

MWP

REMEDIAL ENVIRONMENTAL IMPACT ASSESSMENT (rEIAR)

Ros an Mhíl Deep Water Quay

Chapter 5: Terrestrial Ecology

Department of Agriculture, Food and the Marine

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5. Terrestrial Ecology

5.1 Introduction

This chapter provides an assessment of the potential effects on Terrestrial Ecology which have occurred, or which are occurring as a result of the development already completed between January 2023 and 20th May 2024 for the deep water quay (DWQ) at Ros an Mhíl, Co. Galway. A full description of the Development, development lands and all associated project elements is provided in **Volume II Chapter 2** Project Description of this Remedial EIAR. The assessment comprises:

- A review of the existing receiving environment prior to any works;
- A review of the existing receiving environment during the period of unauthorised works;
- A review of the existing receiving environment at present;
- Prediction and characterisation of likely impacts;
- Evaluation of effects significance; and
- Mitigation and monitoring measures, where appropriate.

In line with best ecological practice, the assessment was guided by the following specific objectives:

- Identify and document protected habitats and species in the study area and extending away from it through a desk top study of available ecological data.
- Undertake baseline ecological surveys at the study area and evaluate the nature conservation importance of the ecological resources identified using a scientifically robust and objective methodology based on current best practice.
- Predict the potential direct, indirect and cumulative effects of the project on Biodiversity.
- Prescribe measures to mitigate the potential negative effects of the project on Biodiversity, and
- Identify habitats within the study area that can benefit from ecological management for the purpose of local Biodiversity enhancement.

A remedial Screening for Appropriate Assessment report and remedial Natura Impact Statement has also been prepared to determine whether the development works were likely to have had significant effects on nearby European site(s) (either alone or in combination with other plans or projects) in view of the conservation objectives of that site(s).

5.1.1 Methodology

The following guidance documents and relevant publications were used:

- *'Guidelines for Ecological Impact Assessment in the United Kingdom and Ireland'* published by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2018).
- *'Guidelines for Assessment of Ecological Impacts of National Road Schemes'* (NRA, 2009).
- *'Best Practice Guidance for Habitat Survey and Mapping'* (Smith *et al.*, 2011).

- Other information sources and reports footnoted in the course of the report.

5.1.2 Legislation and Best Practice Guidance

Important legislation underpinning biodiversity and nature conservation in Ireland comprise the:

- EU Habitats Directive (92/43/EEC), as amended;
- EU Birds Directive (2009/147/EC, as amended);
- EU Water Framework Directive (WFD, 2000/60/EC);
- European Communities (Birds and Natural Habitats) Regulations 2011 to 2015 (S.I. 477/2011), as amended;
- Planning and Development Act (2000), as amended;
- Planning and Development Regulations 2001 to 2011, as amended;
- Wildlife Act 1976 to 2021, as amended; and
- Flora (Protection) Order, 2022.

Please also refer to **Volume II Chapter 1** Introduction of the rEIAR for more information.

5.1.3 Definition of Zone of Influence (ZOI)

The 'zone of influence' (ZOI) for a project is the area over which ecological features may be affected by biophysical changes as a result of the project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018). With regard to potential effects on biodiversity, the following criteria were considered when identifying the potential ZOI at the initial stages of the project:

- The nature, size and location of the project;
- Identification of potential effect pathways to key ecological receptors;
- The sensitivities of the relevant key ecological receptors;
- Identification of suitable habitats for high conservation value species ;
- Ecological connectivity between the project and the wider landscape.

5.1.4 Desktop Study

The desk studies undertaken for this assessment included reviews of available published data on sites designated for nature conservation, and other ecologically sensitive sites, habitats and species of interest in the vicinity of the Development site. The available ecological data which were accessed included the following:

- Ordnance Survey Ireland (OSI) mapping and aerial photography;
- Environmental Protection Agency (EPA) online mapping and datasets;
- National Parks and Wildlife Service (NPWS) online mapping and datasets, including EU Habitats Directive Article 17 spatial mapping for habitats and species;
- National Biodiversity Data Centre (NBDC) online mapping and datasets;

- Heritage Maps online mapping;
- Geological Survey of Ireland (GSI) online mapping;
- Invasive Species Ireland on-line resources - <http://www.invasivespeciesireland.com/>;
- Review of records of plant species protected under the Flora (Protection) Order (2022);
- National Red Lists for rare and threatened floral and faunal species;
- Review of the most recent Bird Atlas: Balmer et al., (2013);
- Review of Birds of Conservation Concern in Ireland (BoCCI 4) 2020-2026 (Gilbert et al., 2021);
- Review of BirdWatch Ireland I-WeBS (Irish Wetland Bird Surveys) site information;
- Checklists of Protected and Threatened Species in Ireland. Irish Wildlife Manual No. 116 (Nelson, et al., 2019) Version 3.1 (February 2023);
- Review of requested records from NPWS Rare and Protected Species database, BCIreland bat records/roost database and BirdWatch Irelands I-WeBS Survey site count database;
- Galway County Development Plan 2022-2028;
- Galway County Council Biodiversity Action Plan 2024-2030;
- National Biodiversity Action Plan 2023 – 2030; and
- Other information sources and reports footnoted or referenced.

Online digital aerial mapping and satellite imagery was used in conjunction with publicly available GIS data to determine the types of habitats within the environs of the site with potential to support protected flora and fauna, including landscape features providing potential connectivity with the wider area (e.g. hedgerows, treelines, watercourses). This mapping was used to inform the desktop study and field surveys.

5.1.4.1 Database Searches and Data Requests

The site lies within the OSI National Grid hectad (10 km square) L92. Flora and fauna species records for this hectad were downloaded from the NBDC on-line database as part of the desktop study. A data request was submitted to NPWS on the 20th March 2025 for records of rare and/or protected species within the hectad L92. Data was received from NPWS on the 14th of July 2025. Results are discussed, where relevant, in **Sections 5.4**.

A data request was submitted to BirdWatch Ireland via their on-line data request facility on the 20th March 2025 for the most recent site count data available for the 'Grassland at Ardacong OGS25' and 'Loch Ros Amhíl OGS26' I-WeBS¹ site which adjoins the Site, please see **Section 5.3.10**.

5.1.5 Consultation

The following biodiversity related statutory and non-statutory bodies, as outlined in **Table 5-1**, were consulted in relation to the Development as part of pre-planning application consultation.

Table 5-1: List of biodiversity-related consultees for the Development that have been notified of the project

Consultee
Department of Agriculture, Food and Marine - Aquaculture & Foreshore Management Division

¹ I-WeBS; Irish Wetland Bird Surveywaterbirds at wetland sites across the country during the winter 'non-breeding' season (September to March).

Consultee

National Parks and Wildlife Service (NPWS) via the Development Applications Unit (DAU) of the Department of Housing, Local Government and Heritage

Gallway County Council

Irish Marine Institute

Inland Fisheries Ireland

5.1.6 Definition of Study Area

As part of the early planning process, a preliminary ecological assessment of the Development site and its surrounding area was carried out on 7th October 2010, by an ecologist from Mott MacDonald. This formed part of the initial planning documentation before any development activity commenced. The findings from this assessment are detailed in Rossaveel Harbour: Deep Water Quay Development. Environmental Impact Statement. Chapter 9: Terrestrial Ecology (Mott MacDonald, 2017).

A follow-up site visit was conducted by ecologists from MWP on April 15, 2025. This survey provided updated baseline information on the local ecology. It focused on identifying current habitats and species (both flora and fauna), as well as those likely to have been present during earlier development stages (see **Section 5.3.5** for further details).

The scope of the 2025 ecological surveys included the full development site with the Ros an Mhíl Harbour area and surrounding publicly accessible lands owned by Údarás na Gaeltachta. Areas with ecological connections to the site such as adjacent shoreline and watercourses were also surveyed, particularly for faunal species like birds and mammals, including otter.

5.1.7 Field Surveys

Field surveys comprised a combination of multi-disciplinary ecological walkover surveys. Summaries of field survey methodologies employed are provided hereunder.

5.1.7.1 Habitat and Flora Survey

Two habitat and botanical surveys were conducted within the study area to inform the ecological assessment at different stages of the project.

The first survey was carried out on 7th October 2010 by ecologist Rita Mansfield of Mott MacDonald. It followed the Heritage Council's Best Practice Guidance for Habitat Surveying and Mapping (Smith et al., 2011) and used the habitat classification system in A Guide to Habitats in Ireland (Fossitt, 2000). Standard botanical identification keys (Stace, 2010) were used to identify plant species. A habitat map was produced to provide a baseline characterisation of the habitats present within and around the development site (**Figure 5-7**). Weather conditions on the day were overcast with a south-westerly breeze and a temperature of 14°C. The survey also adhered to the National Roads Authority (NRA) Guidelines for Assessment of Ecological Impacts (NRA, 2009b).

The second survey, a Phase I habitat and botanical survey, was undertaken by MWP on 15th April 2025 during the recognised optimal survey season for vegetation (April–September). This survey also followed the Heritage Council (2011) guidelines and used the Fossitt (2000) habitat classification system. In addition to mapping habitat types and associated flora, habitats were assessed for potential alignment with EU Annex I habitat types. The

survey also included the identification of any invasive plant species, with specific reference to those listed under the Third Schedule of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. 477 of 2011).

5.1.7.2 Non-Volant Mammals Survey

Two separate non-volant mammal surveys were carried out within the study area to assess the potential presence of protected and notable species and to inform the impact assessment for the Development.

The initial survey was conducted on 7th October 2010 and focused on detecting breeding and resting sites of protected mammal species within and adjacent to the footprint of the development works. This survey followed best-practice guidance 'Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes' (NRA, 2009). The main objectives were to:

- Identify key mammal habitats potentially used for breeding or resting;
- Evaluate the potential effects of the development works on local mammal populations;
- Propose mitigation measures to prevent significant negative effects and to maintain existing mammal habitat.

Survey efforts primarily targeted otter (*Lutra lutra*) and badger (*Meles meles*), given their likelihood of occurrence within the area. The otter survey methodology was informed by 'Monitoring the Otter *Lutra lutra*' (Chanin, 2003) and 'Guidelines for the Treatment of Otters during the Construction of National Road Schemes' (NRA, 2008). Surveyors searched for evidence of otter presence, including holts, resting places, spraints, tracks, and feeding remains. The badger survey followed 'Surveying Badgers' (Harris et al., 1989) and the NRA's 'Guidelines for the Treatment of Badgers Prior to the Construction of National Road Schemes' (2005), focusing on detecting signs such as setts, paths, snuffle holes, and latrines.

A second series of mammal surveys was conducted by MWP on 15th April 2025. These were designed to provide an updated understanding of mammal activity within and around the site and to assess the potential effects of the Development on protected terrestrial mammal species. Target species included those protected under the Wildlife Acts and the EU Habitats Directive (Annexes II, IV, and V), as well as Irish Red-listed species (Marnell et al., 2019). Particular attention was paid to badger, otter, Irish hare (*Lepus timidus hibernicus*), and pine marten (*Martes martes*), based on habitat suitability and prior records.

The surveys adhered to best-practice guidance and relevant literature, including:

- *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes* (NRA, 2009)
- *Animal Tracks and Signs* (Bang and Dahlstrom, 2004)
- *Surveying for Badgers: Good Practice Guidelines* (Scottish Badgers, 2018)
- *Monitoring the Otter *Lutra lutra** (Chanin, 2003)
- *Ecology of the European Otter* (Chanin, 2003b)

The 2025 survey approach included general mammal walkovers and a targeted otter survey. During walkover surveys all signs of mammal activity such as breeding or resting places (holts/couches), tracks, spraints feeding remains, and trails were searched for. The targeted otter survey, conducted on 15th April 2025, focused on the

extensive aquatic and intertidal habitats around the site, including watercourses and the shoreline of Cashla Bay², extending the survey zone beyond the core study area to encompass the bay's shoreline in the wider area.

For detailed survey results, refer to **Section 5.3.5**.

5.1.7.3 Bats

Two separate bat surveys were undertaken within the study area to identify features within the study area with the potential to support roosting bats and to inform the need for any follow-up survey effort.

