally regenerated wildlife habitat and a permanent water body;
- The proposed development life is for 15 years to complete extraction and restoration operations.

Purpose of this Report

5.10 This biodiversity chapter aims to describe the baseline ecological conditions at the Site and to identify potential significant effects associated with the proposed development. Where necessary appropriate mitigation measures will be set out to reduce residual effects to a suitable level.

5.11 This chapter forms part of the EIAR that will be submitted with the planning application to assist the competent authority, in this case Offaly County Council, to carry out an Environmental Impact Assessment (EIA) of the proposed development.

5.12 The purpose of this report is to:

- Describe (any) likely significant effects, any indirect, secondary, cumulative, transboundary, short-term, medium-term, and long-term, permanent, and temporary, positive and negative effects of the project, which result from the proposed works during construction, operation and restoration;
- Describe mitigation measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on biodiversity; and
- Explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced, or offset.

5.13 This chapter will address the terrestrial and freshwater habitats and species, with particular attention to rare and protected species as listed under the Checklist of protected and threatened species in Ireland (Nelson et al., 2019).

Evidence of Technical Competence and Experience

5.14 This report was prepared by SLR Project Ecologist Victoria Molloy BSc and SLR Associate Ecologist Michael Bailey carried out the technical review for this report.

5.15 **Victoria Molloy** holds a BSc. in Zoology from the University of Galway. She has over four years' experience as a consultant ecologist and is a Qualifying Member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Victoria has prepared a range of survey reports and impact assessment reports for a variety of project types including quarries, renewable energy, forestry licence applications, housing, road, and industrial developments. She is also responsible for carrying out a range of surveys to inform these assessments including preliminary ecological assessment (PEA), habitat, ornithological, and marsh fritillary surveys.

5.16 **Michael Bailey** holds a BSc (Hons) in Biology and Ecology from the University of Ulster, and an MSc in Quantitative Conservation Biology from the University of the Witwatersrand, Johannesburg, South Africa. Michael is a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Michael is an experienced consultant ecologist with field and research experience with mammal, bird, bat and invasive species surveys in Ireland, the UK and Africa. He has prepared Appropriate Assessments and Ecological Impact Assessments for a wide range of infrastructure, mining and extractive industry, and renewable energy projects.

Relevant Legislation and Policy

International legislation and policy

- United Nations (UN) Convention on Biological Diversity (CBD); and
- The Ramsar Convention on Wetlands of International Importance.

European legislation and policy

- EU Habitats Directive on the conservation of natural habitats and of wild fauna and flora (92/43/EEC) (as amended) (the Habitats Directive);
- EU Birds Directive on the conservation of wild birds (2009/147/EC) (as amended);
- The Berne Convention on the Conservation of European Wildlife and Natural Habitats;
- The Bonn Convention on the Conservation of Migratory Species of Wild Animals;
- EU Water Framework Directive establishing a framework for Community action in the field of water policy (2000/60/EC) (as amended);
- EU Environmental Liability Directive (2004/35/EC);
- EU EIA Directive on the assessment of the effects of certain public and private projects on the environment (2011/92/EU) (as amended);
- EU Biodiversity Strategy 2020;
- Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species, as amended, together with Commission Implementing Regulation (EU) 2016/1141 and Implementing Regulation (EU) 2019/1262; and
- EU Nature Restoration Law 2023 2022/0195(COD).

National legislation and policy

- The Wildlife Acts 1976, as amended;
- S.I. No. 477/2011 - Regulation 49 and 50 of European Communities (Birds and Natural Habitats) Regulations;
- S.I. No. 272/2009 – European Communities Environmental Objectives (Surface Waters) Regulations, as amended;
- S.I. No. 293/1988 - European Communities (Quality of Salmonid Waters) Regulations;
- European Union Environmental Objectives (Freshwater Pearl Mussel *Margaritifera margaritifera*) (Amendment) Regulations 2009 to 2018;
- The Flora (Protection) Order 2022;
- The Heritage Act, 2018 (as amended);
- Planning and Development Act, 2000 (as amended);
- Project Ireland 2040;
- National Heritage Plan 2030;
- Ireland's 4th National Biodiversity Action Plan 2023 - 2030.

- European Communities (Planning and Development) (Environmental Impact Assessment (EIA)) Regulations 2018, as amended;
- European Communities (Water policy) Regulations, 2003, as amended; and
- European Communities Environmental Objectives (Surface Waters) Regulations 2009.

Local policy

5.17 The relevant local planning policies have been extracted from the Offaly County Development Plan (CDP) 2021-2027 (Offaly County Council, 2021). These policies are specific to "Chapter 4: Biodiversity and Landscape" of the County Development Plan and are concerned with the policies and objectives to protect and/or enhance the ecology and biodiversity of the county. In broad terms these objectives and policies aim to ensure correct measures are put in place to identify and protect natural heritage and important environmental features within the county. The full list of relevant policies and objectives are listed in **Appendix 5-A** of this report.

Guidance

5.18 The relevant guidance has been followed:

- Guidelines for Assessment of Ecological Impacts of National roads Schemes (National Roads Authority (NRA, 2009a.);
- Ecological Surveying Techniques for Protecting Flora and Fauna during the Planning of National Road Schemes (NRA, n.d.);
- Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes (NRA, 2009b);
- Surveying Badgers (Harris et al., 1989)
- Guidelines for Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management (CIEEM), 2018);
- Guidance Note 08/23: Bats and Artificial Lighting at Night (Institute of Lighting Professionals (ILP) and Bat Conservation Trust (BCT), 2023);
- Bat Surveys for Professional Ecologists – Good Practice Guidelines (Collins 2016; and Collins, 2023);
- A guide to Habitats in Ireland (Fossitt, 2000);
- The Status of Ireland's Breeding Seabirds: Birds Directive Article 12 Reporting 2013 – 2018 (Cummins et al., 2019);
- The Status of EU Protected Habitats and Species in Ireland (National Parks and Wildlife Service (NPWS), 2019);
- Common Standards Monitoring Guidance for Reptiles and Amphibians (Joint Nature Conservation Committee (JNCC), 2004);
- UK BAP Mammals: Interim Guidance for Survey Methodologies, Impact Assessment and Mitigation (Cresswell et al., 2012); and
- New Atlas of the British and Irish Flora: An Atlas of the Vascular Plants of Britain, Ireland, The Isle of Man and the Channel Islands (Preston et al., 2022).

Methodology

5.20 The methods used to carry out the survey of the Site, to evaluate the ecological value and to prepare the biodiversity chapter is outlined in this section. The assessment methodology for this proposal was developed using the standard professional impact assessment guidance published in 2018 by the Chartered Institute of Ecology and Environmental Management (CIEEM).

Scope of the Assessment

5.21 The scope of this Biodiversity Chapter is to identify potential impacts likely to occur from the proposed extraction and restoration operations, and to determine if the effects on biodiversity are significant. The scope of the report includes the provision of mitigation, compensation and enhancement measures as required.

Desk study

5.22 All designated sites for biodiversity within 15 km and with ecological and/or hydrological connectivity have also been considered.

Field survey

5.23 The study area for field surveys comprised the site boundary, although incidental sighting of species beyond this boundary are represented where relevant in this report.

Baseline Data Collection

Desk Study

5.24 A desk study was carried out to collate the available existing ecological information on the Site. The Site and the surrounding area were viewed using existing available satellite imagery[1].

5.25 The following data sources were used to compile the desk study:

- The National Parks and Wildlife Service (NPWS)[2] online resources were accessed for information on sites with a statutory designation for nature conservation, specifically European sites (Special Areas of Conservation (SAC) and Special Protection Areas (SPA)), Ramsar sites and Natural heritage Areas (NHAs), and other sites such as proposed Natural Heritage Areas (pNHA) that are not legally designated but are identified as being of conservation interest, and protected habitats and species as defined under the NPWS Checklist of Protected and Threatened Species in Ireland (Nelson et al., 2019).
- The National Biodiversity Data Centre (NBDC)[3] online resources were accessed for information on rare and protected habitats and species (Nelson et al., 2019). All records were considered within this assessment; however, where a record was sufficiently old and unlikely to comprise relevant data (e.g., where changes in land management that has occurred in the intervening period), these data have been omitted from the assessment.

[1] https://www.google.ie/maps & http://www.bing.com/maps/ (Accessed July 2025)
[2] www.npws.ie (Accessed July 2025)
[3] http://maps.biodiversityireland.ie/#/Map (Accessed July 2025)

- Environmental Protection Agency (EPA) Maps[4] was accessed for other environmental information, such as surface water features, relevant to preparation of this report.
- Records of Annex I habitats, and Annex II and IV species of the Habitats Directive (92/43/EEC) using Article 12 and Article 17 reports.
- Local policies listed in the Offaly County Development Plan.
- Birds of Conservation Concern in Ireland (BoCCI) 2020-2026 (Gilbert et al., 2021), published by BirdWatch Ireland and the RSPB NI, is a list of priority bird species for conservation action on the island of Ireland. The BoCCI lists birds which breed and/or winter in Ireland and classifies them into three separate lists; Red, Amber and Green; based on the conservation status of the bird and hence their conservation priority. Birds on the Red List are those of highest conservation concern, Amber List are of medium conservation concern and Green List are not considered threatened.
- Wildlife Acts 1976 – 2018 (ISB, n.d.), the Red List of Terrestrial Mammals (Marnell et al., 2019)
- Annexes of the EU Habitats Directive 92/43/EEC12 (European Commission, n.d.).
- The Offaly County Council website was accessed for information on relevant planning policy while the planning portal[5] was accessed for information on other planning applications within the Site and immediate surrounding area.
- The ecological reports for nearby planning applications were consulted, and their findings have been considered in this report.
- The drawings and the full project description are contained within other sections of this EIAR which also informed the desk study. Other chapters of the EIAR reviewed included **Chapter 7 - Water**, **Chapter 8 - Air Quality**, and **Chapter 10: Noise**.

Field Survey(s)

5.26 A preliminary ecological assessment survey was conducted on 5th February 2025 by SLR Senior Ecologist Jake Matthews to identify the habitats on-site and to determine the baseline ecology of the Site.

5.27 The approach to the field surveys is based on accepted standard practice and methods. Habitats within the study area were classified after '*A Guide to Habitats in Ireland*'[6] and were assessed if they comprise Annex I habitats under the Habitats Directive, habitats which have a supporting function for such habitats, habitats which may support Annex II species of the Habitats Directive and/or habitats which may support Annex I species of the Birds Directive.

5.28 The Site was appraised for its ability to support any protected and threated species as listed in Nelson *et al.* (2019). The following were recorded during this survey:

- The Site's suitability to support amphibians;

[4] http://gis.epa.ie/ (Accessed July 2025)
[5] https://www.myplan.ie/ (Accessed July 2025)
[6] Fossitt (2000): A Guide to Habitats in Ireland

- The Site's suitability to support commuting and foraging bats. Note that no buildings or trees suitable for roosting bats were present on the Site;
- [redacted]
- 150m upstream and downstream of the nearby rivers were walked to check for the presence of potential otter holts and couches, or other evidence of otter presence (e.g., slides and spraint);
- All protected and threatened bird species, or the Site's suitability to support such species; and

5.29 Two follow-up wintering bird surveys were conducted on the Site. Each survey comprised a vantage point survey (located at approximate ITM coordinates 649192 736740) and walked transect of the Site and surrounding areas (i.e., 1km buffer – where access was possible).

5.30 The vantage point surveys were conducted on 11th March 2025 at dawn (i.e., 5:00 – 7:00); and 25th March 2025 (i.e., 19:00 – 21:00). The walked transects were conducted immediately after the dawn survey (i.e., 7:30 – 9:30) and preceding the dusk survey (i.e., 16:30 – 18:30) to assess the Site for foraging winter birds. All other protected and threatened bird species were recorded as incidental records during these surveys. The walked transect route has been presented in **Figure 5-4**.

5.31 These winter bird surveys aimed to assess the presence and abundance of foraging and roosting whooper swan and other wintering birds on the Site. These surveys included a vantage point survey,

Limitations

Desk Study

5.32 Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that important habitats or protected species not identified during the data search do in fact occur within the vicinity of the site. Interpretation of maps and aerial photography has been conducted in good faith, using recent imagery, but it has not been possible to verify the accuracy of any statements relating to land use and habitat context outside of the field study area.

5.33 The lack of ecological records returned in the data search does not conclude the absence of a species. Such an absence of records may simply indicate an under-recording of the area.

5.34 In accordance with CIEEM's Advice Note on the Lifespan of Ecological Reports and Surveys[7], the details of this report will remain valid for a period of 18-months from the date of the survey (i.e., until 5th August 2026). After which the validity of this assessment should be reviewed to determine whether further updates are necessary.