The first survey was carried out on 7th October 2010 and followed the methodologies outlined by Andrews et al. (2013), Collins (2016), and Kelleher & Marnell (2006). This assessment involved a ground-level inspection of trees and built structures to identify potential roosting opportunities for bats. Trees were examined for typical potential roost features (PRFs), including vertical or horizontal cracks along limbs or trunks, knot holes, cavities, loose or lifted bark, and dense ivy with stem diameters exceeding 50 mm. Structures and vegetation within the study area were assessed from ground level during daylight hours for any signs of bat activity or roost use. The classification of potential roost features followed the criteria set out in Collins (2016).

A subsequent preliminary roost assessment (PRA) was conducted on 15th April 2025 to provide an updated evaluation of bat roosting potential within the site. This survey comprised detailed ground-level inspections of trees for evidence of PRFs, as well as any signs indicative of roosting bats (e.g., staining or droppings). The trees were assessed and categorised in accordance with Collins (2016) as having 'negligible', 'low', 'moderate', or 'high' suitability for supporting roosting bats. The outcome of this PRA informed the requirement for any further targeted bat activity or emergence surveys.

5.1.7.4 Bird Survey

Two bird surveys were conducted within the study area, each associated with broader ecological survey efforts.

During the initial site visit on 7th October 2010, bird activity was recorded incidentally as part of the mammal survey. A dedicated bird survey was not undertaken at that time, as it was considered unnecessary based on the characteristics of the site and the limited potential for significant ornithological interest. Observations were confined to birds seen or heard within and around the footprint of the development.

A second site visit was carried out on 15th April 2025 during which all bird species encountered visually or aurally were noted in order to develop an updated understanding of the bird community present within the study area. Records were used to identify species potentially using the site for foraging or breeding. All bird species recorded were considered in the context of relevant legislation and conservation priorities. This included protection under the Wildlife Acts 1976 to 2000 (as amended) and the EU Birds Directive (2009/147/EC). Particular attention was given to species listed under Annex I of the Birds Directive, as well as those included on the Red and Amber lists of Birds of Conservation Concern in Ireland (BoCCI) 2020–2026 (Gilbert et al., 2021) and to any bird species identified as Special Conservation Interests (SCIs) for nearby Natura 2000 sites.

5.1.7.5 Invertebrates and Herpetofauna Survey

Surveys for invertebrates and herpetofauna (amphibians and reptiles) were conducted as part of the broader ecological walkover assessments carried out in both October 2010 and April 2025. These assessments were incidental rather than targeted, with observations of these species groups recorded opportunistically during

² EPA Coastal Waterbody Code: IE_WE_190_0000

general habitat, flora, and fauna surveys. While not designed as dedicated surveys for these taxa, any sightings or signs of invertebrates or herpetofauna encountered during fieldwork were noted to help inform the overall ecological baseline.

5.1.8 Ecological Evaluation Criteria

The value of the ecological receptors identified was determined using the ecological evaluation guidance given in the National Roads Authority (NRA – now TII) ecological assessment guidelines ‘Guidelines for Assessment of Ecological Impacts of National Roads Schemes’ (NRA, 2009). This evaluation scheme seeks to provide value ratings for ecological receptors and sets out the context for the determination of value on a geographical basis with a hierarchy (International through to Local) assigned based on the importance of any particular ecological receptor.

The NRA criteria are specific to circumstances in Ireland and, therefore, have been used in this chapter to assess the value of individual ecological features within the Site and its ZOI. The NRA (2009) guidelines provide a basis for determination of whether any particular site, habitat or species is of importance on the following scale:

- International
- National
- County
- Local Importance (higher value), and
- Local Importance (lower value)

The NRA (2009) guidelines clearly set out the criteria by which each geographic level of importance can be assigned. At the lowest end of the scale, Locally Important (lower value) receptors contain habitats and species that are widespread, of low ecological significance, and are of importance only in the local area. In contrast, Internationally Important receptors can comprise sites designated for conservation at an international level as part of the Natura 2000 Network (SAC or SPA) or which provide the best examples of habitats, or internationally important populations of protected flora and fauna.

The function of this evaluation scheme is primarily to assess the value of a site. In this case, the scheme has been adapted to assess the value of habitats and species. The value of habitats is assessed based on habitat condition, size, rarity, conservation and legal status. The value of species is assessed on its biodiversity value, legal status and conservation status. Biodiversity value is based on its national distribution, abundance or rarity, and associated trends. The NRA (2009) criterion used to evaluate the value of ecological resources has been included in **Volume III Appendix 5A** of the rEIAR.

Important Ecological Features (IEFs) are ecological features (*i.e.* sites designated for nature conservation, habitats and/or species) which are evaluated as Locally Important (higher value) or higher and which are likely to be impacted by the Development. All features that were evaluated as being of Local Importance (higher value) and higher were selected as IEFs for the Development in **Section 5.3.13**. The significance of effects arising on these IEFs as a result of the development works has been assessed in **Section 5.4**. In relation to bats, other guidance specific to bats and bat impact assessment, namely Marnell *et al.*, (2022), has been used to determine the significance of effects on bats.

5.1.9 Impact Assessment Criteria

This assessment considers the potential effects of the Development works and the mitigation measures that were applied to avoid, reduce or offset potential negative effect(s).

Determination of the significance of an effect will be made in accordance with the EPA guidance document 'Guidelines on Information to be contained in Environmental Impact Assessment Reports' (2022). Refer to **Volume III Chapter 1** Introduction of this **reIAR** for more information.

5.2 Appropriate Assessment Screening and Natura 2000 Impact Statement

A screening for Appropriate Assessment (AA) report and a Natura Impact Statement (NIS) has been prepared in relation to the development. The AA Screening report and NIS was undertaken in accordance with the European Commission Methodological Guidance on the provision of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021), the European Commission Notice 'Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC' (EC, 2019), 'Appropriate Assessment of Plans & Projects - Guidance for Planning Authorities' prepared by the NPWS (DoEHLG, 2010), and the 'Office of the Planning Regulator (OPR) Practice Note PN01 – Appropriate Assessment Screening for Development Management' (OPR, 2021).

5.3 Baseline Environment

5.3.1 Site Location

The DWQ works site is situated immediately southwest of Ros an Mhíl Harbour on the northeast shore of Cashla Bay, approximately 1 kilometre southwest of the Gaeltacht village of Ros an Mhíl in Connemara and approximately 40 kilometres west of Galway City - see **Figure 5-1**. Access to the development site is from the R372 Regional Road through Ros an Mhíl village via the R336 connecting Ros an Mhíl village to Galway City.

The village contains several residential dwellings, a local shop, school and church, with industries in the wider area providing support to the fishing port at Ros an Mhíl Harbour including companies that supply diesel/oil, process fish, and repair nets/boats. The harbour serves fishing fleets operating off the coast of Galway and is suitably located between the major fishing ports of Dingle and Castletownbere to the south and Killybegs to the north. Ros an Mhíl Harbour also supports ferry and leisure activities.

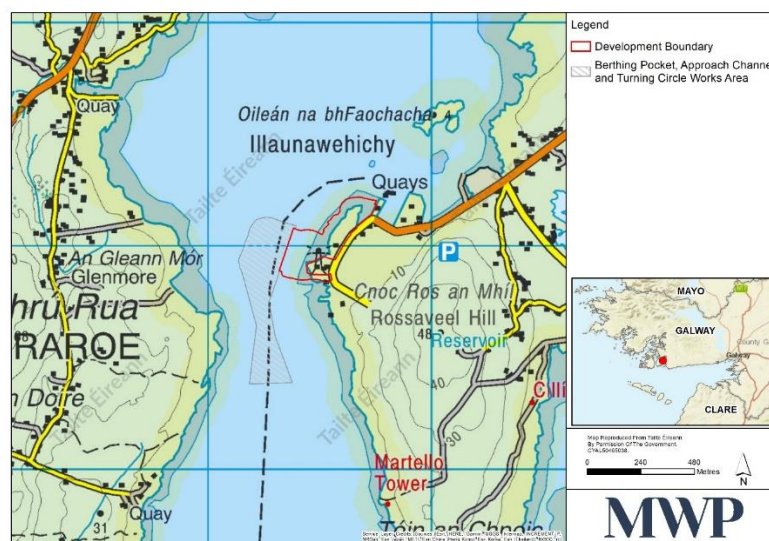


Figure 5-1: Location of development works near Ros an Mhíl Harbour in County Galway.

5.3.2 Development Site

Prior to the commencement of construction works in January 2023, the site comprised a section of rocky coastline and open sea within Cashla Bay (see **Plate 5-1**). Inland from the shoreline, the terrain is relatively flat and included a mix of industrial and commercial units, a slipway, and a car park, with an access road located further inland.



Plate 5-1: Aerial view of development site in April 2022 (prior to any works)



Figure 5-2: Map of Existing and completed works at the Ros an Mhíl Deep Water Quay Site

Development works carried out on the site between 2023 and 2024 involved the reclamation of approximately 2.4 hectares of land from the sea. This reclaimed area was created using primarily imported rock, along with some dredged material, and built up to a finished level of +5.0m Chart Datum (CD). **Plate 5-2** illustrates the condition of the development site as of 29th October 2024, at which point all construction activities had been completed and all temporary equipment, materials, and facilities had been removed. The construction of the DWQ, as permitted under Planning Application 17/967, was only partially completed. A full description of the already conducted activities and constructed infrastructure is described in **Volume III Chapter 2** Project Description of the **rEIAR**.



Plate 5-2: Status of the development on 29th October 2024.

5.3.3 Local Hydrology

The development site is located within the Water Framework Directive (WFD) Cashla_SC_010 sub-catchment which in turn is located within the Galway Bay North Catchment (31). A review of the EPA map-viewer³ determined that there are no watercourses traversing the development site. The nearest are three small 1st Order streams (Carrowroe South Stream and two unnamed streams) that drain into Cashla Bay⁴ near Sruthán Pier to the west of the development site on the opposite side of the bay. These three streams are all constituents of the Carrowroe_South_010 River Waterbody⁵. The Carrowroe South Stream is the only EPA-registered watercourse flowing into and out of Loughaunwillan (Loch an Mhuilinn)⁶, a large lake containing eighteen islands located approximately 1.3 kilometres northwest of the development site across the bay – refer to **Figure 5-3**.

Watercourses on the same side of the bay as the development site include the 4th Order Cashla River and its tributary the 2nd Order Rossaveel River which are both part of the Cashla_010 River Waterbody⁷. The Cashla River

³ [EPA Maps](#) Accessed: 29th May 2025

⁴ EPA Coastal Waterbody Code: IE_WE_190_0000

⁵ EPA River Waterbody Code: IE_WE_31C050910

⁶ EPA Lake Waterbody Code: IE_WE_31_120

⁷ EPA River Waterbody Code: IE_WE_31C010100

empties into the Cashla Estuary⁸, approximately 2.4 river kilometres⁹ upstream of the DWQ development site - see **Figure 5-3**.

Compliance with the reporting requirements of the WFD (Directive 2000/60/EC) obliges each European Union (EU) member state to publish reports providing summary information about individual waterbodies relating to their status, risks and objectives. The WFD Ecological Status (2016–2021) of the Carrowroe_South_010 River Waterbody is 'Moderate' while the Cashla_010 River Waterbody and the Loughaunwillan Lake Waterbody both have a status of 'Good'. Cashla Bay Coastal Waterbody and Cashla Estuary Transitional Waterbody both have an ecological status of 'High', however, neither are on a 'published monitoring programme'¹⁰. (see **Figure 5.4**)

There are no EPA water quality monitoring stations downstream of the development site. The nearest monitoring station¹¹ is on the Cashla River where the Cashla Bridge crosses R336, approximately 3.4 river kilometres upstream of the development site. The latest river Q-value¹² for the station is 'Q4, Good' and it was recorded by the EPA in 2024. The Carrowroe_South_010 River Waterbody has been assigned a WFD risk status of 'Review'¹³, while the Cashla_010 River Waterbody is classed as being 'At risk'¹⁴. Cashla Bay Coastal Waterbody and Cashla Estuary Transitional Waterbody have both been classified as being 'Not at risk'¹⁵ (EPA, 2024).

The development site overlies the Spiddal Ground Waterbody¹⁶ and is characterised as 'poorly productive bedrock' with a WFD Ecological Status (2016–2021) of 'Good' and a risk status of 'Not at risk'.

⁸ EPA Transitional Waterbody Code: IE_WE_190_0100

⁹ River kilometres (rkm): measure of the distance in kilometres along the path of a watercourse (as opposed to a linear measure such "as the crow flies").

¹⁰ [Data - Catchments.ie - Catchments.ie](https://data.catchments.ie/catchments) Accessed: 22nd May 2025

¹¹ EPA Monitoring Station Code: RS31C010100

¹² Quality Rating (Q) System devised by Toner *et al.* (2005). This method categorises invertebrates into one of five groups (A-E), depending on their sensitivity to pollution. Q values range from Q1-Q5 with Q1 being the poorest quality and Q5 being pristine/unpolluted conditions. The system is used by the EPA and is the standard biological assessment technique used when surveying rivers in Ireland under the WFD.

¹³ *Review* – either additional information is needed to ascertain the waterbody's status, or measures have been undertaken but the results have not yet been monitored ([EPA Maps](#) Accessed: 15th May 2025).

¹⁴ *At risk* - either the waterbody is currently not achieving its WFD environmental objective of Good or High Ecological Status, or there is an upward trend in nutrients/ammonia, and should this trend continue, the waterbody Status will decline and fail to meet WFD objectives by 2027. [EPA Maps](#) Accessed: 11th May 2025.

¹⁵ *Not at risk* – waterbody is meeting its WFD objectives. Requires maintenance of existing measures to protect satisfactory status [EPA Maps](#) Accessed: 22nd May 2025.

¹⁶ EPA Ground Waterbody Code: IE_WE_G_0004



5.3.4 Designated Sites

The following compiles a list of nature conservation sites which lie within a potential zone of impact (ZOI) for later analysis which may or may not be significantly affected by the Development works. Each site is characterised in the context of its conservation interests. Following this, the potential effects associated with the proposal will be identified before an assessment is made of the likely significance of these effects.

5.3.4.1 Sites of International Importance

Natura 2000 sites are sites of international importance for nature conservation and are designated and protected under European legislation. Two types of sites are incorporated within the Natura 2000 network; Special Areas of Conservation (SACs) and Special Protection Areas (SPAs). SACs are protected under the Habitats Directive 92/43/EEC, while SPAs are protected under the Birds Directive 2009/147/EC. Both of these European Directives are transposed into Irish legislation under the European Communities (Birds and Natural Habitats) Regulations 2011, as amended. Collectively, SACs and SPAs are referred to as Natura 2000 sites or European sites.

The screening stage of Appropriate Assessment involves compiling a 'long list' of European sites within a potential zone of influence (ZOI). The ZOI of a development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the conservation interests of a Natura 2000 site. The ZOI is established using the Source-Pathway-Receptor (SPR) model with reference to the Office of the Planning Regulator (OPR) Practice Note 'Appropriate Assessment Screening for Development Management' (OPR, 2021). For an impact to occur there must be a risk initiated by having a 'source' (e.g., excavation), a 'receptor' (e.g., a protected species associated with aquatic or riparian habitats), and an impact pathway between the source and the receptor (e.g., a waterbody which connects the development site to the protected species or habitats).

The precautionary principle has been adopted in identifying potentially affected European sites. These sites are characterised in the context of the rationale for designation and the qualifying features (see **Table 5-2**). The European sites identified at this stage may or may not have been significantly affected by the development. All SACs and SPAs within a potential ZOI of the Development site have been examined and identified with the application of the SPR model and are presented in **Table 5-2** and **Figure 5-5**.

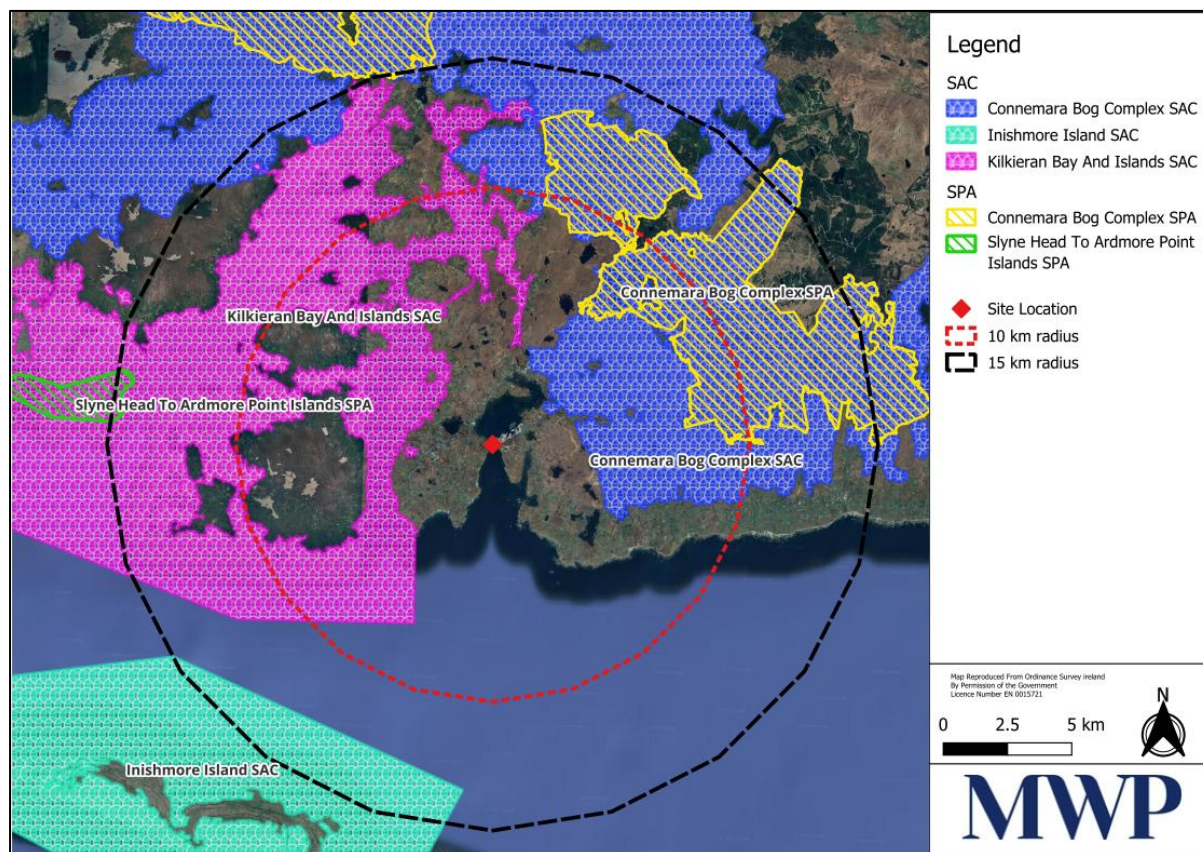


Figure 5-5: SACs and SPAs within vicinity of the development site

Table 5-2: Qualifying features of conservation interest of Natura 2000 sites within the potential ZOI

Designated Site	Site Code	Qualifying features of conservation interest
Connemara Bog Complex SAC	002034	- Coastal lagoons* [1150] - Reefs [1170] - Oligotrophic waters containing very few minerals of sandy plains (<i>Littorelletalia uniflorae</i>) [3110] - Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] - Natural dystrophic lakes and ponds [3160] - Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation [3260] - Northern Atlantic wet heaths with <i>Erica tetralix</i> [4010] - European dry heaths [4030] <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) [6410] - Blanket bogs (* if active bog) [7130] - Transition mires and quaking bogs [7140] - Depressions on peat substrates of the Rhynchosporion [7150]

Designated Site	Site Code	Qualifying features of conservation interest
		- Alkaline fens [7230] - Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles [91A0] - Marsh Fritillary (<i>Euphydryas aurinia</i>) [1065] - Salmon (<i>Salmo salar</i>) [1106] - Otter (<i>Lutra lutra</i>) [1355] - Slender Naiad (<i>Najas flexilis</i>) [1833]
Kilkieran Bay and Islands SAC	002111	- Mudflats and sandflats not covered by seawater at low tide [1140] - Coastal lagoons* [1150] - Large shallow inlets and bays [1160] - Reefs [1170] - Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) [1330] - Mediterranean salt meadows (<i>Juncetalia maritimi</i>) [1410] - Machairs (* in Ireland) [21A0] - Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or <i>Isoeto-Nanojuncetea</i> [3130] - Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510] - Harbour Porpoise (<i>Phocoena phocoena</i>) [1351] - Otter (<i>Lutra lutra</i>) [1355] - Harbour Seal (<i>Phoca vitulina</i>) [1365] - Slender Naiad (<i>Najas flexilis</i>) [1833]
Connemara Bog Complex SPA	004181	- Cormorant (<i>Phalacrocorax carbo</i>) [A017] - Merlin (<i>Falco columbarius</i>) [A098] - Golden Plover (<i>Pluvialis apricaria</i>) [A140] - Common Gull (<i>Larus canus</i>) [A182]
Inishmore Island SAC	000213	- Coastal lagoons* [1150] - Reefs [1170] - Perennial vegetation of stony banks [1220] - Vegetated sea cliffs of the Atlantic and Baltic coasts [1230] - Embryonic shifting dunes [2110] - Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) [2120] - Fixed coastal dunes with herbaceous vegetation (grey dunes) [2130] - Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) [2170] - Humid dune slacks [2190] - Machairs (* in Ireland) [21A0] - European dry heaths [4030] - Alpine and Boreal heaths [4060] - Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites) [6210]

Designated Site	Site Code	Qualifying features of conservation interest
		▪ Lowland hay meadows (<i>Alopecurus pratensis</i>, <i>Sanguisorba officinalis</i>) [6510] ▪ Limestone pavements* [8240] ▪ Submerged or partially submerged sea caves [8330] ▪ Narrow-mouthed Whorl Snail (<i>Vertigo angustior</i>) [1014] ▪ Harbour Porpoise (<i>Phocoena phocoena</i>) [1351]
Slyne Head to Ardmore Point Islands SPA	004159	▪ Barnacle Goose (<i>Branta leucopsis</i>) [A045] ▪ Sandwich Tern (<i>Sterna sandvicensis</i>) [A191] ▪ Arctic Tern (<i>Sterna paradisaea</i>) [A194] ▪ Little Tern (<i>Sterna albifrons</i>) [A195]

5.3.4.1.1 Connemara Bog Complex SAC

The Connemara Bog Complex SAC (004181) is a large, ecologically diverse site extending over parts of County Galway. It encompasses a mosaic of upland and lowland peatlands, interspersed with lakes, rivers, and heath. The SAC is notable for its extensive active blanket bogs [7130], transition mires [7140], alkaline fens [7230], and rare dystrophic waterbodies [3160]. These habitats support a rich assemblage of flora and fauna, including rare species such as Marsh Fritillary [1065], Slender Naiad [1833], Otter [1355], and Atlantic Salmon [1106].

5.3.4.1.2 Kilkieran Bay and Islands SAC

Kilkieran Bay and Islands SAC (002111) encompasses a complex of marine and coastal habitats including reefs [1170], coastal lagoons [1150], machairs [21A0], and extensive salt meadows [1330, 1410]. It supports both terrestrial and marine species such as Otter [1355], Harbour Seal [1365], and Harbour Porpoise [1351]. The presence of Slender Naiad [1833] in standing waters within the site further underscores its ecological importance.

5.3.4.1.3 Connemara Bog Complex SPA

This Connemara Bog Complex SPA (002034) overlaps geographically with the Connemara Bog Complex SAC and is designated for several bird species, notably Golden Plover [A140] and Merlin [A098], both of which are sensitive to disturbance and habitat degradation. The SPA supports important foraging and breeding grounds for these species in the form of peatland and open moor habitats.

5.3.4.1.4 Inishmore Island SAC

The Inishmore Island SAC (000213) lies off the west coast of Ireland and encompasses a diverse array of coastal and marine habitats, including perennial vegetation of stony banks, sand dune systems, and vegetated sea cliffs. The site-specific conservation objectives aim to maintain or restore favourable conservation condition of each Annex I habitat type and Annex II species present. Key attributes addressed include the range (i.e., natural distribution of the habitat within the site), area (extent of habitat), and structure and functions (such as sediment supply, hydrological regime, zonation of vegetation, and absence of negative indicator species). For example, for the sand dune habitats the objectives specify that the physical structure (sediment supply and hydrology), vegetation structure (bare ground, zonation, height, cover), and composition (typical species, bryophytes, absence of scrub) must be maintained.