Field Survey

5.35 The field surveys were conducted in February 2025. These are outside the optimal seasonality for floral species (considered April – September). However, only heavily disturbed agricultural habitats of limited value are being lost to facilitate the proposed development. As such, it is considered unlikely that any notable flora is present within

[7] CIEEM (2019) Advice Note on the Lifespan of Ecological Reports and Surveys

the impacted habitats and this limitation is not considered to pose a significant constraint to the accuracy of the survey.

5.36 Additional surveys were conducted in March 2025 to assess the utilisation of the project site by nesting birds and by over-wintering birds such as whooper swan. However, while whooper swan were found to utilise the site a full winter bird survey was not completed which would have included surveys from October to March in any year. Moreover, the second winter bird survey was conducted at the very end of the wintering bird season and whooper swan were found to be absent during this survey and were assessed to have likely migrated by this time. However, previous planning applications in the vicinity of the application site were found to have conducted similar surveys and these were consulted to supplement the results of the surveys conducted for the Site. As such, the assessment was no considered to be significantly constrained by this limitation.

Assessment Approach

5.37 The ecological evaluation and assessment within this chapter has been undertaken with reference to relevant parts of the 2024 Guidelines for Ecological Impact Assessment in the UK and Ireland developed by the Chartered Institute of Ecology and Environmental Management (CIEEM, September 2024).

5.38 Although this is recognised as current good practice for ecological assessment, the guidance itself recognises that it is not a prescription about exactly how to undertake an ecological impact assessment (EcIA); rather, they "*provide guidance to practitioners for refining their own methodologies*". For the full guidance, refer to https://www.cieem.net/data/files/ECIA%20Guidelines.pdf. The approach to impact assessment also has regard to advice set out in the EPA draft guidelines on the information to be contained in Environmental Impact Assessment Reports (EIAR) published in 2022.

Important Ecological Features

5.39 Important Ecological Features (IEFs) can be important for a variety of reasons. Importance may relate, for example, to the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/ or species are threatened throughout their range, or to their rate of decline. IEFs comprise the following:

- Designated sites including European, nationally, and locally designated sites;
- Habitats listed on Annex I of the Habitats Directive;
- Populations of bird species listed on Annex I of the Birds Directive; on local biodiversity action plan or are provided protection through policies listed under the county development plans;
- Populations of protected and threatened species in Ireland as defined by Nelson et al. (2019) and/or the local biodiversity action plan; or
- Habitats that comprise a significant resource for a rare or protected species.

Determining Importance

5.40 The importance of an ecological feature should be considered within a defined geographical context. The following frame of reference has been used in this case, relying on known/ published accounts of distribution and rarity where available, and professional experience:

- International (European);
- National (Ireland);
- Regional (Leinster);
- County (Offaly);
- Local (i.e., within circa 5km); and
- Negligible.

5.41 The above frame of reference is applied to the IEFs identified during the desk study and surveys to inform this report.

5.42 In assigning a level of value to the population of a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Examples of relevant lists and criteria include species of European conservation importance (as listed on Annexes II, IV and V of the Habitats Directive or Annex 1 of the Birds Directive), species protected under the Wildlife Acts 1976 - 2012 and BoCCI.

5.43 The level of value is determined by reference to standard criteria. All features of Local value and higher are considered in the assessment if they are likely to be significantly affected. Other features are also considered in the assessment if they are protected by law or policy, or otherwise require consideration in the development process.

Impact Assessment

5.44 The impact assessment process involves the following steps:

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

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

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

5.46 The impact assessment process considers both direct and indirect impacts: direct ecological impacts are changes that are directly attributable to a defined action (e.g., the physical loss of habitat occupied by a species during the construction process). Indirect ecological impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process, or feature (e.g.,

the creation of roads which cause hydrological changes, which, in the absence of mitigation, could lead to the drying out of wet grassland).

5.47 Consideration of conservation status is important for evaluating the effects of impacts on individual habitats and species and assessing their significance:

- **Habitats** – conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure, and functions as well as its distribution and its typical species within a given geographical area.
- **Species** – conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.

5.48 The threshold of importance is based at 1% of the existing background population / area (CIEEM, 2024).

Significant Effects

5.49 The 2024 CIEEM guidance sets out information in paragraphs 5.24 through to 5.28 of the guidance documents which describes the concept of ecological significance. Significant effects are qualified with reference to an appropriate geographic scale, and the scale of significance of an effect may or may not be the same as the geographic context in which the feature is considered important.

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

5.51 The nature of the identified effects on each assessed feature is characterised. This is considered, along with available research, professional judgement about the sensitivity of the feature affected, and professional judgement about how the impact is likely to affect the site, habitat, or population's structure and continued function. Where it is concluded that an effect would be likely to reduce the importance of an assessed feature, it is described as significant. The degree of significance of the effect takes into account the geographic context of the feature's importance and the degree to which its interest is judged to be affected.

Cumulative Effects

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

5.53 Other plans and projects that should be considered when establishing cumulative effects are:

- proposals for which consent has been applied but which are awaiting determination;
- projects which have been granted consent, but which have not yet been started, or which have been started but are not yet completed (i.e., under construction);

- proposals which have been refused permission, but which are subject to appeal, and the appeal is undetermined;
- constructed developments whose full environmental effects are not yet felt and therefore cannot be accounted for in the baseline; or
- developments specifically referenced in a National Policy Statement, a National Plan, or a Local Plan.

Avoidance, Mitigation, Compensation and Enhancement

5.54 When seeking mitigation or compensation solutions, efforts should be consistent with the geographical scale at which an effect is significant. For example, mitigation and compensation for effects on a species population significant at a county scale should ensure no net loss of the population at a county scale. The relative geographical scale at which the effect is significant will have a bearing on the required outcome which must be achieved.

5.55 Where potentially significant effects have been identified, the mitigation hierarchy has been applied, as recommended in the CIEEM Guidelines. The mitigation hierarchy sets out a sequential approach beginning with the avoidance of impacts where possible, the application of mitigation measures to minimise unavoidable impacts and then compensation for any remaining impacts. Once avoidance and mitigation measures have been applied, residual effects are then identified along with any necessary compensation measures, and incorporation of opportunities for enhancement.

5.56 It is important to clearly differentiate between avoidance mitigation, compensation and enhancement and these terms are defined here as follows:

- **Avoidance** is used where an impact has been avoided, e.g. through changes in scheme design;
- **Mitigation** is used to refer to measures to reduce or remedy a specific negative impact in situ;
- **Compensation** describes measures taken to offset residual effects, i.e. where mitigation in situ is not possible; and
- **Enhancement** is the provision of new benefits for biodiversity that are additional to those provided as part of mitigation or compensation measures, although they can be complementary.

Baseline Ecological Conditions

5.57 This section sets out the current baseline conditions for the ecological features considered within the Site and provides a clear description of the changes that would occur as a result of the proposed development using the findings of the desk study and field survey.

Sites Designated for Nature Conservation

5.58 Sites which have been designated for nature conservation are discussed in this section. These designations may include European sites, Natural Heritage Areas, National Parks, Nature Reserves, and Ramsar Sites.

European Designated Sites

5.59 An Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) report has been provided alongside this report (SLR, 2025). **Table 5-1** lists the European sites identified within 15 km of the Site or with hydrological connectivity to the Site. Sites beyond this distance have been scoped out as it is considered that the potential impacts caused by the proposed development are likely to have an imperceptible effect on sites beyond this distance.

5.60 The Yellow [Castlejordan] stream flows along the eastern Site boundary. This is a tributary of the River Boyne and connects the Site to the River Boyne and River Blackwater SAC [002299] and the River Boyne and River Blackwater SPA [004232] c. 27km downstream of the Site, the Boyne Coast and Estuary SAC and the Boyne Estuary SPA c. 105km downstream of the Site, and the North-West Irish Sea SPA c. 110km downstream of the Site. As such, potential impacts on these European sites as a result of changes in surface water quality are assessed further in this report.

5.61 The Site is located on the Athboy groundwater body. The River Boyne and River Blackwater SAC and SPA are located on the same groundwater body. Therefore, potential impacts on these European sites as a result of changes in groundwater quality and groundwater levels are assessed further in this report.

5.62 All of the European sites listed in **Table 5-1** are considered to be sufficiently distant to exclude the possibility of impacts as a result of dust[8], noise and vibration.

5.63 All other European sites have been scoped out from potential impacts in the AA Screening & NIS report and have, therefore, not been assessed further in this chapter.

Table 5-1: European Sites Within 15km of the Project Site

Site Code	Site Name	Distance[9]	Qualifying Interests[10]
000582	Raheenmore Bog SAC	5.22km	Degraded raised bogs still capable of natural regeneration [7120], Depressions on peat substrates of the Rhynchosporion [7150], Active raised bogs [7110]
001831	Split Hills and Long Hill Esker SAC	10.24km	Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) * important orchid sites [6210]
000685	Lough Ennell SAC	11.16km	Alkaline fens [7230]
004044	Lough Ennell SPA	11.84km	Great Crested Grebe (Podiceps cristatus) [A005], Mallard (Anas platyrhynchos) [A053], Pochard (Aythya ferina) [A059], Tufted Duck (Aythya fuligula) [A061], Goldeneye (Bucephala clangula) [A067], Coot (Fulica atra) [A125], Golden Plover (Pluvialis apricaria) [A140], Lapwing (Vanellus vanellus) [A142], Greenland White-fronted Goose (Anser albifrons flavirostris) [A395], Wetland and Waterbirds [A999]

[8] Institute of Air Quality Management (IAQM). (2016) Guidance on the Assessment of Mineral Dust Impacts for Planning.
[9] When measured in a straight line over the shortest distance between the site and European site.
[10] For SPAs, the bird species that are the reason for designation are Species of Conservation Interest (SCIs) and for SACs the habitats and species that are the reason for designation are its Qualifying Interests (QIs). For convenience, the term qualifying interest or QI is used here for both SPAs and SACs.
[9] Protected Sites in Ireland | National Parks & Wildlife Service (npws.ie)

Site Code	Site Name	Distance[9]	Qualifying Interests[10]
002299	River Boyne and River Blackwater SAC	c. 27km downstream	Alkaline fens [7230], Alluvial forests with Alnus glutinosa and Fraxinus excelsior (Alno-Padion, Alnion incanae, Salicion albae) [91E0], Lampetra fluviatilis (River Lamprey) [1099], Salmo salar (Salmon) [1106], Lutra lutra (Otter) [1355]
004232	River Boyne and River Blackwater SPA	c. 27km downstream	Cormorant (Phalacrocorax carbo) [A017], Grey Heron (Ardea cinerea) [A028], Teal (Anas crecca) [A052], Mallard (Anas platyrhynchos) [A053], Kingfisher (Alcedo atthis) [A229]
001957	Boyne Coast and Estuary SAC	c. 105km downstream	Estuaries [1130], Mudflats and sandflats not covered by seawater at low tide [1140], Annual vegetation of drift lines [1210], Salicornia and other annuals colonising mud and sand [1310], Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330], Embryonic shifting dunes [2110], Shifting dunes along the shoreline with Ammophila arenaria (white dunes) [2120], Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130]
004080	Boyne Estuary SPA	c. 105km downstream	Cormorant (Phalacrocorax carbo) [A017], Brent Goose (Branta bernicla) [A046], Shelduck (Tadorna tadorna) [A048], (Anas penelope) [A050], Teal (Anas crecca) [A052], Mallard (Anas platyrhynchos) [A053], Red-breasted Merganser (Mergus serrator) [A069], Oystercatcher (Haematopus ostralegus) [A130], Ringed Plover (Charadrius hiaticula) [A137], Golden Plover (Pluvialis apricaria) [A140], Grey Plover (Pluvialis squatarola) [A141], Lapwing (Vanellus vanellus) [A142], Knot (Calidris canutus) [A143], Sanderling (Calidris alba) [A144], Dunlin (Calidris alpina) [A149], Black-tailed Godwit (Limosa limosa) [A156], Bar-tailed Godwit (Limosa lapponica) [A157], Curlew (Numenius arquata) [A160], Redshank (Tringa totanus) [A162], Greenshank (Tringa nebularia) [A164], Turnstone (Arenaria interpres) [A169], Black-headed Gull (Larus ridibundus) [A179], Common Gull (Larus canus) [A182], Sterna albifrons [A195], Wetland and Waterbirds [A999]
004236	North-West Irish Sea SPA	c. 110km downstream	Red-throated Diver (Gavia stellata) [A001], Great Northern Diver (Gavia immer) [A003], Fulmar (Fulmarus glacialis) [A009], Manx Shearwater (Puffinus puffinus) [A013], Cormorant (Phalacrocorax carbo) [A017], Shag (Phalacrocorax aristotelis) [A018], Common Scoter (Melanitta nigra) [A065], Black-headed Gull (Chroicocephalus ridibundus) [A179], Common Gull (Larus canus) [A182], Lesser Black-backed Gull (Larus fuscus) [A183], Herring Gull (Larus argentatus) [A184], Great Black-backed Gull (Larus marinus) [A187], Kittiwake (Rissa tridactyla) [A188], Roseate Tern (Sterna dougallii) [A192], Common Tern (Sterna hirundo) [A193], Arctic Tern (Sterna paradisaea) [A194], Guillemot (Uria aalge) [A199], Razorbill (Alca torda) [A200], Puffin (Fratercula arctica) [A204], Little Gull (Hydrocoloeus minutus) [A862], Little Tern (Sternula albifrons) [A885]

Natural Heritage Areas

5.64 **Table 5-2** and **Figure 5-3** detail the Natural Heritage Areas (NHA) and proposed Natural Heritage Areas (pNHA) within 15 km of the proposed development.