5.3.4.1.5 Slyne Head to Ardmore Point Islands SPA

The Slyne Head to Ardmore Point Islands SPA (004159) spans a series of coastal islands off the Connemara coast in County Galway and has been designated primarily for its importance to seabird and migratory bird species, including the Barnacle Goose (A045), Arctic Tern (A194), Sandwich Tern (A191) and Little Tern (A195). The overarching objective is to maintain or restore the favourable conservation condition of these bird species such that their population dynamics remain viable, their range is not reduced, and suitable habitat remains sufficient in extent and quality.

5.3.4.2 Sites of National Importance

In Ireland, sites of national importance for nature conservation are designated as Natural Heritage Areas (NHAs) or proposed Natural Heritage Areas (pNHAs) under the Wildlife Act 1976, as amended. NHAs are areas considered important for the habitats present or which hold species of plants and animals whose habitat needs protection. A list of pNHAs was published on a non-statutory basis in 1995, but these have not since been statutorily designated. Prior to statutory designation, pNHAs are subject to limited protection.

Sites of national importance within a potential ZOI of the Development have been identified and are listed in **Table 5-3**. A total of two pNHAs have been identified. There are no NHAs located within the potential ZOI of the Development.

Table 5-3: pNHA sites within the potential ZOI of the Development

Core Designated Site	Site Code	Features of Interest	Proximity to study area
Connemara Bog Complex pNHA	002034	Overlaps with the Connemara Bog Complex pNHA SAC.	3 km east
Kinvarra Saltmarsh pNHA	002075	Overlaps with Kilkieran Bay and Islands SAC.	4.2 km to the north

5.3.4.3 Additional Sites

5.3.4.3.1 Ramsar Sites

The Ramsar Convention on Wetlands of International Importance, particularly as Waterfowl Habitat, is an international treaty focused on the conservation and sustainable use of wetlands. It provides a framework for both national initiatives and international cooperation aimed at protecting wetlands and their resources. A key commitment of Ramsar Contracting Parties is to identify and place suitable wetlands onto the List of Wetlands of International Importance. Ireland presently has 45 sites designated as Wetlands of International Importance. An on-line search was undertaken to search for Ramsar sites potentially located within the ZOI of the Development. There are no Ramsar sites within a 15 km radius of the study area¹⁷.

5.3.4.3.2 Important Bird and Biodiversity Areas (IBAs)

Important Bird and Biodiversity Areas (IBAs) are sites selected as important for bird conservation because they regularly hold significant populations of one or more globally or regionally threatened, endemic or congregator

¹⁷ <https://rsis.ramsar.org/>

bird species or highly representative bird assemblages. The European IBA programme aims to identify, monitor and protect key sites for birds all over the continent. It aims to ensure that the conservation value of IBAs in Europe (now numbering more than 5,000 sites or about 40% of all IBAs identified globally to date) is maintained, and where possible enhanced. The programme aims to guide the implementation of national conservation strategies, through the promotion and development of national protected-area programmes.

An on-line search was undertaken to search for IBA sites potentially located within the ZOI of the Development. The 'Connemara Islands' IBA¹⁸ overlaps with the site development area (**Figure 5-6**). The 'Connemara Bogs' (south-east) and 'Roundstone Bog' IBA¹⁹ is located approximately 1.8 km to the northeast at the closest point and largely overlaps with the Connemara Bog Complex SAC. There are no additional IBA sites within the ZOI of the study area²⁰.



Figure 5-6: IBA overlapping with site development.

5.3.4.3.3 *Salmonid Rivers*

Water channels in Ireland may be designated as a Salmonid River in line with the European Communities (Quality of Salmonid Waters) Regulations, 1988. None of the watercourses within the vicinity of the Development site are designated as Salmonid Rivers²¹.

5.3.5 Habitat Survey

Figure 5-7 summarises the habitats identified in **Sections 5.3.5.1. to 5.3.5.9** at the time.

5.3.5.1 Buildings and Artificial Surfaces (BL3)

Within the study area, two buildings are situated to the south of the development site, accessible via the R372 road. These buildings are surrounded by car parks and several small storage spaces. In the northern section of the

¹⁸ <https://datazone.birdlife.org/site/factsheet/connemara-islands>

¹⁹ <https://datazone.birdlife.org/site/factsheet/connemara-bogs-southeast-including-roundstone-bog>

²⁰ <http://datazone.birdlife.org/site/mapsearch>

²¹ [EPA Maps](#)

study area, two large car parks are present. At the centre of the site, there is a sizeable open area containing disused underground storage tanks, surrounded by bare ground.

5.3.5.2 Sea Walls, Piers and Jetties (CC1)

Two piers, known as Pier 1 and Pier 2, are located in the northern section of the study area. Extending from the northern pier to the southern boundary of the site is a protective sea wall constructed from rock armour. The surface of the rock armour is colonised by bladderwrack (*Fucus vesiculosus*) seaweed.

5.3.5.3 Recolonising Bare Ground (ED3)

This habitat occurred in several areas around the southern buildings. Plant species included Greater Sea Spurrey (*Spergularia media*), Common Knapweed (*Centaurea nigra*), and Creeping Buttercup (*Ranunculus repens*), among others. However, during the 2025 survey, all vegetation had been completely removed from this area and been replaced by 'Spoil and bare ground (ED2)'.

5.3.5.4 Scrub (WS1)

Extensive scrub dominated by Bracken (*Pteridium* spp.), Gorse (*Ulex* spp.), Willow (*Salix* spp.), and Bramble (*Rubus fruticosus*) was recorded, particularly around the car park at the northern boundary and interspersed throughout other habitats. During the 2025 survey, it was observed that part of this scrub particularly along the northwest of the development area surrounding the BL3 habitat had been removed. Some scrub previously enclosed between the 2017 'Recolonising Bare Ground (ED3)' and 'Building and Artificial Surfaces (BL3)' habitats remain; however, it has since transitioned into a mosaic of 'Scrub (WS1)' and 'Recolonising Bare Ground (ED3)'.

5.3.5.5 Dry-Humid Acid Grassland (GS3)

A strip of dry humid acid grassland is located along the western boundary of the former Protein Teo site, situated landward of the rock armour. This habitat does not meet the criteria for Annex I *Nardus* grassland. It is primarily composed of matgrass, with frequent occurrences of Ribwort Plantain (*Plantago lanceolata*), Sweet Vernal Grass (*Anthoxanthum odoratum*), Bent Grasses (*Agrostis* spp.), Heath Speedwell (*Veronica officinalis*), and Heath Bedstraw (*Galium saxatile*). However, during the 2025 survey, it was observed that this habitat has been entirely transformed into 'Spoil and Bare Ground (ED2)'.

5.3.5.6 Open Marine Water (MW1)

An open water body is located to the west of the study area. Around 1.5 kilometres northeast of Ros an Mhíl Harbour, the Cashla River enters Cashla Bay. This river is included within the Connemara Bog Complex SAC) which is designated for the protection of Atlantic Salmon (*Salmo salar*) [1106]. The open water in this area may play a key role in the migration route of Atlantic Salmon as they travel toward the Cashla River. Furthermore, the Appropriate Assessment Screening identified the presence of both otters and seals using the bay.

5.3.5.7 Coastal Lagoon and Saline Water (CW1)

A lagoon was recorded directly east of the development site. The centrally located brackish pools of standing water that stretch diagonally southwest to northeast across the study area are classified as Lagoons and saline lakes (CW1). The pools are separated from the sea by a stretch of the R372 near the Údarás na Gaeltachta buildings with a potential small outlet from the pools to the sea on the western side of the R372. Water currents are almost entirely absent from the pools while any tidal influence exerted on them is extremely limited.

Vegetation appears to be sparse in these pools and limited to salt-tolerant species such as tasselweeds (*Ruppia* spp.) and stoneworts (*Charophytes*).

5.3.5.8 Exposed Siliceous Rock (ER1)

Along the southern edge of the study area, a section of exposed bedrock descends toward open water. This rocky surface supports lichen growth interspersed with patches of low-growing shrub species.

5.3.5.9 Dry Siliceous Heath (HH1)

A substantial area of dry heath lies west of the identified coastal lagoon, extending approximately 100 metres eastward towards a vertical cliff. This heathland features characteristic species such as Bell Heather (*Erica cinerea*), Ling Heather (*Calluna vulgaris*), and Gorse (*Ulex* spp.).

5.3.6 Rare and Protected Flora

5.3.6.1 Desktop Study and Field Survey

The desktop study included a review of rare and protected species data held by the NBDC and NPWS and EU Habitats Directive Article 17 spatial data for annexed terrestrial species available on-line²². The search targeted plant species listed in Annex II of the EU Habitats Directive, the Flora Protection Order species (FPO) (2022), and species listed in the Irish Red Data Book (Wyse Jackson, *et al.* 2016).

Previous species records for rare and protected flora as identified during the desk study are listed in **Table 5-4**.

The development site is located within the 2 km Ordnance Survey National Grid hectads L92S and L92M, and within the broader 10 km hectad L92. Species records for these hectads were obtained from the National Biodiversity Data Centre (NBDC) online database and reviewed. Within the 10 km hectad L92, recorded species include 12 flora species.

No species listed under the Flora Protection Order (FPO) were detected during this 2010 survey or retrieved from the associated desktop review. The mapped habitat distribution from this assessment is illustrated in **Figure 5-7**.

²² <https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=2>

Table 5-4: Desktop records of rare and protected flora species within hectad L92 and results of field surveys at the Site

Name	Designations and Status	Record Date	Record Source	Nearest Record to the Development Site	Habitat Requirements ^{23,24}	Field Results/ Suitability of site to support this species
Common Maërl (<i>Phymatolithon calcareum</i>)	Annex V	1988	Seaweeds of Ireland	Carraroe approximately 8 km west	Subtidal maërl beds in clean, well-lit, high-salinity waters; typically found on infralittoral clean gravel or coarse sand.	Not identified within the study area during site surveys.
Coral Maërl (<i>Lithothamnion corallioides</i>)	Annex V	1988	Seaweeds of Ireland	n/a	Subtidal maërl beds on muddy gravel substrates in areas with moderate to high water flow; found at depths less than 20 m.	Not identified within the study area during site surveys.
Autumn Lady's-tresses (<i>Spiranthes spiralis</i>)	Near threatened	2023	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Carraroe approximately 8 km west	Dry, calcareous grasslands, meadows, and heaths; prefers well-drained soils.	Not identified within the study area during site surveys.

²³ <https://www.irishwildflowers.ie/habitats.html>

²⁴ <https://bsbi.org/species-accounts>

Name	Designations and Status	Record Date	Record Source	Nearest Record to the Development Site	Habitat Requirements ^{23,24}	Field Results/ Suitability of site to support this species
Darnel (<i>Lolium temulentum</i>)	Regionally Extinct	1993	Irish Crop Wild Relative Database	Baile na tSleibhe, Baile na hAbhann, Connemara, Co. Galway approximately 10 km north west	Arable lands, particularly in cereal fields; thrives in moist, well-drained soils.	Not identified within the study area during site surveys.
Fragrant Agrimony (<i>Agrimonia procera</i>)	Near threatened	2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Carraroe approximately 8 km west	Dry, well-drained grassy places; often found in hedgerows and woodland margins; prefers neutral to slightly acidic soils.	Not identified within the study area during site surveys.
Greater Knapweed (<i>Centaurea scabiosa</i>)	Near threatened	2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Carraroe approximately 8 km west	Dry grasslands, hedgerows, and chalk downlands; favors lime-rich, well-drained soils.	Not identified within the study area during site surveys.
Green-winged Orchid (<i>Orchis morio</i>)	Vulnerable	2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Carraroe approximately 8 km west	Damp to dry unimproved grasslands on base-poor to base-rich soils; sensitive to habitat disturbance.	Not identified within the study area during site surveys.