5.65 There are no surface water hydrological connections between the Site and any of the NHAs and pNHAs listed in **Table 5-2**. None of the NHAs or pNHAs listed in **Table 5-2** are reliant on the groundwater quality or levels of the Athboy groundwater body (GWB) on which the Site is located. In addition, the peatland habitat for which the listed NHAs are designated are primarily rain-fed and are not reliant on groundwater.

5.66 All of the NHAs and pNHAs listed in **Table 5-2** are considered to be sufficiently distant to exclude the possibility of impacts as a result of dust[11], noise and vibration.

5.67 Therefore, it is assessed that there are no potential pathways for impacts on the NHAs and pNHAs listed in **Table 5-2** as a result of the proposed development.

5.68 All other NHAs and pNHAs are considered to be sufficiently distant to exclude the possibility of significant impacts as a result of the proposed development.

Table 5-2: Natural Heritage Areas Within 15 km of the Site

Site Code	Site Name	Designation	Distance[12]	Details / Reason for Designation
Natural Heritage Areas (NHAs)				
002323	Milltownpass Bog	NHA	7.97 km N	Peatlands [4]
000677	Cloncrow Bog (New Forest)	NHA	8 km W	Peatlands [4]
000570	Black Castle Bog	NHA	8.2 km E	Peatlands [4]
002033	Daingean Bog	NHA	9.4 km SW	Peatlands [4]
001725	Nure Bog	NHA	13.2 km NW	Peatlands [4]
Proposed Natural Heritage Areas (pNHAs)				
002104	Grand Canal	pNHA	5.03 km SE	Otter; smooth newt; opposite-leaved pondweed
000582	Raheenmore Bog	pNHA	5.23 km SW	It is anticipated that this pNHA is designated for the same QIs as the Raheenmore Bog SAC which it overlaps with.
000918	Rahugh Ridge (Kiltober Esker)	pNHA	8.6 km SW	Red hemp-nettle; semi-natural woodland
001831	Split Hills And Long Hill Esker	pNHA	10.3 km W	It is anticipated that this pNHA is designated for the same QIs as the Split Hills And Long Hill Esker SAC which it overlaps with.
000685	Lough Ennell	pNHA	11.6 km NW	It is anticipated that this pNHA is designated for the same QIs as the Lough

[11] Institute of Air Quality Management (IAQM). (2016) Guidance on the Assessment of Mineral Dust Impacts for Planning.
[12] When measured in a straight line over the shortest distance between the site and NHA/pNHA.

				Ennell SAC and SPA which it overlaps with.
001711	Ardan Wood	pNHA	11.15 km SWW	Semi-natural woodland
001775	Murphy's Bridge Esker	pNHA	11.18 km SW	Red hemp-nettle; blue fleabane; eskers
002103	Royal Canal	pNHA	13.24 km N	Otter; opposite-leaved pondweed; *Tolypella intricata*

Habitats

5.69 Habitats present within the Site, as recorded during the preliminary ecological assessment survey, are described in this section. Habitat classification follows that of '*A Guide to Habitats in Ireland*' (Fossitt, 2000). A habitat map for the site is provided in **Figure 5-1**.

Desk Study

5.70 The desk study found no records of Annex I habitats within the site boundary or within a 2 km buffer of the Site. No other records of notable habitats such as ancient and long-established woodland or semi-natural grasslands were found within 2 km of the Site.

Field Survey

Improved Agricultural Grassland (GA1)

5.71 The majority of the Site consists of two improved agricultural grassland fields. Patches of bare ground are abundant, where disturbed by tractors, but grass is dominant within this habitat. There is evidence of grazing within these fields, however they were not being actively used for grazing at the time of the survey.

5.72 The dominant grass species include perennial ryegrass *Lolium perenne* and creeping bent *Agrostis stolonifera* with areas of fescue *Festuca* spp and cocksfoot *Dactylis glomerata* also present. Broadleaved herbs are also found in this habitat including creeping buttercup *Ranunculus repens*, yarrow *Achillea millefolium*, cow parsley *Anthriscus sylvestris*, creeping thistle *Cirsium arvense*, greater plantain *Plantago major*, cranes-bill *Geranium* spp., dandelion *Taraxacum officinale*, and purple dead-nettle *Lamium purpureum*.

5.73 This habitat is widespread and provides limited value to biodiversity due to a low species diversity and high levels of agricultural activity. Therefore, it is evaluated to be of **negligible importance**.

Photograph 1: Improved Agricultural Grassland (GA1) Habitat On-Site

Eroding/Upland Rivers (FW1)

5.74 The Yellow [Castlejordan] stream flows along the eastern Site boundary. The section of this stream that is found along the Site boundary is approximately 2.5 m in width and 1.5 m in depth with steep banks. Common reed *Phragmites australis* is found along the banks of the river, in addition to some hedgerow, as described in the following section. In areas where there is no hedgerow present, the banks are composed of common reed along with occasional scrub and tree species including willows *Salix* spp. Aquatic vegetation such as watercress *Nasturtium officinale* is present within the stream. A bridge crosses over the stream in the south of the Site, where the stream narrows to approximately 1 m in width. The Yellow stream is a tributary of the River Boyne, ultimately entering the sea at Boyne Estuary approximately 110 km downstream of the Site.

5.75 This habitat provides value to fauna both on-site and downstream of the Site. Therefore, it is evaluated to be of **regional-level importance** due to its potential to provide biodiversity value beyond the boundaries of the Site.

Photograph 2: Eroding/Upland River (FW1) Habitat On-Site

Hedgerows (WL1)

5.76 Approximately 140 m of hedgerow is located along the banks of the Yellow River in the southern corner of the Site. This habitat is primarily composed of unmanaged gorse *Ulex* sp. hedgerow with instances of alder *Alnus glutinosa*, ash *Fraxinus excelsior*, and bramble *Rubus fruticosus* agg. Bracken *Pteridium aquilinum* is locally dominant in places along this hedgerow. An understorey of ivy *Hedera helix*, fescue *Festuca* spp., cocksfoot *Dactylis glomerata*, vetch *Vicia* spp. and Yorkshire fog *Holcus lanatus* is also present.

5.77 A 20m buffer zone will be established between the Yellow River and the proposed periphery screening berm and a 35m buffer will be maintained to the proposed extraction area. Therefore, there will be no loss of hedgerows as a result of the proposed development. This habitat may provide suitable foraging and refuge opportunities for local fauna. Therefore, it is evaluated to be of **county-level importance**. However, since this habitat will not be impacted, it can be reasonably excluded from further consideration.

Photograph 3: Hedgerow (WL1) Habitat On-Site

Species

Desk Study

5.78 The NBDC database was searched for records of rare and/or protected species from the 2 km grid squares N43X and N43Y within which the Site is located. The records of rare and/or protected species are presented in **Table 5-3** below.

Table 5-3 Rare or Protected Species Recorded Within 2km Grid Squares N43X & N43Y

Species	Date of Last Record	No. of Records	Conservation Status	Dataset
Birds				
Common Sandpiper *Actitis hypoleucos*	2021	1	Birds of Conservation Concern: Amber List	Birds of Ireland
Coot *Fulica atra*	2011	1	Birds of Conservation Concern: Amber List	Bird Atlas 2007 - 2011
Great Crested Grebe *Podiceps cristatus*	2021	3	Birds of Conservation Concern: Amber List	Birds of Ireland
Kestrel *Falco tinnunculus*	2022	1	Birds of Conservation Concern: Red List	Birds of Ireland
Lapwing *Vanellus vanellus*	2021	4	Birds of Conservation Concern: Red List	Birds of Ireland

Mallard *Anas platyrhynchos*	2019	2	Birds of Conservation Concern: Amber List	Birds of Ireland
Mute Swan *Cygnus olor*	2019	2	Birds of Conservation Concern: Amber List	Birds of Ireland
Ringed Plover *Charadrius hiaticula*	2024	5	Birds of Conservation Concern: Amber List	Birds of Ireland
Sand Martin *Riparia riparia*	2024	5	Birds of Conservation Concern: Amber List	Birds of Ireland
Skylark *Alauda arvensis*	2021	2	Birds of Conservation Concern: Amber List	Birds of Ireland
Tufted Duck *Aythya fuligula*	2019	2	Birds of Conservation Concern: Amber List	Birds of Ireland
Whooper Swan *Cygnus cygnus*	2021	9	EU Birds Directive: Annex I Birds of Conservation Concern: Amber	Birds of Ireland
Invertebrates				
White-clawed Crayfish *Austropotamobius pallipes*	2018	4	EU Habitats Directive: Annex II and V Protected Species: Wildlife Acts	A national macroinvertebrate dataset collected for the biomonitoring of Ireland's river network, 2007–2018 (EPA)
Mammals				
[redacted]	[redacted]	[redacted]	Protected Species: Wildlife Acts	General Biodiversity Records from Ireland [redacted]
Fallow Deer *Dama dama*	2010	1	Protected Species: Wildlife Acts	Atlas of Mammals in Ireland 2010-2015
Pine Marten *Martes martes*	2014	1	EU Habitats Directive: Annex V Protected Species: Wildlife Acts	General Biodiversity Records from Ireland

Rare and Protected Flora

5.79 There are no records of rare and protected plant species within the 2 x 2 km grid squares. No notable protected plant species were recorded within the Site during the field surveys.

5.80 The field survey was conducted outside of the optimal season for botanical surveys. However, it is considered unlikely that protected flora species would be present on-site due to the agricultural and disturbed nature of the habitats on-site.

5.81 Therefore, they have been scoped out from further assessment.

Rare and Protected Fauna

Amphibians

5.82 The data search returned no records of amphibians. No amphibians were recorded on the site during the field surveys.

5.83 No suitable waterbodies for breeding amphibians were identified on-site. It is considered that the habitats on-site are of low value to amphibians due to the highly disturbed nature of the Site and the monoculture of grass vegetation present. It is assessed that the Site is unlikely to be used as an important refuge for amphibians during the non-breeding season.

5.84 The Site is considered to be of **negligible importance** to amphibians.

Reptiles

5.85 The data search returned no records of reptiles within the 2 x 2 km squares. No reptiles were noted on-site during the field surveys.

5.86 It is considered that the habitats on-site are of low value to reptiles due to the highly disturbed nature of the Site and the monoculture of grass vegetation present. It is assessed that the Site is unlikely to be used as an important refuge for reptiles.

5.87 The Site is considered to be of **negligible importance** to reptiles.

Invertebrates

5.88 No notable terrestrial invertebrate species were observed on-site during the field survey. However, the survey was conducted outside of the optimal season for recording terrestrial invertebrates.

5.89 The terrestrial habitats on-site are generally considered to be of limited value to invertebrates. The gorse hedgerows may provide some foraging and refuge habitat for common and widespread invertebrate species. However, the value of this habitat will be limited due to its limited plant diversity.

5.90 The data search returned records of white-clawed crayfish within the 2 x 2 km squares. White-clawed crayfish are listed under Annex II and Annex V of the EU Habitats Directive and are protected under the Wildlife Acts.

5.91 The crayfish records obtained from NBDC are located approximately 200 m north-east of the Site within the Yellow stream and the most recent record is from 2018. Given the short distance between these record locations and the Site, it cannot be excluded that white-clawed crayfish may be present within the section of stream which flows directly adjacent to the Site.

5.92 Invertebrates are evaluated to be of **local-level importance** due to the presence of potentially suitable foraging and refuge habitat for white-clawed crayfish adjacent to the Site.

Birds

5.93 The data search returned records of several red and amber listed birds (Gilbert *et al.*, 2021) within the 2 x 2 km squares (refer to **Table 5-3**), including the following:

Red-listed Birds

- Kestrel
- Lapwing

Amber-listed birds

- Common sandpiper
- Coot
- Great Crested Grebe
- Mallard
- Mute Swan
- Ringed Plover
- Sand Martin
- Skylark
- Tufted Duck
- Whooper Swan - In addition to being amber-listed, whooper swans are protected under Annex I of the EU Birds Directive.

5.94 Bird survey findings were examined from the EIAR of accompanying planning applications, including the Kilmurray sand and gravel extraction (planning ref.: 21247 and the operational Yellow River Wind Farm (Planning ref.: PL19.PA0032 / PM19.312876).