Name	Designations and Status	Record Date	Record Source	Nearest Record to the Development Site	Habitat Requirements ^{23,24}	Field Results/ Suitability of site to support this species
Least Bur-reed (<i>Sparganium natans</i>)	Near threatened	2016	Irish Vascular Plant Data - Robert Northridge	Loughaunwillan approximately 7 km north east	Shallow, calm freshwater bodies; often submerged in nutrient-poor waters.	Not identified within the study area during site surveys.
Pipewort (<i>Eriocaulon aquaticum</i>)	Near threatened	2022	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Loughaunwillan approximately 7 km north east	Peaty, oligotrophic freshwater lakes and bog margins; rare and sensitive species.	Not identified within the study area during site surveys.
Sea-kale (<i>Crambe maritima</i>)	Near threatened	2024	Vascular plants: Online Atlas of Vascular Plants 2012 Onwards	Within Ros an Mhíl	Coastal shingle and upper beaches; salt-tolerant pioneer species.	Not identified within the study area during site surveys.
Six-stamened Waterwort (<i>Elatine hexandra</i>)	Near threatened	2016	Irish Vascular Plant Data - Robert Northridge	Loughaunwillan approximately 7 km north east	Shallow, oligotrophic to mesotrophic lakes with sandy or muddy bottoms.	Not identified within the study area during site surveys.
Slender Naiad (<i>Najas flexilis</i>)	Vulnerable	2019	Water Framework Directive Lake Macrophyte Status Survey Data 2007 to 2019	Loughaunwillan approximately 7 km north east	Clear, nutrient-poor lakes with submerged vegetation; often in marl-rich waters.	Not identified within the study area during site surveys.

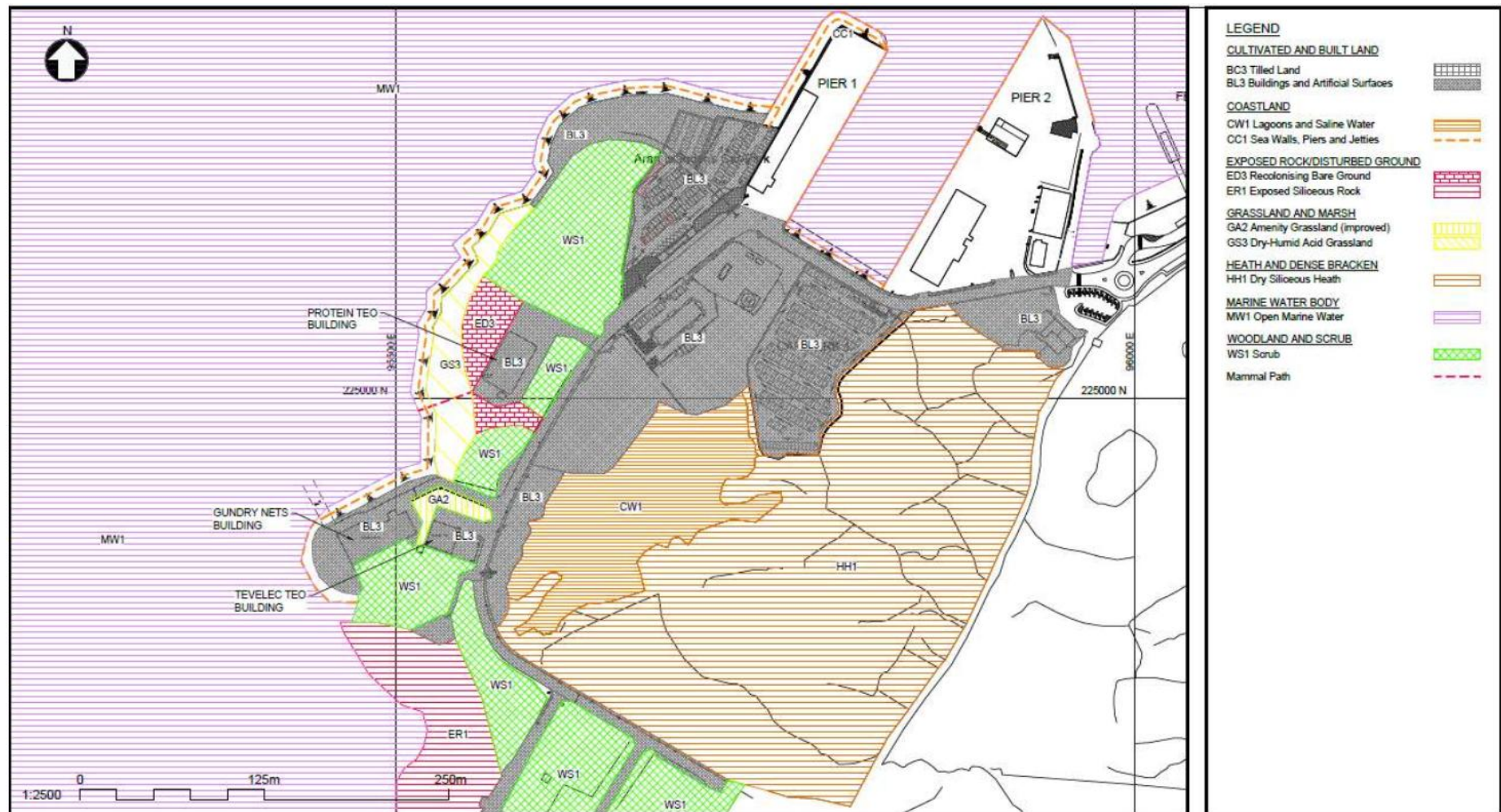


Figure 5-7: Habitat map produced following habitat surveys carried out on-site in October 2010 [adapted from Chapter 9, Terrestrial Ecology (Mott MacDonald, 2017)].

5.3.7 Invasive Alien Species (IAS)

5.3.7.1 Desk Study

A search for records of invasive plant species held by the NBDC for the hectad L92 was carried out with a focus on non-native plant species listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2015). Documented records of a total of six high-impact invasive species were identified within L92: Wireweed (*Sargassum muticum*), Canadian Waterweed (*Elodea canadensis*), Giant Hogweed (*Heracleum mantegazzianum*), Himalayan Knotweed (*Persicaria wallichii*), Indian Balsam (*Impatiens glandulifera*), Japanese Knotweed (*Fallopia japonica*), Japanese Rose (*Rosa rugosa*) and Pampas-grass (*Cortaderia selloana*). NBDC documented both Giant Hogweed (*Heracleum mantegazzianum*) and Japanese Rose (*Rosa rugosa*) close to the vicinity of the Site²⁵.

5.3.7.2 Field Study

During the 2010 desktop review and subsequent field survey, no Invasive Alien Species (IAS) were recorded within the study area. No evidence of IAS presence was noted during on-site observations.

5.3.8 Mammals (excluding bats)

5.3.8.1 Desk Study

Records of protected mammals (non-volant terrestrial and marine) were retrieved from the NBDC database for the hectad L92 and information received from the NPWS data request for rare and protected species was also reviewed. The EU Habitats Directive Article 17 spatial data for annexed terrestrial and marine species were also accessed and reviewed²⁶. The relevant records obtained in relation to protected mammals (excluding bats) are listed in **Table 5-5**.

Table 5-5: Desktop records of protected mammals (excluding bats) from hectad L92

Species Name	Level of Protection	Record Date	Record Source	Nearest Record to the Site
Badger (<i>Meles meles</i>)	Wildlife Act, 1976 (as amended)	2016	NBDC	Recorded within 1km grid square L9726, approximately 1 km from the site (recorded 2017).
Pygmy shrew (<i>Sorex minutus</i>)	Wildlife Act, 1976 (as amended)	1969	NBDC	Recorded within 1km grid square L967256, which partially overlaps the study area (recorded 2013).

²⁵ <https://maps.biodiversityireland.ie/Map>

²⁶ <https://storymaps.arcgis.com/collections/1a721520030d404f899d658d5b6e159a?item=2>

Species Name	Level of Protection	Record Date	Record Source	Nearest Record to the Site
Otter (<i>Lutra lutra</i>)	Annex II & IV EU Habitats Directive, Wildlife Act, 1976 (as amended)	2012; 2018	NPWS; NBDC	Recorded within 1km grid square L948256, approximately 6 km west of the site near Carraroe (recorded 2011).
Irish hare (<i>Lepus timidus hibernicus</i>)	Annex V EU Habitats Directive, Wildlife Act, 1976 (as amended)	2007; 2021	NPWS; NBDC	Recorded within 1km grid square L9624, which partially overlaps the study area (recorded 2011).
Red Fox (<i>Vulpes vulpes</i>)	Atlas of Mammals in Ireland 2010-2015	2015		Recorded in Cloghmore South, approximately 4 km from the site.
Hedgehog (<i>Erinaceus europaeus</i>)	Wildlife Act, 1976 (as amended)	2021	NBDC	Recorded within 1km grid square L964250, which partially overlaps the study area (recorded 2022).

In addition, the invasive terrestrial mammal species American mink (*Mustela vison*), brown rat (*Rattus norvegicus*), Bank Vole (*Myodes glareolus*) and feral goat (*Capra hircus*) have all also been previously recorded in the subject hectad by the NBDC.

5.3.8.2 Field Surveys

The 2010 survey identified a single mammal trail which was recorded within the dry humid acid grassland adjacent to the former Protein Teo facility, leading westward toward the adjacent open marine waters (**Figure 5-7**). While the exact species responsible for the trail could not be confirmed, its location and surrounding habitats suggest that it was likely created by otter.

The broader study area was found to lack suitable conditions to support badger, primarily due to its exposed coastal location, dominance of rocky terrain, and absence of woodland or productive agricultural lands typically used by badgers for foraging or sett construction.

5.3.9 Bats

5.3.9.1 Desk Study

A review of the NBDC's Bat Habitat Suitability Index (BHSI) available on-line determined that for the area encompassed within the Site, and also including the lands extending away from the Site, the BHSI rating that has been assigned for 'all bats' combined is 24.56 out of 100, based on the analysis of the habitat and landscape associations of Irish bats compiled in Lundy et al. (2011). The BHSI ratings assigned for bats indicate that the Site and surrounding area is of relatively low overall value for bats.

5.3.9.2 Field Surveys

The 2010 survey determined that the site lacked habitat features suitable for supporting bats. The development site and surrounding areas are highly exposed and coastal, offering limited shelter, roosting sites, or foraging opportunities. No bat activity was detected during the field visit.

5.3.10 Birds

5.3.10.1 Desk Study

The Connemara Bog Complex SPA (Site Code: 004181) is located approximately 1.6 km northeast of the site and is designated for the protection of several bird species, including cormorant (*Phalacrocorax carbo*), merlin (*Falco columbarius*), golden plover (*Pluvialis apricaria*), and common gull (*Larus canus*), all of which have been recorded within the 10 km hectad (L92) encompassing the development area. This is the nearest SPA to the site, with additional European sites designated for birds located in the wider Connemara region. The I-WeBS sub-site 'Clynagh Bay – OG421' is situated to the north of Cashla Bay and extends southwards around Tóin na hAirde, terminating approximately 1.6 km from Ros an Mhíl. Although no recent summary data is available online for this sub-site, a data request submitted to BirdWatch Ireland returned historical records from the 1999/2000 and 2001/02 count periods. Species recorded include cormorant, mute swan (*Cygnus olor*), shelduck (*Tadorna tadorna*), wigeon (*Mareca penelope*), teal (*Anas crecca*), mallard (*Anas platyrhynchos*), red-breasted merganser (*Mergus serrator*), little grebe (*Tachybaptus ruficollis*), grey heron (*Ardea cinerea*), oystercatcher (*Haematopus ostralegus*), ringed plover (*Charadrius hiaticula*), dunlin (*Calidris alpina*), curlew (*Numenius arquata*), and redshank (*Tringa totanus*). Additional species of interest recorded within the 2 km grid square (L92M) surrounding the site in the past decade include kingfisher (*Alcedo atthis*), shag (*Phalacrocorax aristotelis*), and great-crested grebe (*Podiceps cristatus*).

As part of the 2017 desktop study, species records relevant to the development site were obtained from the National Biodiversity Data Centre (NBDC). The search focused on the 1 km grid squares L9525 and L9524, which cover the area in which the development is located. The results of this search are summarised in **Table 5-6**. A review of the Irish Wetland Bird Survey (I-WeBS) database was also undertaken; however, no site-specific records were identified in the immediate vicinity of the study area.