5.95 The Kilmurray sand and gravel extraction development recorded the following birds in the EIAR:

- Curlew (population of c. 35)
- Golden plover (numbers generally in low hundreds, peak count c. 700)
- Great crested grebe
- Kestrel
- Lapwing (peak count 200)
- Mallard
- Meadow pipit
- Sand martin
- Snipe
- Starling
- Teal
- Tufted duck
- Whooper swan (population of c. 100)

5.96 The adjacent Yellow River Wind Farm undertook several bird surveys of the area. And found the improved grassland fields at Derryarkin farm provide suitable habitat for whooper Swans and grassland feeding waders (lapwing, golden plover, curlew). Whooper swan were recorded in grassland fields in 2012/13, with numbers ranging between 3 – 82. The swans were part of a population that moved regularly between various fields and bog for feeding. The mainly roosted at ponds located at N510400; as well as and Kilmurray ponds occasionally. The fields of use for foraging was found to vary depending on the levels of disturbance occurring from farming activities.

5.97 The field surveys conducted at the Site recorded a flock of 40 whooper swan were recorded foraging on-site during the preliminary ecological assessment. Two follow-up bird surveys were carried out on 11th March 2025 at dawn and on 25th March 2025 at dusk to investigate the presence of foraging whooper swan on-site. A summary of these survey results is shown in **Table 5-4**.

5.98 The results of the first survey found that the whooper swans are roosting on bog lakes located approximately 500 m north-east of the Site boundary and these birds were seen flying south to forage on the project site. A peak count of 47 whooper swans was recorded during this survey. No whooper swans were seen during the second survey. The number of whooper swans observed foraging on the Site is below the threshold for national importance (150 individuals), therefore this Site is considered to be of local importance to whooper swans.

5.99 A heronry with at least 5 old nests is located c. 150 m west of the Site. This was recorded during the non-breeding season. Therefore, it is possible that this heronry may support larger numbers of grey heron during the breeding season.

5.100 Other notable species recorded during the field surveys on or in the immediate vicinity of the Site were amber listed coot; house sparrow; mallard; mute swan; skylark; and starling, and red listed lapwing and snipe. Various other common and widespread green listed species are also present.

5.101 The bird assemblage on-site is evaluated to be of **local-level importance** due to the presence of amber and red listed birds and suitable breeding and foraging habitat within the Site, including suitable foraging habitat for low numbers of whooper swans.

Table 5-4: Summary of Bird Survey Results

Date	Species	Number of Individuals	Seen / Heard	Breeding Status	Description
25/03/2025	BZ - Buzzard	4	Seen	Non-breeder	Circling and calling overhead
25/03/2025	BZ - Buzzard	1	Seen	Non-breeder	Soaring over field
25/03/2025	CO - Coot	Unknown	Heard	Non-breeder	Single birds heard calling
25/03/2025	FF - Fieldfare	At least 30	Seen	Non-breeder	Foraging along river vegetation
11/03/2025	H. - Grey Heron	3	Seen	Confirmed breeder	Three birds noted with one on a nest. Other nests are also visible. Additional birds may be present but unseen.
25/03/2025	H. - Grey Heron	At least 5	Seen	Confirmed breeder	At least 5x heron nests noted
25/03/2025	L. - Lapwing	1	Heard	Non-breeder	Heard calling
11/03/2025	MA - Mallard	1	Seen	Non-breeder	Heard and seen taking a short flight to SE. Possible roost site.
25/03/2025	MA - Mallard	Unknown	Heard	Non-breeder	Heard calling
11/03/2025	MS - Mute Swan	2	Seen	Non-breeder	On water, roost site
25/03/2025	MS - Mute Swan	2	Seen	Non-breeder	On water
25/03/2025	RW - Reed Warbler	1	Seen	Possible breeder	Male
11/03/2025	S. - Skylark	Unknown	Heard	Possible breeder	Heard singing

Date	Species	Number of Individuals	Seen / Heard	Breeding Status	Description
11/03/2025	SN - Snipe	Unknown	Heard	Non-breeder	Heard calling only.
25/03/2025	SN - Snipe	Unknown	Heard	Non-breeder	Heard calling
11/03/2025	WS - Whooper Swan	Unknown	Heard	Non-breeder	Potential roost site. Unknown no. heard. Possible x7 individuals seen in thermal camera. Small recording taken on thermal camera.
11/03/2025	WS - Whooper Swan	17	Seen	Non-breeder	Roost site. At 06:30 they took off flying initially west before heading along big river to south and landed on site (foraging site)
11/03/2025	WS - Whooper Swan	18	Seen	Non-breeder	Flew to south. Exact point of origin unknown but likely lake just to N of VP. All landed on site (for foraging)
11/03/2025	WS - Whooper Swan	5	Seen	Non-breeder	Flew to site from NW of VP
11/03/2025	WS - Whooper Swan	6	Seen	Non-breeder	Flew to site from N of VP. One group of 4 and one group of 2
11/03/2025	WS - Whooper Swan	47	Seen	Non-breeder	Previously observed in flight. Seen feeding on the site
11/03/2025	WS - Whooper Swan	1	Seen	Non-breeder	Flying west to east / NE. approx. height 7m.

Mammals

Bats

5.102 The data search returned no records of bat species within the 2 x 2 km squares.

5.103 Consultation with Biodiversity Maps[13] was undertaken to assess the bat landscape suitability for the 2x2 km grid square in which the site is located, following the methodology set out by Lundy et al. (2011). This methodology applies a 'habitat suitability' index, which ranges from 0 to 100, with 0 being least favourable and 100 most favourable for bats. The bat suitability index score for the Site is provided in **Table 5-5**.

5.104 Based on the bat suitability index, the local area is most suitable for common pipistrelle, soprano pipistrelle, and lesser noctule. The local area is considered by the data to be less suitable for whiskered bat, Nathusius's pipistrelle, and lesser horseshoe bat.

Table 5-5: Bat Landscape Suitability for 2x2 km square N57H

Species	Index score
All Bats	19.11
Common Pipistrelle *Pipistrellus pipistrellus*	33
Soprano Pipistrelle *Pipistrellus pygmaeus*	31
Lesser Noctule *Nyctalus leisleri*	31
Brown Long-eared Bat *Plecotus auritus*	22
Daubenton's Bat *Myotis daubentonii*	22
Natterer's Bat *Myotis nattereri*	18
Whiskered Bat *Myotis mystacinus*	12
Nathusius's Pipistrelle *Pipistrellus nathusii*	3
Lesser Horseshoe Bat *Rhinolophus hipposideros*	0

5.105 The Site itself is considered to be of low value to foraging and commuting bats due to a lack of suitable, linear habitats on-site. The river flowing along the eastern Site boundary may provide low/moderate foraging value to bats.

5.106 There are no trees or buildings on-site. Therefore, there is no suitable habitats or opportunities for roosting bats.

5.107 Bats are evaluated to be of **local-level importance** due to the presence of some suitable foraging and commuting habitats adjacent to the Site.

Otter

5.108 There are no records of otter within the 2 x 2 km NBDC grid squares.

5.109 The riverbanks were searched for signs of otter presence (droppings, couches, holts, tracks, etc.) during the field survey and no signs of otter presence were noted. A possible access point (slide) to the river was noted but there is no evidence this was used by otter. There is potentially suitable habitat for foraging otter within the river and riverbanks that are located along the eastern Site boundary. Breeding otters are unlikely to be present within the Site

[13] Available at https://maps.biodiversityireland.ie/Map (Accessed July 2025).

due to the heavy disturbance and human use of the Site and due to a lack of suitable vegetation cover.

5.110 Otters are evaluated to be of **local-level importance** due to the presence of suitable foraging habitats adjacent to the Site.

Other Mammals

5.111 The data search returned records [redacted], fallow deer, and pine marten within the 2 x 2 km squares. Two mammal tracks/pathways were recorded on-site. No other signs of mammal activity (feeding signs, droppings, [redacted], burrows, etc.) were noted during the field survey.

5.112 The habitats on-site are unlikely to support a significant population of notable mammals such as [redacted] or pine marten as the Site is composed of heavily disturbed and actively used agricultural land without any significant areas of vegetation cover.

5.113 The Site is evaluated to be of **negligible importance** for other mammal species.

Invasive Species

5.114 The data search returned records of brown rat *Rattus norvegicus*, and fallow deer within the 2 x 2 km squares. Brown rat and fallow deer are listed in the Third Schedule of S.I. No. 477/2011 European Communities (Birds and Natural Habitats) Regulations.

5.115 No invasive species were noted on-site during the field surveys.

5.116 Brown rat and fallow deer are widespread and well-established throughout Ireland. It is also considered unlikely that either of these species would be spread outside of the Site as a result of the proposed development.

5.117 Therefore, invasive species are considered to be of **negligible importance** and can be reasonably excluded from further consideration in this report.

Summary of Important Ecological Features

5.118 **Table 5-6** summarises all important ecological features for which detailed assessment is required. The geographical scale of importance for the ecological features within the Site are summarised along with their legal status and a rationale, where appropriate, for carrying forward any features for detailed assessment.

5.119 All ecological features scoped out from further assessment have been detailed in the previous section.

Table 5-6: Summary of Important Ecological Features Subject to Detailed Assessment

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Sites Designated for Nature Conservation		
European Designated Sites	International	• Natura 2000 sites are protected under the Habitats Directive (Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora, which is transposed into Irish law primarily through the European Communities (Birds and Natural Habitats) Regulations 2011 –21, (S.I. 477 of 2011, as amended) ("Birds and Natural Habitats Regulations")) and the Planning and Development Acts 2000 -22.

Ecological Feature	Scale at which Feature is Important	Comments on Legal Status and/or Importance
Habitats		
Eroding/Upland Rivers	Regional	• Rivers and associated habitats are afforded local protection under the following objective from the County Development Plan: **BLP-20:** It is Council policy to preserve riparian buffer strips free from development by reserving a minimum of 10 metres either side of all watercourses (measured from top of bank) with the full extent of the protection determined on a case-by-case basis by the Council, based on site specific characteristics and sensitivities. **BLP-21:** It is Council policy to promote clear span bridging structures as the preferred option for culverts Any development proposal requiring culverting should also document stream habitat lost and provide compensatory habitat where possible. Realignment of water courses should incorporate stream enhancement measures, as outlined in Office of Public Works Environmental Guidance. The Council will consult with Inland Fisheries Ireland in relation to riparian and instream works as appropriate.
Species		
Birds	Local	• All birds are protected under the Wildlife Acts 1976 and subsequent amendments during the breeding bird season (i.e., 1st March to 31st August). • A flock of up to 47 whooper swans was observed foraging on-site. • There is potentially suitable breeding and foraging habitat for amber and the red listed species of lapwing and snipe.
Bats	Local	• All bats are protected under the Wildlife Acts 1976 and subsequent amendments. • There is potentially suitable foraging and commuting habitat adjacent to the Site.
Freshwater White-clawed Crayfish	Local	• Freshwater white-clayed crayfish are protected under the Wildlife Acts 1976 and subsequent amendments and are listed under Annex II and Annex V of the EU Habitats Directive. • There is potentially suitable breeding and foraging habitat adjacent to the Site.
Otter	Local	• Otters are protected under the Wildlife Acts 1976 and subsequent amendments and are listed under Annex II and Annex IV of the EU Habitats Directive. • There is potentially suitable foraging habitat adjacent to the Site.

Detailed Project Description

Construction Phase (Ancillary Facilities, Hardcore Access Track & Fencing)

5.120 As this is a greenfield site, there is a requirement for new welfare and ancillary facilities and infrastructure to be installed to service the site for the duration of the proposed development and following cessation of extraction and operations.

5.121 It is anticipated that the construction stage works as outlined below will be carried out within a 6-month period. It should be noted that extraction and production operations may be commenced within this 6-month period and carried out in tandem with the below-mentioned development works.

5.122 A new internal access road will run from the existing site entrance (which provides access to turbine T7 and shown in Plate 1-1 in Chapter 1) in a south-westerly direction to the new site facilities compound area. There is already a section (c. 120m) of the internally access inside the site entrance where hardcore is already in place serving the turbine compound location. An additional section (c. 210m) of hardcore road will be constructed between the existing hardcore road and the new site facilities area.

5.123 The site facilities area will also consist of a hardcore surface where the weighbridge and wheelwash will be installed on the outbound carriageway. Adjacent to this will be the mobile welfare pod (office, canteen, toilet) and a dedicated parking area. The perimeter will be fenced, and an automated barrier will be installed to control access to the site.

5.124 Beyond the compound area, a hardcore surface track will run south to the proposed extraction and stripped soil stockpile storage areas.