Table 5-6: Records of Protected Bird Species Recovered from NBDC

Scientific name	Common name	Record count	Date of last record	Title of dataset	Designation
<i>Alca torda</i>	Razorbill	1	24/09/1995	European Seabirds at Sea (ESAS) bird sightings from 1980 to 2003.	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Amber List
<i>Larus argentatus</i>	Herring Gull	1	24/09/1995	European Seabirds at Sea (ESAS) bird sightings from 1980 to 2003.	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Red List

Scientific name	Common name	Record count	Date of last record	Title of dataset	Designation
<i>Larus ridibundus</i>	Black-headed Gull	1	24/09/1995	European Seabirds at Sea(ESAS) bird sightings from 1980 to 2003.	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Red List
<i>Morus bassanus</i>	Northern Gannet	2	24/09/1995	European Seabirds at Sea(ESAS) bird sightings from 1980 to 2003.	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Amber List
<i>Phalacrocorax aristotelis</i>	European Shag	1	28/10/2016		Birds of Ireland Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Amber List
<i>Podiceps cristatus</i>	Great Crested Grebe	1	28/10/2016		Birds of Ireland Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Amber List
<i>Rissa tridactyla</i>	Black-legged Kittiwake	5	24/09/1995	European Seabirds at Sea(ESAS) bird sightings from 1980 to 2003.	Protected Species: Wildlife Acts Threatened Species: OSPAR Convention Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Amber List
<i>Phalacrocorax carbo</i>	Great Cormorant	1	28/10/2016	Birds of Ireland Source: National Biodiversity Centre Datasets	Protected Species: Wildlife Acts Threatened Species: Birds of Conservation Concern >> Birds of Conservation Concern – Amber List

5.3.10.2 Field Survey

The 2010 survey recorded two gull species; Black-headed Gull (*Chroicocephalus ridibundus*) and Herring Gull (*Larus argentatus*) which were recorded flying over the open marine waters adjacent to the study area.

5.3.11 Reptiles & Amphibians

5.3.11.1 Desk Study

The NBDC holds records for common frog (*Rana temporaria*) and Smooth Newt (*Lissotriton vulgaris*) within the hectad L92, most recently recorded in 2003 and 2023 respectively. NBDC also holds a record of common lizard (*Zootoca vivipara*), recorded in 2021. These species are protected under the Wildlife Act, 1976 (and Wildlife (Amendment) Act, 2000) and common frog is also listed under Annex V of the EU Habitats Directive.

5.3.11.2 Field Surveys

Based on the habitats recorded during the MWP walkover survey in April 2025, the areas most likely to support amphibian and reptile include the lagoons (CW1) located in the centre of the site, vegetated earth banks, areas of scrub, and rocky coastal margins. The lagoons provide suitable freshwater habitat for amphibian breeding, particularly where shallow, vegetated margins are present. Adjacent scrub and damp grassland may offer important terrestrial habitat for foraging, shelter, and dispersal. For reptiles, the rocky shoreline, particularly in sun-exposed areas, offers ideal basking sites for thermoregulation, while coastal grassland and vegetated earth banks provide cover and foraging opportunities. These features, where structurally diverse and undisturbed, can support the ecological requirements of both amphibians and reptiles.

5.3.12 Terrestrial Macro-invertebrates

5.3.12.1 Desk Study

Records are held by the NBDC for the hectad L92 for a wide variety of species of butterfly and hymenopteran (Large Red Tailed Bumble Bee (*Bombus (Melanobombus) lapidarius*), Megachile (*Megachile*) centuncularis and Moss Carder-bee (*Bombus (Thoracombus) muscorum*)).

Of note are records of marsh fritillary, Dingy Skipper, Grayling, Large Heath, Small Blue, Small Heath and Wall. The marsh fritillary butterfly is the only Irish butterfly species listed under Annex II of the EU Habitats Directive. It requires the presence of the devil's bit scabious occurring in a suitably short sward. The study area does not contain suitable habitat for marsh fritillary butterfly, and it is not considered further here.

5.3.13 Identification of IEFs

5.3.13.1 Selection of Designated Sites as IEFs

A Screening for Appropriate Assessment (AA) was undertaken by MWP to determine whether the project, either alone or in combination with other plans or projects, would be likely to result in significant effects on Natura 2000 sites, with regard to their Conservation Objectives. Five European sites were identified within the potential Zone of Influence (ZOI) of the development.

As the location of the development site and associated dredging/infill works lies outside the boundaries of any Natura 2000 site, there would be no direct loss of designated habitat. However, potential indirect effects, such as underwater noise and increased suspended sediment levels resulting from construction activities like drilling, blasting, and dredging, were considered.

Based on objective scientific information during the 2025 assessment, it was concluded that the development, either individually or in combination with other plans or projects, is not likely to have resulted in significant effects on the following site:

- Slyne Head to Ardmore Point Islands SPA (004159)

However, for the following European sites, it was not possible to rule out the potential for significant effects at this stage due to impacts identified in the AASR:

- Connemara Bog Complex SAC (002034);
- Kilkieran Bay and Islands SAC (002111);
- Connemara Bog Complex SPA (004181);
- Inishmore Island SAC (000213).

As a result, a further remedial assessment was required to determine whether the development may have adversely affected the integrity of these European sites.

The remedial Natura Impact Statement (NIS) subsequently concluded based on a detailed and objective analysis and evaluation of all relevant information, particularly the nature of the predicted effects of the development and with the implementation of the mitigation measures previously applied, that the development did not adversely affect (either directly or indirectly) the integrity of any European site, either alone or in combination with other plans or projects, and there is no reasonable scientific doubt in relation to this conclusion.

None of the designated sites are therefore considered to comprise IEFs in relation to the project and thus will not be considered further in this evaluation. Refer to the screening for Appropriate Assessment report and the NIS (MWP, 2025) which accompanies the planning application for the Development for more information.

Due to the fact that two nationally designated sites identified to be within the potential ZOI of the proposal, namely Connemara Bog Complex pNHA and Kinvarra Saltmarsh pNHA, spatially overlap with Natura 2000 sites, it is considered that potential impacts on these designated sites arising from the project have been fully considered as part of the screening for Appropriate Assessment report. Significant effects on these pNHAs or other nature conservation sites are therefore not envisaged. Therefore, these sites will not be considered further in this evaluation.

No designated sites within the potential ZOI of the Development are considered to comprise IEFs, and designated sites will not be considered further in this chapter.

5.3.13.2 Selection of Habitats as IEFs

The habitat types within the study area are evaluated in **Table 5-7** for their conservation importance in line with the ecological evaluation scheme outlined in **Section 5.1.8**. Those habitats identified as being of 'Local importance (higher value)' or higher and which are likely to be impacted by the Development are selected as IEFs.

Table 5-7: Selection of habitats as IEFs for the Development during the 2010 field survey

Habitat Code	Habitat Name	Ecological evaluation	Within or in proximity to the development site	IEF (Yes/No)
BL3	Built Landscape	Local Importance (Lower Value)	Within Site	No
CC1	Sea Walls, Piers, and Jetties	Local Importance (Lower Value)	Within Site	No

Habitat Code	Habitat Name	Ecological evaluation	Within or in proximity to the development site	IEF (Yes/No)
ED3	Recolonising Bare Ground	Local Importance (Lower Value)	Within Site	No
WS1	Scrub	Local Importance (Lower Value)	Within Site	No
GS3	Dry Humid Acid Grassland	Local Importance (Higher Value)	Within Site	Yes
MW1	Open Marine Water	International Importance	Within Site	Yes
CW1	*Coastal Lagoon (*Priority Annex I Habitat [1150])	International Importance	Immediately adjacent to eastern boundary of the site	Yes
ER1	Exposed Siliceous Rock	Local Importance (Lower Value)	Immediately adjacent southern boundary to the site	No
HH1	Siliceous Dry Heath	Local Importance (Higher Value)	East of the site adjacent to eastern side of the coastal lagoon.	Yes

5.3.13.3 Selection of Flora and Fauna Species as IEFs

In relation to rare and protected flora, there are no desktop records for any rare and/or protected plant species within the study area. In relation to the rare and/or protected species outlined in **Section 5.3.6**, none of these species were recorded during ecological surveys of the study area. These species are not considered to comprise IEFs for the project, and therefore these species will not be considered further in this evaluation.

The following table (**Table 5-8**) presents an evaluation of the ecological value of the terrestrial faunal species or species groups identified within the receiving environment of the Development and rationale for inclusion, or, exclusion as IEFs. As for habitats, species identified as being of 'Local importance (higher value)' or higher and which are likely to be impacted by the Development are selected as IEFs.

Table 5-8: Evaluation of fauna as IEFs for the Development

Ecological receptor	Legislative protection	Ecological Value in Context of Study Area	Rationale	Important Ecological Feature
Mammals (excl. bats)				
Hedgehog (<i>Erinaceus europaeus</i>)	Wildlife Act, 1976 (as amended)	Local importance (higher value)	Not recorded on site; however, suitable habitat exists and there are desktop records in the greater area. Precautionary principle.	Yes
Badger (<i>Meles meles</i>)	Wildlife Act, 1976 (as amended)	Local importance (higher value)	Not recorded on site; however, suitable habitat exists and there are desktop records in the area. Precautionary principle.	Yes
Pygmy Shrew (<i>Sorex minutus</i>)	Wildlife Act, 1976 (as amended)	Local importance (higher value)	Not recorded during ecological surveys but suitable habitat occurs. Precautionary principle.	Yes
Irish hare (<i>Lepus timidus hibernicus</i>)	Annex V EU Habitats Directive, Wildlife Act, 1976 (as amended)	Local Importance (higher level)	Recorded frequently on-site.	Yes
Otter (<i>Lutra lutra</i>)	Annex II, IV EU Habitats Directive, Wildlife Act, 1976 (as amended)	Local importance (higher level)	Not recorded on-site but surrounding shoreline comprises suitable foraging/commuting habitat.	Yes
Birds				
Waders found to be associated with the Site	Annex I of EU Birds Directive and/or Wildlife Act, 1976	Local Importance (higher level)	No waders were located on site however are typically associated with grassland habitats located outside the development site (bar-tailed godwit, common greenshank, common redshank, sandpiper, common snipe, dunlin, Eurasian curlew, Eurasian oystercatcher, Eurasian woodcock, European golden plover, grey plover, jack snipe, Northern lapwing, ringed plover). Precautionary principle.	Yes
Gulls	Annex I of EU Birds Directive and/or Wildlife Act, 1976	Local Importance (higher level)	Lesser black-backed gull, great black-backed gull, Mediterranean gull, little gull and common gull were not recorded within the site however are typically associated with coastal habitats located outside the development site. Black-headed Gull and Herring gull were the only two gull species recorded on-site during 2010; however, the grassland	Yes

Ecological receptor	Legislative protection	Ecological Value in Context of Study Area	Rationale	Important Ecological Feature
			habitats within the site are suitable for a variety of foraging/loafing gulls generally.	
Corvids & Passerines	Wildlife Act, 1976	Local Importance (higher level)	There are no habitats within the site however around the site there are suitable habitats for a wide variety of corvid and passerine species, none were recorded within and around the Site during surveys. Precautionary principle.	Yes
Seabirds	Annex I of EU Birds Directive and/or Wildlife Act, 1976	Local Importance (higher level)	Seabirds were not recorded using the site. However, this stretch of coastline and the marine waters of CasHla Bay are suitable for a wide variety of seabird species, and several were recorded in the area surrounding the Site.	Yes
Waterbirds (Ducks, Geese & Other Waterbird species)	Annex I of EU Birds Directive and/or Wildlife Act, 1976	Local Importance (higher level)	Waterbirds such as mallard, little egret and cormorant were recorded using the lagoons surrounding the site. however, this stretch of coastline is suitable for a wide variety of waterbird species, and several were recorded in the area surrounding the Site.	Yes
Reptiles & Amphibians				
Common frog (<i>Rana temporaria</i>)	Annex V of the Habitats Directive Wildlife Act, 1976 (as amended)	Local Importance (higher value)	Suitable foraging and breeding habitats present on site, no evidence of adult frogs or tadpoles were recorded during surveys.	Yes
Smooth newt (<i>Lissotriton vulgaris</i>)	Wildlife Act, 1976 (as amended)	Local importance (higher value)	Not recorded during surveys and no records in the greater area; however, suitable habitats occur. Precautionary principle.	Yes
Common lizard (<i>Zootoca vivipara</i>)	Wildlife Act, 1976 (as amended)	Local importance (higher value)	Not recorded during surveys; however, pockets of suitable habitat and records exist for surrounding area. Precautionary principle.	Yes
Terrestrial Macro-Invertebrates				
Marsh Fritillary (<i>Euphydryas aurinia</i>)	Annex II on EU Habitats Directive	Local importance (lower value)	The species was not recorded on-site during field surveys. No suitable habitat was recorded within the Site.	No

Ecological receptor	Legislative protection	Ecological Value in Context of Study Area	Rationale	Important Ecological Feature
Other terrestrial macro-invertebrates (bees, butterflies etc.)	N/a	Local importance (higher value)	Terrestrial invertebrates have an important role at the lower level of ecosystem food chains, for example, essential prey resource for small mammals, bats and birds. A variety of species were recorded on-site during surveys.	Yes
Bats				
All bat species	Annex IV of EU Habitats Directive; lesser horseshoe bat also listed in Annex II; Wildlife Act, 1976 (as amended)	Local Importance (higher level) ²⁷	No potential bat roosting sites identified within the site.	Yes

²⁷ The ecological value which has been assigned to brown long-eared bat is 'Negligible' in the context of the study area; however, it is included here and brought forward for impact assessment on a highly precautionary basis. All other bat species are considered to be of 'Local Importance (higher value)' at the Site.