Operational Phase (Phased Soil Stripping / Berm Construction and Sand & Gravel Extraction / Processing)

5.125 The extraction of the sand and gravel will be carried out in line with best international practice.

5.126 The volume, lateral extent and depth of overburden / sands and gravels for the site have been determined from site investigations. The proposed extraction and processing tasks and activities to be implemented at the site consist of:

- removal of the in-situ residual clay overlying the sand and gravel;
- wet working extraction, i.e., extraction of the sand and gravel materials from beneath the natural water table of the site to a depth of typically from 6m up to 10m;
- long-reach excavator will dig out the sand and gravel and stockpile it in a row beside excavation;
- stockpiling of the sand and gravel adjacent to the working extraction area to allow drying of the materials, i.e., to allow water within the extracted materials to percolate back to the ground;
- stockpiled material is allowed to dry out for typically 2-3 days;
- mobile tracked screener is moved along with the advancing extraction face and the stockpiles and the materials are screened and put into 4 different stockpiles
- sand, 10mm, 20mm and oversize;
- the oversize stockpiles will be crushed as required to produce aggregates of a suitable size in the concrete production process;

- trucks will be loaded directly from the screener or from adjacent stockpiles;
- trucks weigh out on weighbridge and receive a delivery docket and exit the site via the wheelwash.

5.127 The overall extraction footprint is c. 11.7 hectares, and it is proposed to extract the materials on a gradual and phased basis as shown in **Figure 2-3** in Chapter 2 as follows:

- Phase 1 c. 3.2 hectares c. Years 1-4
- Phase 2 c. 3.4 hectares c. Years 5-8
- Phase 3 c. 3.5 hectares c. Years 9-12
- Phase 4 c. 1.6 hectares c. Years 13-14
- Total c. 11.7 hectares

5.128 The phased approach to extraction will be carried out within the individual phase areas consisting of soil stripping, followed by sand and gravel extraction followed by restoration using onsite materials. Extraction operations within a particular phase (*e.g.,* Phase 2) will only be carried out when extraction in the previous phase (e.g., Phase 1) has been completed. All lands will remain in agricultural use until required for extraction.

5.129 There is no requirement for hedgerow or tree removal during any of the development phases. The following is an overview of the proposed works to be carried out on a phased basis over the life of the proposed development.

Phase 1 – Extraction

5.130 Initial soil stripped from both the Phase 1 extraction area (c. 3.2 ha.) and the soil/overburden storage area (c. 1.9 ha.) will be stored on ground level in permitter screening berms as shown in **Figure 2-3** – Phase 1 in Chapter 2.

5.131 The external perimeter of the berm will be secured with stockproof fencing.

5.132 Sand and gravel extraction within Phase 1, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

Phase 2 – Extraction / Restoration

5.133 Soil stripped from the Phase 2 extraction area (c. 3.4 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary as shown in **Figure 2-3** – Phase 2 in Chapter 2.

5.134 Any excess stripped soils will be stored in the soil/overburden storage area to the north of Phase 1.

5.135 The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing.

5.136 The soil material in the existing berm between Phases 1 & 2 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.

5.137 Sand and gravel extraction within Phase 2, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

Phase 3 – Extraction / Restoration

5.138 Soil stripped from the Phase 3 extraction area (c. 3.5 ha.) will be used to extend the screening berm along the eastern and western boundaries and construct a new berm along the southern boundary as shown in Figure 2-3 – Phase 3 in Chapter 2.

5.139 The external perimeter of the newly constructed sections of berm will be secured with stockproof fencing.

5.140 Any excess stripped soils along with the soil material in the existing berm between Phases 2 & 3 will be used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.

5.141 Sand and gravel extraction within Phase 3, with the wet working face advancing in a westerly direction, leaving a permanent waterbody feature behind.

Phase 4 – Extraction / Restoration

5.142 Soil stripped from the Phase 4 extraction area (c. 1.6 ha.) will either be stored in the soil/overburden storage area to the north of Phase 1 or used to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site.

5.143 Sand and gravel extraction within Phase 4, with the wet working face advancing in a northerly direction, leaving a permanent waterbody feature behind.

5.144 The phased extraction and restoration scheme has the benefit of:

- retaining existing land for agricultural use for as long as possible thereby minimising the stripped areas being exposed at any one time;
- progressive restoration will expedite the return of the lands to a beneficial biodiversity and water feature afteruse and minimise the overall duration required to carry out the extraction and restoration works;
- where possible, minimising soil handling by stripping from one area and placing directly onto the area previously extracted and ready for restoration;
- replanting of new vegetation at the earliest opportunity.

Restoration Phase (Reinstatement to Ecological Habitat)

5.145 The extraction and restoration activities proposed for the site will be on a phased basis. Working in this manner will facilitate the progressive restoration of each area which will generally comprise reinstatement of excavated deposits to the extracted areas, the establishment of a permanent water body and allowing the lake edges and external perimeter berms to naturally regenerate / revegetate over time. There is no requirement to import any materials to site for restoration purposes.

5.146 Evidence from similar existing operations is that following extraction works, areas will become colonised with locally occurring grass, wildflower and scrub species, as well as aquatic species along the lakes edge. It is most likely that the lake will be regularly visited by bird species, such as Whooper Swan and Mute Swan which are observed at other wet working extraction operations within the vicinity of the site.

5.147 During the post-operational stage, the progressive landscape restoration measures would already be in place across much of the site and, as such, the area will be left undisturbed

and allowed to naturally regenerate with secondary woodland and scrub becoming established over a number of years.

5.148 Any soil that was previously stripped and stored within the soil/overburden storage area to the north of Phase 1 will be along the northern boundary of Phase 1 to regrade the lake edges in parts and to construct peninsula type features from the edge of the extraction area into the lake. Backfilled areas that reach above the water level will be left for natural regeneration to provide greater biodiversity within the site. The soil/overburden area will be left to naturally regenerate and provide a valuable ecological habitat area adjacent to the permanent water body feature.

5.149 The perimeter berm around the final extraction profile will be retained as it will have been colonised for some time with native species. The stockproof fence will also be retained and along with the berm will provide an adequate security barrier to the water body.

5.150 The 20m riparian corridor along the length of the easter extraction boundary between the retained screening berm and the Big River will be planted with blocks of native tree species and allow to develop naturally and will provide a habitat refuge linking the new water body created by the extraction works and the river and into the areas of forestry and scrubland beyond.

5.151 Redundant structures, plant equipment and stockpiles will be removed from the site on permanent cessation of extraction activity. Machinery and structures will either be utilised by BD Flood on other sites or be sold as working machinery or scrap.

5.152 All existing boundary fences and hedgerows will be retained to ensure that the site is secure.

5.153 It is anticipated that the restored site will contain a variety of habitats and plant species, making it considerably more diverse than the existing monoculture type grassland currently present.

Assessment of Effects and Mitigation Measures

5.154 This section sets out the potential impacts and their effects on important ecological features. The information available from the desk study and fieldwork has been used to identify impacts and the significant effects including positive, negative, direct, indirect, and cumulative effects. The potential effects resulting from the proposed development works and proposed mitigation measures are discussed in the following sections.

Potential Impacts

European Designated Sites

Potential Impacts

5.155 The Yellow [Castlejordan] stream flows along the eastern Site boundary. This is a tributary of the River Boyne and connects the Site to the River Boyne and River Blackwater SAC and the River Boyne and River Blackwater SPA c. 27km downstream of the Site, the Boyne Coast and Estuary SAC and the Boyne Estuary SPA c. 105km downstream of the Site, and the North-West Irish Sea SPA c. 110km downstream of the Site.

5.156 The extraction area will be located approximately 35 m from the Yellow stream and a berm will be constructed along the edges of the extraction area at a distance of 20 m from the stream. There is potential for indirect impacts on surface water quality as a result of accidental fuel leakages and spillages.

5.157 The Site is located on the Athboy groundwater body. The River Boyne and River Blackwater SAC and SPA are located on the same groundwater body.

5.158 The proposed sand and gravel pit will be worked below the groundwater in the sand and gravel deposits; however, no dewatering of shallow groundwater will take place. Therefore, there will be very localised and negligible impacts on the levels and flow within the Athboy groundwater body. These impacts are unlikely to extend to the River Boyne and River Blackwater SAC and SPA, due to the distance between the Site and these European sites.

5.159 Indirect impacts on groundwater quality as a result of accidental leaking or spillage of fuel and/or other petroleum-based products have the potential to impact the groundwater body on which the Site is located.

Proposed Mitigation Measures

5.160 The following standard management measures will be implemented at the extension area to prevent impacts on surface and groundwater quality:

- There will be no discharge from the proposed development to any surface watercourse;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

Significance of Residual Effects

5.161 Under the current development proposals, it is assessed that the impacts on European designated sites will not be significant.

Eroding/Upland River

Potential Impacts

5.162 There is potential for indirect impacts on the water quality of the Yellow stream as a result of accidental fuel leakages and spillages.

Proposed Mitigation Measures

5.163 The following standard management measures will be implemented at the extension area to prevent impacts on surface water quality:

- A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

Significance of Residual Effects

5.164 Under the current development proposals, it is assessed that the impacts on eroding/upland river habitats will not be significant.

Freshwater White-clawed Crayfish

Potential Impacts

5.165 It is assessed that white-clawed crayfish are likely to be present in the river which flows along the eastern Site boundary, based on results from previous surveys in the vicinity of the Site. Changes to the water quality of this river may impact the local crayfish population.

5.166 The recommended water quality conditions for freshwater white-clawed crayfish is described below:

- generally, more than 60% saturation of dissolved oxygen;
- no extremes of pH, generally pH 6.8-8.6, below pH 6.0 is considered unsuitable;
- over 5mg l-1 calcium; and
- absence of toxic chemicals.

5.167 Potential sources of pollutants which may impact freshwater white-clawed crayfish may include:

- oils and fuels, from spillages or runoff;
- contaminated sediments; and
- introduction of excessive silt may make waterbodies unsuitable for white-clawed crayfish.

Proposed Mitigation Measures

5.168 The following standard management measures will be implemented at the extension area to prevent impacts on surface water quality:

- A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally.
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

Significance of Residual Effects

5.169 Under the current development proposals and recommended mitigation measures in place, it is assessed that the impacts on freshwater white-clawed crayfish will not be significant.

Bats

Potential Impacts

5.170 There is potentially suitable foraging and commuting habitat for bats along the Yellow stream, which flows along the eastern Site boundary. Impacts on the waterbody and associated riverbank habitat may have an impact on the capacity to support foraging bats.

Proposed Mitigation Measures

5.171 A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally. This will improve the quality of the riverbank habitat for foraging and commuting bats.

Significance of Residual Effects

5.172 Under the current development proposals and recommended mitigation measures in place, it is assessed that the impacts on bats will not be significant.

Birds

Potential Impacts

5.173 The habitats present in the Site do not support any nesting birds of significance; and there is no requirement for hedgerow or tree removal during any of the development phases. Therefore, there is no potential for direct impacts to nesting birds.

5.174 There will be a loss of approximately 18.4 ha of agricultural habitat that is known to be used by a flock of approximately 40-50 whooper swans for foraging based on the surveys conducted and consultation with the EIAR of other nearby developments. This whooper swan population is not associated with any nearby SPA. They were recorded roosting on the bog lakes located approximately 500 m north-east of the Site boundary. These birds were found to roost within lakes located to the north of the Site overnight before moving to the Site and surrounding fields during the day to forage. This was supported by the survey findings from other adjacent developments (Earth Science Partnership (Ire.) Ltd, 2021; Jennings O'Donovan and Partners, 2013).

5.175 In addition red-listed species such as lapwing and snipe were also noted foraging on the Site.

5.176 It should be noted that the whooper swan population in Co. Offaly is increasing, with an increase of +1,017 whooper swans recorded between 2015 and 2020, according to the International Swan Census (Burke *et al.*, 2021). Moreover, the whooper swan populations in Ireland increased by 26.5% across the same timeframe (Burke *et al.*, 2021). As such, the loss of such a minor area of foraging habitat will not result in a significant effect to this species on a county nor a national level.

5.177 Lapwing populations, however, are declining with a 6.5% decline in their population over the last five years and a long-term trend being considered a 'large decline' according to BirdWatch Ireland data (BirdWatch Ireland, 2022). Therefore, impacts arising to lapwing from the proposed development are likely to continue to contribute to their continual decline.

5.178 However, this type of agricultural habitat is widespread in the local area surrounding the Site and there is an abundance of alternative areas available for foraging whooper swans, lapwings and other wintering birds. The habitat being lost to facilitate the proposed development is relatively small when compared to the surrounding landscape and it is anticipated that wintering birds will continue to find suitable foraging habitat within the immediate surrounding area and local populations of whooper swans, lapwings, and other wintering birds are unlikely to decline as a direct result of the proposed development.

5.179 Following the completion of the proposed extraction, the Site will be restored through infilling, the creation of a permanent water body and the natural vegetation of the Site. Therefore, all impacts to wintering birds will occur only for the duration of the proposed development, following which, wintering birds will be able to return to the Site for foraging purposes.

Proposed Mitigation Measures

5.180 While the extraction of the Site will be carried out on a phased basis with 4 phases ranging from 1.6 – 3.5 ha. and extraction operations within a particular phase (*e.g., Phase 2*) will only be carried out when extraction in the previous phase (*e.g., Phase 1*) has been completed, it means that the loss of foraging habitat for whooper swans at any time will not exceed 3.5 ha. However, it is anticipated that the noise and activities associated with the extraction works will mean that whooper swan may temporarily move away from this foraging area.