5.4 Description of Likely Effects

5.4.1 Construction Phase Activities Overview

According to the 2017 EIS and the development construction works were expected to take 25 months in total. A total of 16 months of construction works were completed between January 2023 and the 20th May 2024.

The previous development works included:

- Mobilisation and development of the construction compound and facilities;
- Reclamation works – Rock fill material was imported to reclaim land from the sea and raise the ground level to the high-water mark (+5mCD). This reclaimed land was then used as a construction surface; Sequential construction and movement of the 20 drilling and blasting platforms over the quay wall and berthing pocket using imported quarry rock;
- Dredging works to remove the blasted seabed and construct the protective berm around the quay wall trench;
- Installation of 75m of rock armour revetments on the northern and southern ends of the reclamation area;
- Installation of the on-site concrete batching plant;
- Offsite manufacture and delivery of precast concrete caissons. 358 were manufactured and 92 were delivered to site;
- Offsite manufacture of the L-shaped blocks for wall and foundation beams;
- Installation of 48m of quay wall foundations.

Upon confirmation that the planning permission had expired and would not be extended, all construction materials, equipment and facilities were dismantled and removed from the site.

There are several factors that could affect water quality in the vicinity of the development. This includes effects from reclamation, dredging, blasting, pollution from oil/fuel spills, and sedimentation from flood events.

5.4.2 Construction Phase Mitigation Measures

A number of mitigation measures proposed in the 2017 EIS and included in the subsequent Construction and Environmental Management Plan (CEMP) produced by the contractors (Ward and Burke) were implemented during the construction process to prevent any potential impact to water quality during the construction phase of the development. These 2017 mitigation which are summarized in the following sections.

5.4.2.1 Construction Phase Mitigation Measures

To minimise potential adverse effects on biodiversity during the construction phase, strict protocols were implemented regarding the handling of fuels, lubricants, and other hazardous substances. Refuelling of construction equipment, as well as the addition of hydraulic oils or lubricants to vehicles and machinery, was conducted no closer than 25 meters from the development boundary to prevent contamination of adjacent habitats. All mobile plant, such as generators, pumps, and cement mixers, were positioned over appropriately sized drip trays to contain any accidental leaks or spills.

Prior to deployment, all machinery was inspected for signs of leakage, particularly when operating near or within marine or aquatic habitats. Drip trays were mandatory beneath all plant working in or adjacent to these sensitive

ecological zones. Storage areas for fuels and lubricants also maintained a minimum setback of 25 meters from the site boundary. Spill response kits and hydrocarbon absorbent materials were available onsite at all times, with personnel trained in their correct use to ensure prompt and effective spill management.

Given the likelihood of dust emissions during construction, a comprehensive Dust Minimisation Plan was developed and implemented. This plan aimed to reduce particulate matter release and its potential effect on surrounding flora and fauna. Key measures included:

- Regular cleaning and maintenance of site roads, including the sweeping of paved surfaces to remove mud and aggregates.
- Restricting the use of unpaved roads to essential site traffic only.
- Application of water sprays to roads and exposed surfaces prone to dust generation, particularly during dry or windy weather conditions.
- Enforcement of reduced vehicle speed limits on site roads to limit dust disturbance.
- Ensuring that all vehicles transporting dusty materials to off-site locations were fully enclosed or covered to prevent dust escape.
- Routine inspection and cleaning of adjacent public roads to maintain cleanliness and minimize dust migration.
- Design of material handling and stockpiling areas to reduce wind exposure.
- Deployment of water misting or spraying systems during particularly dusty operations.
- Periodic review and adjustment of the Dust Minimisation Plan to ensure the efficacy of implemented measures and the application of best practices throughout the construction phase.

An Invasive Species Management Plan was also prepared as part of the Construction Environmental Management Plan (CEMP). This plan outlined protocols to prevent the introduction and spread of invasive non-native species within the development area. All construction personnel received targeted training and induction on invasive species identification, control, and management prior to commencing work onsite.

Through the implementation of these comprehensive biodiversity protection measures, potential construction-related effects on terrestrial and aquatic ecosystems were anticipated to be negligible. Continuous monitoring and adaptive management were employed to ensure that biodiversity values were safeguarded throughout the construction period.

5.4.2.2 Current Phase Mitigation Measures

Currently the development is not operational as all works ceased on the 20th of May 2024. Upon the suspension of works, all equipment, materials and temporary facilities were removed from the site, and the area was fenced off. The removal of material stockpiles, equipment and facilities would have avoided any potential negative effects on marine water quality in the event of any flooding occurring.

No mitigation measures are required for the current phase of the development.

5.4.3 Construction Phase Effects

5.4.3.1 Noise

Dredging activities had the potential to produce noise effects on terrestrial animals, particularly those close to the shoreline, though such effects tend to be indirect. Field surveys conducted in 2010 and 2025 recorded no clear evidence of otter activity within the study area. The industrial character of the harbour, combined with consistently high levels of human activity, rendered the area likely unsuitable for resting or foraging otters. Similarly, evidence of Hedgehog (*Erinaceus europaeus*), Badger (*Meles meles*), and Pygmy Shrew (*Sorex minutus*) was absent. The only species recorded was the Irish hare (*Lepus timidus hibernicus*). In retrospect, based on the actual construction methodology, the nature of the works completed, the consistently high levels of pre-existing human activity, and the absence of sensitive species such as otters, the disturbance and/or displacement effects on these IEFs are assessed as **Temporary to Short-term, Not Significant to Slight, Negative Effects**.

The potential for noise-related disturbance to waterbirds was also evaluated in 2017. A 1.6-hectare coastal lagoon east of the site was identified as potential foraging habitat, although more optimal alternatives exist outside the noise influence zone. Previous assessments concluded that, due to habituation to existing noise levels and the temporary nature of construction noise, significant effects on wetland birds were unlikely.

At the time, the construction footprint consisted primarily of scrub and dry-humid acid grassland, which provided foraging and resting habitat for various gull species. These habitat types were widespread throughout the surrounding landscape and of limited conservation value. Surveys confirmed no significant gull populations were present on-site. Noise-related disturbance and/or displacement effects on gulls within and around the site during construction are therefore assessed as **Temporary to Short-term, Not Significant to Slight, Negative Effects**.

Table 5-9: Potential noise effects on mammals including otter (*Lutra lutra*) and waterbirds identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Disturbance and/or displacement					
Otter (<i>Lutra lutra</i>)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Hedgehog (<i>Erinaceus europaeus</i>)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Badger (<i>Meles meles</i>)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Pygmy Shrew (<i>Sorex minutus</i>)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Irish hare (<i>Lepus timidus hibernicus</i>)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Bats	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Waders	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Gulls	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Other corvids & Passerines	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
Seabirds	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Waterbirds (Ducks, Geese & Other Waterbird species)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct

5.4.3.2 Habitat Destruction

Surveys conducted during this period confirmed that no protected habitats or plant species were present within the development footprint. Therefore, direct habitat loss was not anticipated to result in significant ecological effect.

The development required the loss of 'Dry-Humid Acid Grassland (GS3)' where this habitat type overlapped with the reclamation of additional land along the existing shoreline. This habitat was evaluated as being of Local Importance – Higher Value within the site. The construction of both temporary and permanent access roads, as well as the shoreline reclamation works, resulted in the loss of 'Scrub (WS1)' habitats. These habitats were assessed as being of Local Importance with a Lower Conservation Value within the site. Despite their relatively lower status, the scrub areas had the potential to provide valuable faunal habitats, supporting various species during different life stages.

Direct habitat loss effects on these IEFs, namely 'Scrub' and 'Dry-Humid Acid Grassland', during the construction phase are assessed as **Permanent, Likely, Not Significant, Negative Effects**. Potential habitat alteration or disturbance effects on 'Scrub' during construction are assessed as **Temporary to Short-term, Likely, Not Significant, Negative Effects**, while the corresponding disturbance effects on 'Dry-Humid Acid Grassland' are assessed as **Temporary to Short-term, Likely, Not Significant to Slight, Negative Effects**.

Indirect habitat loss, and potential alteration or disturbance effects, may occur on IEFs such as 'Coastal Lagoon (Priority Annex I Habitat [1150])' and 'Siliceous Dry Heath', which are located adjacent to the site but do not occur within the works area. During the construction phase, effects on these habitats are assessed as **Temporary to Short-term, Not Likely, and Not Significant Negative Effects**.

Table 5-10: Potential habitat destruction effects on 'Scrub', 'Dry-Humid Acid Grassland', 'Coastal Lagoon (Priority Annex I Habitat [1150])' and 'Siliceous Dry Heath' identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Habitat Loss					
Dry-Humid Acid Grassland (GS3)	Negative	Not significant to Slight	Localised	Permanent	Direct
Scrub (WS1)	Negative	Not significant	Localised	Permanent	Direct
Coastal Lagoon (Priority Annex I Habitat [1150])	Negative	Not significant	Localised	Temporary to Short-term	Indirect
Siliceous Dry Heath	Negative	Not significant	Localised	Temporary to Short-term	Indirect

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
Habitat Alteration/Disturbance					
Dry-Humid Acid Grassland (GS3)	Negative	Not Significant to Slight	Localised	Temporary to Short-term	Direct and Indirect
Scrub (WS1)	Negative	Not significant	Localised	Temporary to Short-term	Direct and Indirect
Coastal Lagoon (Priority Annex I Habitat [1150])	Negative	Not significant	Localised	Temporary to Short-term	Indirect
Siliceous Dry Heath	Negative	Not significant	Localised	Temporary to Short-term	Indirect

5.4.3.3 Pollution

During the construction phase, dust was generated from both construction activities and vehicle movements. This dust had the potential to settle on nearby habitats, potentially affecting sensitive vegetation and protected plant species by interfering with photosynthesis. The likelihood and extent of dust emissions were influenced by the type of construction activity being carried out at any given time, as well as prevailing weather conditions, including rainfall, wind speed, and wind direction. The risk of ecological effect was further dependent on the proximity of sensitive habitats and the capacity of the wind to transport dust particles to these areas.

In addition to dust, there was potential for pollution arising from accidental spills or leaks of fuels, oils, or construction materials (e.g., concrete) associated with storage areas, plant, and machinery. Such incidents could have resulted in localized contamination, degrading soil and water quality, and negatively affecting both flora and fauna.

These construction-phase risks, identified during earlier assessments, were considered manageable through the implementation of standard environmental control measures. Consequently, potential habitat alteration and disturbance effects on 'Scrub' and 'Dry-Humid Acid Grassland' during the construction phase are assessed as **Temporary to Short-term, Likely, Slight, Negative Effects**.

Indirect potential alteration or disturbance effects, may have occurred on IEFs such as 'Coastal Lagoon (Priority Annex I Habitat [1150])' and 'Siliceous Dry Heath', which are located adjacent to the site but do not occur within the works area. During the construction phase, effects on these habitats are assessed as **Temporary to Short-term, Not Likely, and Not Significant Negative Effects**.