5.181 After the extraction of each phase, the sand and gravel pit will be restored to naturally regenerated habitat for biodiversity use, including a permanent water body. Therefore, in the long-term, the proposed development will increase the value of the Site for whooper swan, other waterbirds, and a variety of passerine bird species.

Significance of Residual Effects

5.182 As mentioned, there may be some temporary displacement of the current whooper swan population in the area, but the project is not likely to result in any long term negative impacts on the overall whooper swan national or international population.

5.183 Brides *et al* (2021)[14] has shown that overall whooper swan numbers in Ireland have increased in recent years with a 32.0% increase between 2015 and 2020 and they are not restricted by pasture-based habitat availability.

5.184 Under the current development proposals, recommended mitigation, considering the surrounding landscape and the grassland foraging habitats available, and compensation measures in place, it is assessed that the impacts on birds will not be significant.

Otters

Potential Impacts

5.185 No otter holts, dens or couches were identified during the preliminary ecological appraisal. However, suitable habitat does exist for them within the riparian habitat along the Yellow stream.

5.186 The proposed development may result to direct and/or indirect impacts on breeding otter along the riverbanks adjacent to the Site through disturbance. Most otter holts/dens are situated in close proximity to waterbodies but may be located further from the riverbank. Natal dens can be established up to 1km from a waterbody; however they also tend to be located in areas that are not prone to flooding. The limited riparian habitat located adjacent to the Site is low-lying and likely prone to flooding. Therefore, it is unlikely that these areas will be used by breeding otters.

5.187 There is potential for indirect impacts on the water quality of the Yellow stream as a result of accidental fuel leakages and spillages. This may impact the availability of prey for foraging otters adjacent to or downstream of the Site.

Proposed Mitigation Measures

5.188 The proposed site operating hours of 07.00 hours until 18.00 hours Monday to Friday and until 14.00 hours on Saturdays. Therefore, night works will be limited to a small timeframe in winter only. This will minimise disturbance impacts to this largely nocturnal species.

5.189 A pre-commencement otter survey should be undertaken at the Site if the construction works do not commence within 18-months of the initial survey (survey undertaken on 5th February 2025). This is to ensure that no otter holts or couches have been created been created between the time of writing and the commencement of the proposed development, as per CIEEM Advice Note on the lifespan of ecological reports and surveys (CIEEM, 2019).

5.190 A 20m riparian corridor will be maintained between the proposed development and the Yellow River regardless of any otter presence. This will minimise disturbance to this species throughout the duration of the project.

[14] Brides, K, et al. The Icelandic Whooper Swan *Cygnus cygnus* population: current trends and long-term (1986-2020) trends in its numbers and condition. Wildfowl (2021) 71:9-57

5.191 The following standard management measures will be implemented at the extension area to prevent impacts on surface water quality:

- A 20m undisturbed riparian corridor will be established which will be planted with native tree species and understorey vegetation will be allowed to develop naturally;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site-specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

5.192 The establishment of the riparian corridor and the final restoration of the Site will increase the value of the Site for otters by providing suitable breeding habitat and potentially improving the quality of foraging habitat within the Yellow stream.

Significance of Residual Effects

5.193 Under the current development proposals and recommended mitigation measures in place, it is assessed that the impacts on otters will not be significant.

Cumulative Effects

5.194 The following plans were reviewed for strategies and objectives that may act in-combination with the project:

- Offaly County Development Plan 2021-2027

5.195 A search of recent (within the last five years) planning applications was carried out for applications that may give rise to in combination effects with the project. Most recent planning applications in the vicinity of the Site are for small-scale domestic developments that are unlikely to result in cumulative effects with the proposed development. **Appendix 5-B** lists the recent planning applications considered for in combination effects with the proposed development. These planning applications are not anticipated to result in cumulative effects with the proposed development.

5.196 There are no plans or policies in the Offaly County Development Plan 2021-2027 which would result in impacts in combination with the proposed development.

5.197 Therefore, the risk of significant effects on biodiversity can be excluded for the project when considered in-combination with other proposed or permitted plans and projects.

Proposed Mitigation and Compensation Measures

5.198 The following standard management measures will be implemented at the extension area to prevent impacts on surface and groundwater quality:

- There will be no discharge from the proposed development to any surface watercourse;
- Rain falling across the site will percolate downwards and recharge to the underlying sand and gravel. There will be no surface water run-off or overground flow across the site;
- No fuel and oils will be stored at the site;
- HGV's will be refuelled off-site at other BD Flood sites;
- The long reach excavator, loading shove and crusher / screener will be re-fuelled on-site using a mobile 'bunded' double-skinned fuel dispenser that will be brought to site by a third-party fuel supplier (with road certified trucks, competent drivers, and spill kits);
- A number of spill kits will be available on-site to stop the migration of any minor accidental leakages or spillages should they arise;
- Refuelling procedures are included in the company environmental management system (EMS) which is accredited to ISO 14001 standard. A site-specific refuelling procedure will be compiled for the proposed development to ensure compliance with any planning consent conditions;
- surface water quality monitoring to be undertaken on a bi-annual basis for the duration of the proposed development, with grab samples from the Yellow River upstream and downstream of the site.

5.199 The extraction of the Site will be carried out on a phased basis with 4 phases ranging from 1.6 – 3.5 ha. Extraction operations within a particular phase (*e.g., Phase 2*) will only be carried out when extraction in the previous phase (*e.g., Phase 1*) has been completed. All lands will remain in agricultural use until required for extraction. Therefore, the loss of foraging habitat for whooper swans at any time will not exceed 3.5 ha.

5.200 After the extraction of each phase, the sand and gravel pit will be restored to naturally regenerated habitat for biodiversity use, including a permanent water body. Therefore, in the long-term, the proposed development will increase the value of the Site for whooper swan, other waterbirds, and a variety of passerine bird species.

5.201 A pre-commencement otter survey should be undertaken at the Site if the construction works do not commence within 18-months of the initial survey (survey undertaken on 5th February 2025). This is to ensure that no otter holts or couches have been created been created between the time of writing and the commencement of the proposed development, as per CIEEM Advice Note on the lifespan of ecological reports and surveys (CIEEM, 2019).

5.202 Following the establishment of this buffer zone, further advice should be sought from a suitably qualified ecologist.

Conclusions

5.203 There will be no effect on any sites designated for nature conservation as a result of the proposed works.

5.204 None of the habitats on the Site are considered to comprise Annex I habitats under the Habitats Directive.

5.205 Overall, it is assessed that with the recommended mitigation measures and restoration plans outlined, the proposed development will not have a significant impact on the biodiversity, designated sites, and habitats and species in the surrounding area.

5.206 Provided that the proposed works are undertaken in accordance with the proposed design and best practice that is described within this report, significant effects on ecology are not anticipated. As such, the proposed works are in line with environmental and biodiversity planning policy.

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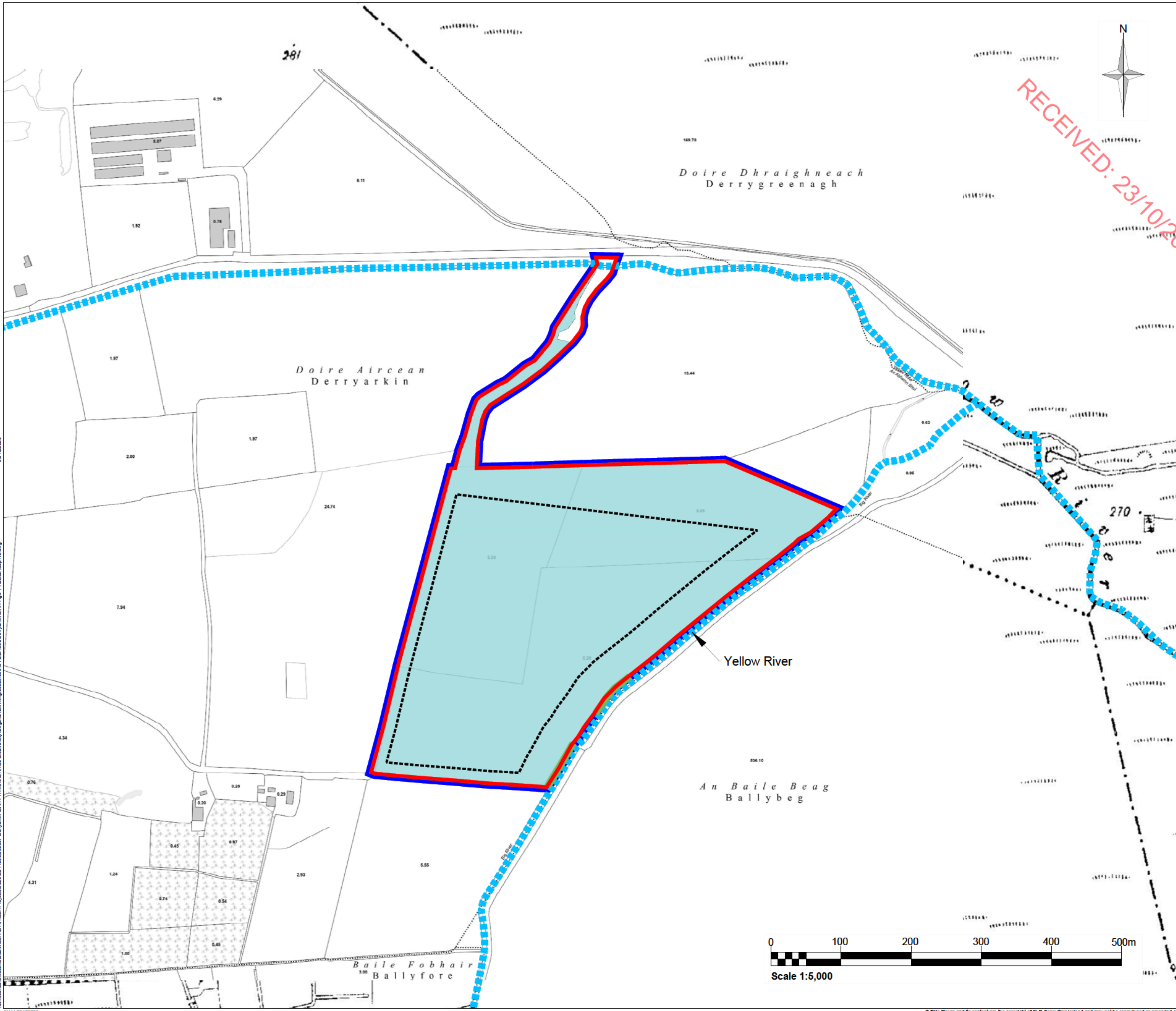

Notes:

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

Legend:

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares
- Proposed Sand and Gravel Extraction Area 11 hectares
- FW1 - Eroding / Upland Rivers
- WL1 - Hedgerows
- GA1 - Improved Agricultural Grassland

Rev	Amendments	Date	By	Chk	Auth

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Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

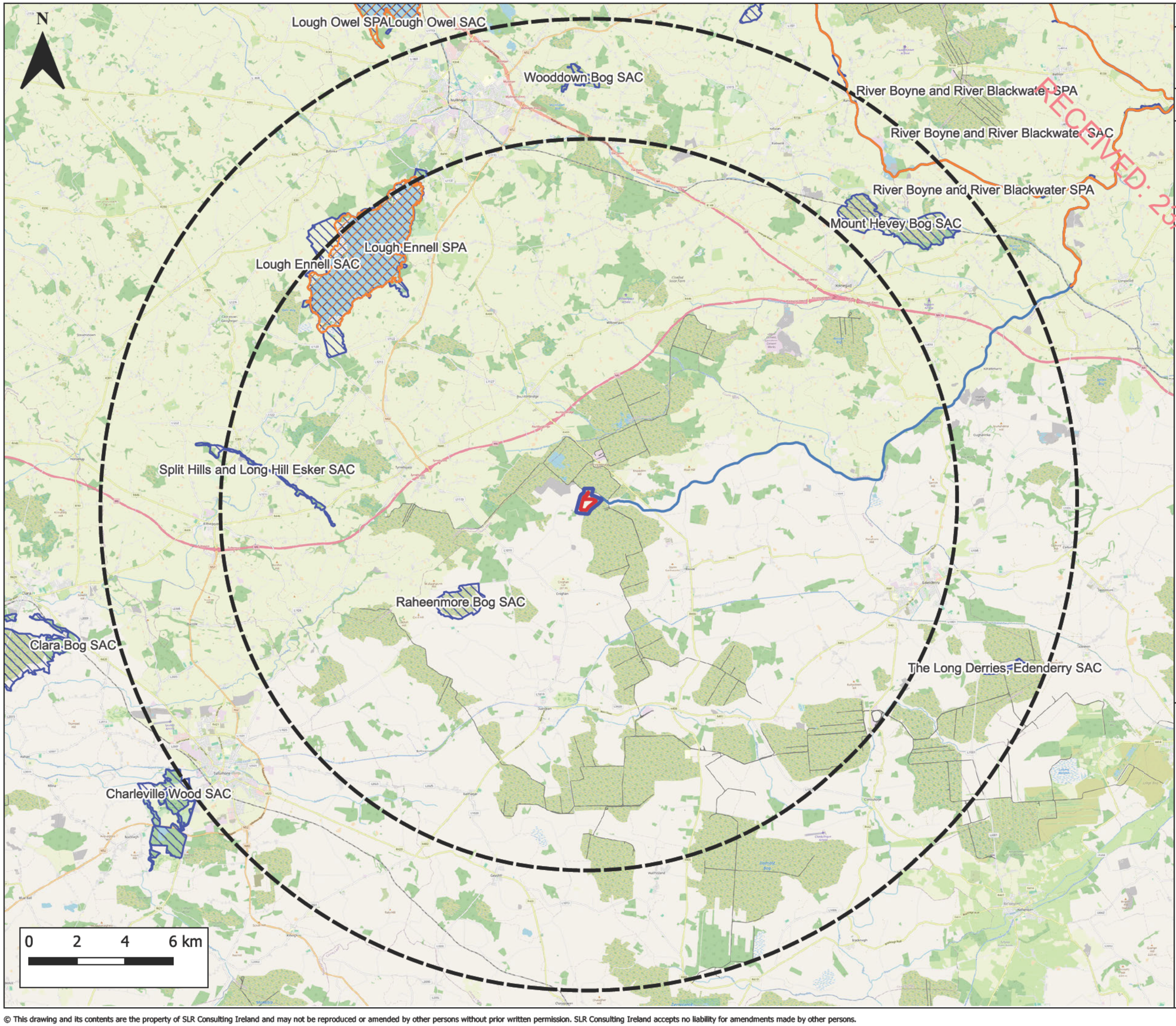
Figure Title
Habitat Map

Scale	SLR Project No.
1:5,000 @ A3	501.00023.065461

Designed	Drawn	Checked	Authorised
smcd	smcd	jm	jm
Date 01/25	Date 01/25	Date 09/25	Date 09/25

Figure Number: **Figure 5-1** | Rev. 0

CYAL50450233



RECEIVED: 23/10/2025

NOTES

1. Base Mapping: OpenStreetMap © (www.openstreetmap.org/copyright)

LEGEND

- Proposed Planning Application Area
- Applicant Land Interest Boundary
- 20 km and 15 km Buffers
- Special Protection Areas (SPA)
- Special Areas of Conservation (SAC)
- Surface Water Connectivity from the Site

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EIAR BIODIVERSITY CHAPTER

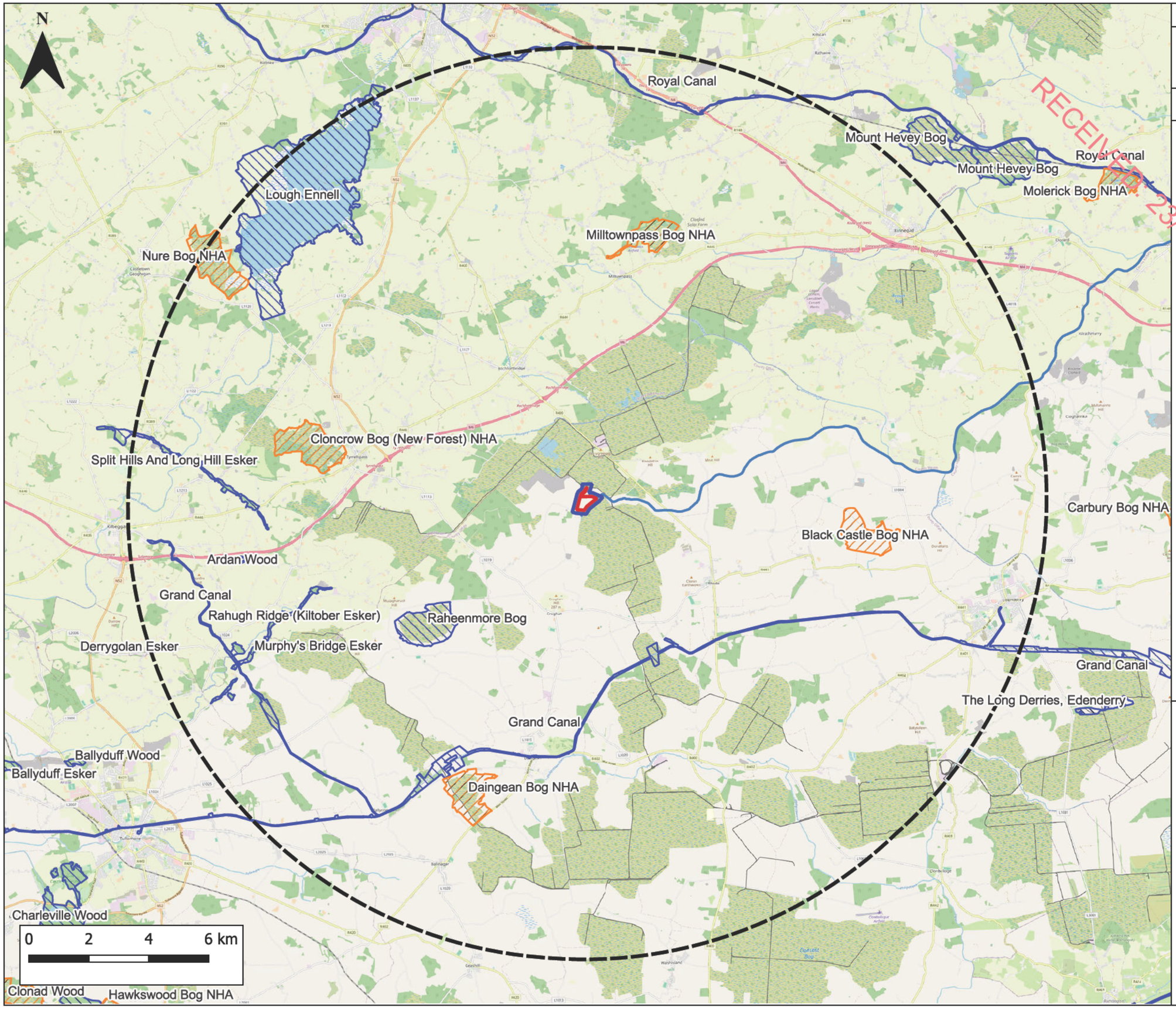
Proposed S&G Pit

Derryarkin, Rhode, Co. Offaly

European Sites Map

FIGURE 5-2

Scale	Date
1:150000 @ A3	SEP 2025



NOTES

1. Base Mapping: OpenStreetMap © (www.openstreetmap.org/copyright)

LEGEND

- Proposed Planning Application Area
- Applicant Land Interest Boundary
- 15 km Buffer
- Natural Heritage Areas (NHA)
- Proposed Natural Heritage Areas (pNHAs)
- Surface Water Connectivity from the Site

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Proposed S&G Pit

Derryarkin, Rhode, Co. Offaly

Natural Heritage Areas Map

FIGURE 5-3

Scale	Date
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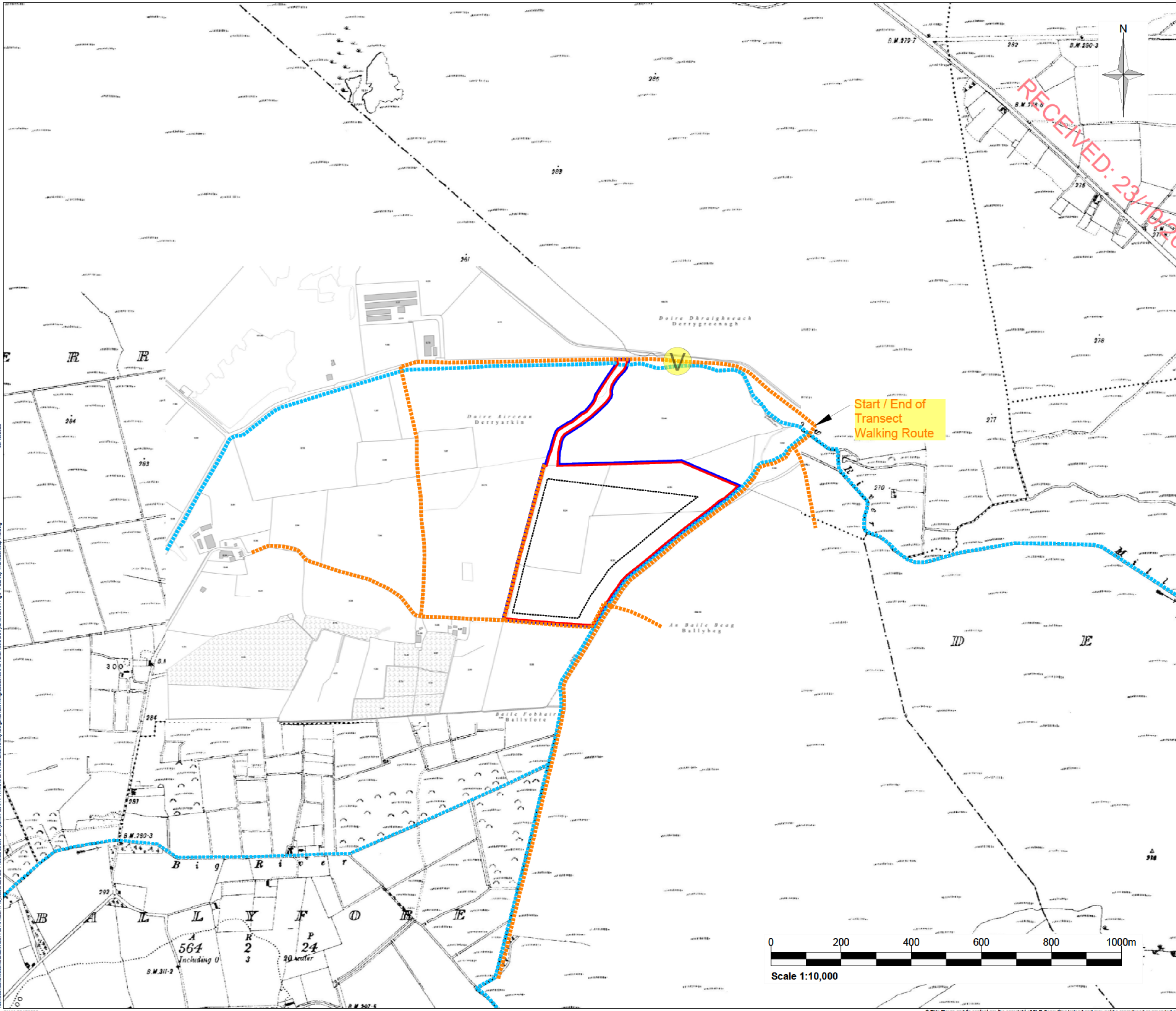

Notes:

Tailte Éireann OSi Mapping 5,000 scale - sheet no.'s 3180 & 3181

Legend:

- Applicant Land Interest Boundary c. 19.5 hectares
- Proposed Planning Application Area 19.5 hectares
- Proposed Sand and Gravel Extraction Area 11 hectares
- Stream / River Features
- Walked Transect Route
- Survey Viewpoint Location

Rev	Amendments	Date	By	Chk	Auth

SLR

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Client
BD Flood Unlimited Company

Project
Proposed Sand and Gravel Development at Derryarkin, Co. Offaly

Figure Title
Wintering Bird Surveys: Transect Route and Viewpoint Survey Location

Scale		SLR Project No.	
1:10,000 @ A3		501.00023.065461	
Designed	Drawn	Checked	Authorised
smcd	smcd	jm	jm
Date	Date	Date	Date
01/25	01/25	09/25	09/25

Figure Number: **Figure 5-4** Rev.: 0

Appendix 5-A Relevant Legislation

Relevant Legislation[15]

EIA Directive

The EIA Directive, Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment as amended by Council Directive 97/11/EC of 3 March 1997, Directive 2003/35/EC of 26 May 2003 and Directive 2009/31/EC of 23 April 2009, now codified in Directive 2011/92/EU of 13 December 2011 and amended in Directive 2014/52/EU of 16 April 2014, is designed to ensure that projects likely to have significant effects on the environment are subject to a comprehensive assessment of environmental effects prior to project consent being given.

The EIA Directive was first transposed into Irish law by the European Communities (Environmental Impact Assessment) Regulations, 1989 (S.I. No. 349 of 1989) which amended the Local Government (Planning and Project) Act, 1963 (and other legislation) to provide for environmental impact assessment. The European Union (Planning and Project) (Environmental Impact Assessment) Regulations 2018 (S.I. No. 296 of 2018) transpose the requirements of Directive 2014/52/EU, Amending previous Directive 2011/52/EU, on the assessment of the effects of certain public and private projects on the environment (the EIA Directive) into Irish planning law.

Habitats and Birds Directive

The Habitats Directive ensures the conservation of a wide range of rare, threatened or endemic animal and plant species. Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora was adopted in 1992 and aims to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements. It forms the cornerstone of Europe's nature conservation policy with the Birds Directive and establishes the EU wide Natura 2000 ecological network of protected areas, safeguarded against potentially damaging developments.

The Natura 2000 network of protected areas is known as Special Areas of Conservation (SAC) and Special Protection Areas (SPA). In general terms, they are considered to be of exceptional importance in terms of rare, endangered or vulnerable habitats and species within the European Community. The requirements of the Habitats Directive have been transposed into Irish law through the European Communities (Birds and Natural Habitats) Regulations 2011 [S.I. No. 477/2011]. This legislation affords protection to both Special Protection Areas and Special Areas of Conservation.

Special Areas of Conservation (SAC) are designated under the Conservation of Natural Habitats and of Wild Fauna and Flora Directive 92/43/EEC (Habitats Directive) which is transposed into Irish law by the EC (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011). Special Protection Areas (SPA) are classified under the Birds Directive (2009/147/EC on the Conservation of Wild Birds). Article 6(3) of the Habitats Directive requires an 'appropriate assessment' to be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An 'appropriate assessment' is an evaluation of the potential impacts of a plan or project on the integrity of a Natura 2000 site, and the incorporation, where necessary, of measures to mitigate or avoid negative effects.

National Legislation

Flora and fauna in Ireland are protected at a national level by the Wildlife Acts 1976 to 2018 and the Floral (Protection) Order 2015. Natural Heritage Areas (NHA) are areas that are considered to be

[15] Please note that the summary of relevant legislation provided here is intended for general guidance only. The original legislation should be consulted for definitive information.

important for the habitats present or for the species of plants and animals supported by those habitats. Under the Wildlife Amendment Act 2000, NHAs are legally protected from damage from the date they were formally proposed for designation. Section 19(1) of the Act states that 'Where there is a subsisting natural heritage area order in respect of any land, no person shall carry out, or cause or permit to be carried out, on that land any works specified in the order or any works which are liable to destroy or to significantly alter, damage or interfere with the features by reason of which the designation order was made'.

In addition, a list of proposed NHAs (pNHAs) was published in 1995 but to date these have not had their status confirmed. Prior to statutory designation, pNHAs are subject to limited protection under various agri-environment and forestry schemes and under local authority planning strategies such as County Development Plans.

Regional Spatial and Economic Strategy – Eastern and Midland Regional Assembly

The relevant regional biodiversity policy objectives are set out in the following section:

RPO 7.16: Support the implementation of the Habitats Directives in achieving an improvement in the conservation status of protected species and habitats in the Region and to ensure alignment between the core objectives of the EU Birds and Habitats Directives and local authority development plans.

RPO 7.17: Facilitate cross boundary co-ordination between local authorities and the relevant agencies in the Region to provide clear governance arrangements and coordination mechanisms to support the development of ecological networks and enhanced connectivity between protected sites whilst also addressing the need for management of alien invasive species and the conservation of native species.

RPO 7.18: Work with local authorities and state agencies to promote the development of all aspects of park management in the Wicklow National Park and the Slieve Bloom Mountains.

RPO 7.19: Support the consideration of designating a National Park for the peatlands area in the Midlands.

RPO 7.20: Promote the development of improved visitor experiences, nature conservation and sustainable development activities within the Dublin Bay Biosphere in cooperation with the Dublin Bay UNESCO Biosphere Partnership.

Relevant Planning Policy

The planning policy and legislation that is relevant to the development.

Offaly County Development Plan 2021-2027

The relevant local planning policies have been extracted from Volume 1 of the Offaly County Development Plan 2021-2027. These policies are specific to "*Chapter 4: Biodiversity and Landscape*" and are concerned with the policies and objectives relating to biodiversity:

BLP-01 It is Council policy to protect, conserve, and seek to enhance the county's biodiversity and ecological connectivity.

BLP-02 It is Council policy to conserve and protect habitats and species listed in the Annexes of the EU Habitats Directive (92/43/EEC) (as amended) and the Birds Directive (2009/147/EC), the Wildlife Acts 1976 (as amended) and the Flora Protection Orders.

BLP-03 It is Council policy to support and co-operate with statutory authorities and others in support of measures taken to manage proposed or designated sites in order to achieve their conservation objectives.

BLP-04 It is Council policy to protect and maintain the conservation value of all existing and future Natural Heritage Areas, proposed Natural Heritage Areas, Nature Reserves, Ramsar Sites, Wildfowl Sanctuaries and Biogenetic Reserves in the county.

BLP-05 It is Council policy to ensure that development does not have a significant adverse impact, incapable of satisfactory avoidance or mitigation, on plant, animal or bird species protected by law.

BLP-06 It is Council policy to consult with the National Parks and Wildlife Service, and take account of any licensing requirements, when undertaking, approving or authorising development which is likely to affect plant, animal or bird species protected by law.

BLP-07 It is Council policy to support the implementation of the National Biodiversity Action Plan 2017- 2021 and the Offaly Heritage Plan Key Actions 2017-2021 and future editions in partnership with relevant stakeholders subject to available resources.

BLP-11 It is Council policy to protect and conserve the landscape, natural heritage and biodiversity value of esker systems in the county as identified in the Offaly Esker Study, 2006.

BLP-12 It is Council policy to assess the impact of proposals for quarry development on nearby eskers, with reference to their status or relative importance, for example, amenity, landscape and scientific value in the context of the overall esker system.

BLP-13 It is Council policy to recognise the natural heritage value of disused quarries as rich habitats and to encourage landowners to preserve quarries post extraction as habitats rather than levelling or infilling the quarry area where possible subject to health and safety considerations and the protection of the relevant conservation objectives, qualifying interests and integrity of Natura 2000 sites.

BLP-14 It is Council policy to protect the county's designated peatland areas and landscapes, including any historical walkways through bogs and to conserve their ecological, archaeological and cultural heritage and to develop educational heritage.

BLP-15 It is Council policy to work with adjacent local authorities and relevant stakeholders in promoting a National Park designation for the peatlands in the midlands and a 'Regional Peatway' connecting natural and cultural attractions.

BLP-17 It is Council policy to support the National Parks and Wildlife Service in carrying out an EU LIFE fund supported raised bog restoration project in restoring the following Special Areas of Conservation sites in the county to favourable conservation status:

- Clara Bog;
- Ferbane Bog;
- Mongan Bog;
- Moyclare Bog;
- Raheenmore Bog; and
- Sharavogue Bog.

BLP-18 It is Council policy to support collaboration between Offaly County Council, Regional Transition Team and relevant stakeholders of a partnership approach to integrated peatland management for a just transition that incorporates the management, rehabilitation and restoration / re-wetting of significant tracts of peatlands in conjunction with appropriate developed after uses.

BLP-20 It is Council policy to preserve riparian buffer strips free from development by reserving a minimum of 10 metres either side of all watercourses (measured from top of bank) with the full extent of the protection determined on a case by case basis by the Council, based on site specific characteristics and sensitivities.

BLP-21 It is Council policy to promote clear span bridging structures as the preferred option for culverts. Any development proposal requiring culverting should also document stream habitat lost and provide compensatory habitat where possible. Realignment of water courses should incorporate stream enhancement measures, as outlined in Office of Public Works Environmental Guidance. The Council will consult with Inland Fisheries Ireland in relation to riparian and instream works as appropriate.

BLP-24 It is Council policy to support the protection and management of existing networks of woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character, and to strengthen local networks.

BLP-25 It is Council policy to encourage the planting of native species in all new residential developments (individual and multiple units) and as part of landscaping for commercial and industrial developments.

BLP-26 It is Council policy to require, where practical, the management of mature trees, such as tree surgery instead of felling particularly where the trees contribute to amenity.

BLP-34 It is Council policy to continue to deliver and support measures for the prevention, control and/or eradication of invasive species within the county, and to seek details of how these species will be managed and controlled where their presence is identified.

BLP-35 It is Council policy to protect and preserve the county's Areas of High Amenity namely the Slieve Bloom Mountains, Clonmacnoise Heritage Zone, Durrow High Cross, Abbey and surrounding area, the River Shannon, Lough Boora Discovery Park, Grand Canal, Croghan Hill, Raheenmore Bog, Pallas Lake, Clara Bog, Clara eskers, Eiscir Riada and other eskers. Notwithstanding the location of certain settlements, or parts of, for which there are settlement plans (Towns, Villages, Sráids), within the Areas of High Amenity, it is not the intention of this policy to hinder appropriate sustainable levels of development (as set out in the plans and subject to proper planning). Further, it is policy to facilitate the sustainable extension and expansion of existing visitor, tourist related or other rural enterprises within the Areas of High Amenity, where such development is appropriate and where it can be demonstrated that it gives 'added value' to the extending activity and to the immediate area which is the subject of the 'Area of High Amenity' designation.

BLP-36 It is Council policy, to ensure that issues of scale, siting, design and overall compatibility (including particular regard to environmental sensitivities) with a site's location within an Area of High Amenity are of paramount importance when assessing any application for planning permission. The merits of each proposal will be examined on a case-by case basis.

BLP-38 It is Council policy to protect and enhance the county's landscape, by ensuring that development retains, protects and where necessary, enhances the appearance and character of the county's existing landscape.

BLP-39 It is Council policy to seek to ensure that local landscape features, including historic features and buildings, hedgerow, shelter belts and stone walls, are retained, protected and enhanced where appropriate, so as to preserve the local landscape and character of an area, whilst providing for future development.

Appendix 5-B Planning Applications Considered for Cumulative Effects

Application No.	Development Description	Cumulative Effects	Approx. Distance
178	Sand and gravel extraction from two areas of land consisting of 30.9 hectares (Area A1 consisting of 19.3 hectares and Area A2 consisting of 11.6 hectares), construction of landscaping berms, restoration of areas on completion of extraction, and all associated ancillary facilities/works. Sand and gravel will be extracted by mechanical means and transported to the existing sand and gravel pit for processing. The applicant is seeking a 5-year planning permission. The application is accompanied by an Environmental Impact Statement (E.I.S.).	The Biodiversity chapter of the EIAR supplied with this application determined that there would be no residual effects on biodiversity.	0.3 km
1849	Development consisting of a total area of 30.2 hectares comprising the following: (a) extraction of sand and gravel from a greenfield area (Area 1 = 26.0 hectares) by mechanical means and transportation to the manufacturing area (Area 2) for processing and all associated facilities/works; (b) continuation of use of the existing authorised manufacturing area (Area 2 = 4.2 hectares) and existing infrastructure consisting of crushing and screening plant, offices, weighbridge, stockpiling areas, entrance, haul roads and all associated ancillary facilities/works; (c) landscaping and restoration of the site including screening berms and all associated ancillary works; (d) the applicant is seeking a 25-year permission as part of the planning application; and (e) the application is accompanied by an Environmental Impact Assessment Report (EIAR).	The Biodiversity chapter of the EIAR supplied with this application determined that there would be no residual effects on biodiversity.	0.67 km
18324	The filling of lands with inert waste consisting of concrete, bricks, tiles and ceramics, soil and stones for the purpose of land reclamation and all associated ancillary facilities. The application is accompanied by an Environmental Impact Assessment Report (EIAR).	The Biodiversity chapter of the EIAR supplied with this application determined that there would be no residual effects on biodiversity.	0.75 km
17251	(a) One no. new two-storey type dwelling house; (b) one no. new domestic garage; (c) installation of a new on-site effluent treatment system; (d) new vehicular entrance;	The Planner's Report concluded that this planning application is exempt from requiring an EIAR.	0.85 km

	(e) new landscaping and all associated site development works.		
21247	A 23-year permission for a 44.0-hectare extension to an existing authorised sand and gravel pit comprising the following: an extraction area of 43.8 hectares; removal of 10.2 hectares of commercial forestry and removal of overburden material from the remaining 33.6 hectares of the proposed extraction area; extraction of sand and gravel by mechanical means; upgrading of the existing internal haul road measuring 0.2 hectares; transportation of extracted material to the existing authorised manufacturing area for processing via the internal haul road; landscaping and restoration of the site including screening berms; and all associated ancillary facilities/works. The application is accompanied by an Environmental Impact Assessment Report (EIAR).	The Biodiversity chapter of the EIAR supplied with this application determined that there would be residual effects of moderate significance on whooper swan and of slight significance on badgers due to a loss of foraging habitat. However, the Planner's Report concluded that there would be no significant effects on biodiversity as a result of the development proposed in this application.	0.84 km
2171	And continuation of use of an internal haul road which measures 1,116 metres in length and connects two areas of an existing authorised sand and gravel pit. Permission for development of an area of 1.4 hectares.	The Planner's Report concluded that this planning application is exempt from requiring an EIAR.	0.84 km