There was potential for both direct and indirect disturbance or alteration effects on fauna in the event of pollution incidents such as spills or excessive dust. This effect is assessed as **Temporary to Short-term, Likely, and Not Significant Negative Effects**.

Table 5-11: Potential pollution effects on 'Scrub', 'Dry-Humid Acid Grassland', 'Coastal Lagoon (Priority Annex I Habitat [1150])', 'Siliceous Dry Heath' and fauna identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Habitat Alteration/Disturbance					

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
Dry-Humid Acid Grassland (GS3)	Negative	Slight	Localised	Temporary to Short-term	Direct
Scrub (WS1)	Negative	Slight	Localised	Temporary to Short-term	Direct
Coastal Lagoon (Priority Annex I Habitat [1150])	Negative	Not significant	Localised	Temporary to Short-term	Indirect
Siliceous Dry Heath	Negative	Not significant	Localised	Temporary to Short-term	Indirect
Fauna	Negative	Not significant	Localised	Temporary to Short-term	Direct and Indirect

5.4.3.4 Introduction of Non-native Invasive Species

Field surveys conducted in 2010 and 2025 reported no presence of non-native invasive species within the development works area. However, the risk of introducing such species through the movement of machinery and construction materials was acknowledged. The importance of implementing strict site hygiene protocols and effective machinery management was emphasized to prevent the unintentional spread of invasive species. Potential habitat alteration and disturbance effects on these IEFs during the construction phase are assessed as **Temporary to Medium-term, Likely, Not Significant to Slight, Negative Effects**.

The potential spread of invasive species is likely to result in habitat alteration and change, which in turn could affect habitats used by fauna. This effect is assessed as **Temporary to Medium-term, Likely, Not Significant to Slight, Negative Effects**.

Table 5-12: Potential introduction of non-native invasive species effects on habitats and fauna identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Habitat Alteration/Disturbance					
Habitats	Negative	Not Significant to Slight	Localised	Temporary to Medium-term	Indirect
Fauna	Negative	Not Significant to Slight	Localised	Temporary to Medium-term	Indirect

5.4.3.5 Mammals (excluding Bats)

Direct species disturbance and displacement occurred to mammal IEFs, excluding bats, during the construction phase due to increased human presence and activity. This disturbance was most likely to occur during periods when the construction site was open and active. Both direct and indirect disturbance or displacement effects could result from increased noise, vibration, lighting, or the use of chemicals associated with construction works, as well as from physical disturbance of individuals, including inadvertent injury or mortality during site activities.

Indirect disturbance may also arise through loss or fragmentation of foraging, commuting, breeding, or resting habitat, or via effects on prey biomass.

Habitats lost during construction provided potential foraging and resting areas for IEFs such as hedgehog (*Erinaceus europaeus*), pygmy shrew (*Sorex minutus*), Irish hare (*Lepus timidus hibernicus*). These habitat types are common and widespread throughout the greater area. Habitat loss effects on these IEFs during the construction phase are assessed as **Short-term, Likely, Not Significant to Slight, Negative Effects**.

The habitats lost are not considered to have been of particular ecological value to otter (*Lutra lutra*), although they may have represented sub-optimal foraging habitat; such habitats are common and widespread in the surrounding area. There was no loss of shoreline or other typical otter habitats. The site does not contain abundant suitable habitat for badger (*Meles meles*) and does not support a badger population. Habitat loss effects on otter and badger during the construction phase are assessed as **Short-term, Likely, Not Significant, Negative Effects**.

Disturbance and/or displacement effects may have arisen on IEFs such as hedgehog, badger, pygmy shrew, otter, Irish hare, due to increased noise and human activity during the construction phase. These disturbance and/or displacement effects are assessed as **Temporary to Short-term, Likely, Not Significant to Slight, Negative Effects**.

Table 5-13: Potential effects on mammals (excl. bats) identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Habitat Loss					
Hedgehog	Negative	Not significant	Localised	Permanent	Direct
Badger	Negative	Not significant	Localised	Permanent	Direct
Pygmy shrew	Negative	Not significant	Localised	Permanent	Direct
Irish hare	Negative	Not significant	Localised	Permanent	Direct
Otter	Negative	Not significant	Localised	Permanent	Direct
Disturbance/ Displacement					
Hedgehog	Negative	Slight	Localised	Temporary to Short-term	Direct
Badger	Negative	Slight	Localised	Temporary to Short-term	Direct
Pygmy shrew	Negative	Slight	Localised	Temporary to Short-term	Direct
Irish hare	Negative	Slight	Localised	Temporary to Short-term	Direct
Otter	Negative	Slight	Localised	Temporary to Short-term	Direct and indirect

5.4.3.6 Birds

Direct species disturbance and displacement of avian IEFs could have occurred during the construction phase due to increased human presence and activity, primarily during periods when the construction site was open and

active. Direct disturbance may also have resulted from increased noise, vibration, lighting, and use of chemicals associated with construction works, as well as from physical disturbance of individuals, including injury or mortality during site activities. Indirect disturbance or displacement could arise from habitat loss or fragmentation, or from alteration of foraging, commuting, breeding, or resting habitats, as well as effects on prey biomass.

The 'Scrub' and 'Dry-Humid Acid Grassland' habitats lost during construction may have provided foraging and resting habitat for various wader species. However, surveys indicate that the Site does not support any significant populations of these birds. These habitat types are common and widespread throughout the surrounding landscape. Foraging and resting habitat loss effects on waders during construction are therefore assessed as **Permanent, Likely, Not Significant, Negative Effects**. Surveys further confirm that the Site does not contain suitable habitat for, nor support significant populations of, other wader species. No additional loss of suitable habitats beyond the 'Scrub' and 'Dry-Humid Acid Grassland' within the Site occurred.

Disturbance and displacement effects on birds within and around the Site could have arisen from increased noise, human activity, or water quality effects during construction. Such effects on waders are assessed as **Temporary to Short-term, Likely, Slight, Negative Effects**.

The 'Scrub' and 'Dry-Humid Acid Grassland' habitats lost did not constitute suitable or typical foraging or resting habitats for seabirds and waterbirds. Surveys indicate no significant populations of these species at the Site, and these habitat types remain widespread in the surrounding area. Habitat loss effects on waterbirds are assessed as **Short-term, Likely, Not Significant, Negative Effects**. Disturbance and displacement effects on seabirds and waterbirds during construction, driven by increased noise and human presence, are assessed as **Temporary to Short-term, Likely, Not Significant to Slight, Negative Effects**.

The lost 'Scrub' and 'Dry-Humid Acid Grassland' habitats also provided foraging habitat for various gulls, corvids, and passerines and, in the case of passerines, breeding habitat. Surveys confirm that the Site does not support any significant populations of these species, and the habitats lost are common and widespread in the broader area. Foraging and resting habitat loss effects on gulls, corvids, and passerines during construction are assessed as **Permanent, Likely, Not Significant, Negative Effects**. Breeding habitat loss effects for corvids and passerines are assessed as **Permanent, Likely, Slight to Moderate, Negative Effects**. Disturbance and displacement effects on these bird groups resulting from increased noise, human activity, and water quality effects during construction are assessed as **Temporary to Short-term, Likely, Not Significant to Slight, Negative Effects**.

Table 5-14: Potential effects on birds/avian groups identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Loss of Foraging/Resting Habitat					
Waders found to be associated with the Site	Negative	Not significant	Localised	Permanent	Direct
Gulls	Negative	Not significant	Localised	Permanent	Direct
Other Corvids and Passerines	Negative	Not significant	Localised	Permanent	Direct
Seabirds	Negative	Not significant	Localised	Short-term	Direct

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
Waterbirds (Ducks, Geese and Other Waterbirds)	Negative	Not significant	Localised	Short-term	Direct
Loss of Breeding Habitat					
Other Corvids and Passerines	Negative	Slight to Moderate	Localised	Permanent	Direct
Disturbance/Displacement (noise/ human activity/water quality)					
Waders found to be associated with the Site	Negative	Slight	Localised	Temporary to Short-term	Direct and Indirect
Gulls	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct and Indirect
Other Corvids and Passerines	Negative	Not significant	Localised	Temporary to Short-term	Direct
Seabirds	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct and Indirect
Waterbirds (Ducks, Geese and Other Waterbirds)	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct and Indirect

5.4.3.7 Reptiles and Amphibians

The habitats lost during construction provided potential foraging and resting habitat for common frog (*Rana temporaria*), smooth newt (*Lissotriton vulgaris*), and common lizard (*Zootoca vivipara*). These habitat types are common and widespread within the broader landscape. Habitat loss and alteration effects on these IEFs are assessed as **Short-term, Likely, Not Significant to Slight, Negative Effects**.

Direct disturbance and displacement effects on these species may have resulted from increased noise and human activity associated with construction. Such direct disturbance effects are assessed as **Temporary to Short-term, Not Significant to Slight, Negative Effects**. Indirect disturbance and displacement effects, particularly for common frog and smooth newt, may have arisen from potential water quality effects affecting foraging, breeding, and resting habitats. These indirect effects are assessed as **Temporary to Short-term, Not Significant to Slight, Negative Effects**.

Table 5-15: Potential effects on reptiles and amphibians identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Habitat Loss/Alteration					
Common frog	Negative	Not significant to Slight	Localised	Short-term	Direct
Smooth newt	Negative	Not significant to Slight	Localised	Short-term	Direct
Common lizard	Negative	Not significant	Localised	Short-term	Direct
Disturbance/Displacement (noise/ human activity)					

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
Common frog	Negative	Not significant to Slight	Localised	Temporary to Short-term	Direct
Smooth newt	Negative	Not significant	Localised	Temporary to Short-term	Direct
Common lizard	Negative	Not significant	Localised	Temporary to Short-term	Direct
Disturbance/Displacement (water quality)					
Common frog	Negative	Not Significant to Slight	Localised	Temporary to Short-term	Indirect
Smooth newt	Negative	Not Significant to Slight	Localised	Temporary to Short-term	Indirect

5.4.3.8 Terrestrial Macro-Invertebrates

Habitat loss during construction resulted in the loss of terrestrial macroinvertebrate habitat. Invertebrate species diversity within the site was found to be low, likely reflecting the degree to which much of the area has been modified. The majority of invertebrate species recorded during surveys were common and widespread. The effects of the Development are therefore considered to be at a local scale.

Habitat loss and alteration effects on terrestrial macroinvertebrate species during construction are assessed as **Temporary, Likely, Not Significant, Negative Effects**. Potential disturbance and displacement effects during the construction phase on terrestrial macroinvertebrate species identified as IEFs are assessed as **Temporary to Short-term, Likely, Not Significant to Slight, Negative Effects**.

Table 5-16: Potential effects on terrestrial macro-invertebrates identified as IEFs and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Habitat Loss/Alteration	Negative	Not significant	Localised	Temporary	Direct and Indirect
Disturbance/Displacement	Negative	Not significant	Localised	Temporary to Short-term	Direct and Indirect

5.4.3.9 Water Quality

There are no drainage ditches or streams within the Site; therefore, the primary risk of water quality effect during the construction phase would have arisen from accidental spills or runoff reaching the adjacent shoreline of Cashla Bay. Construction activities have the potential to generate sediment-laden runoff or result in accidental releases of fuels, oils, cementitious materials, or other pollutants. These substances could be transported directly to the marine environment via surface runoff, particularly during periods of heavy rainfall. Surface water runoff and discharges from construction working areas are expected during construction, although the overall quantity

of surface runoff did not significantly change as a result of the works. Occasional and low-volume discharges could also have arisen from pumping to dewater foundation excavations, with such water discharged to the site's water management drainage system. Potential pollution sources include soil erosion and the storage and use of oil, fuel, or chemicals. Detailed proposals for managing water quality and quantity during the project are presented in rEIAR **Volume III: Appendix 2B: CEMP**.

Given the direct connection between the Site and Cashla Bay, uncontrolled runoff or spillages could have led to contamination of surface water and marine habitats. Consequently, potential effects on marine water quality resulting from construction-related runoff and accidental spillage are assessed as **Temporary to Short-term, Likely, Moderate, Negative effects**. With appropriate mitigation measures in place, these effects are expected to have been minimised.

Table 5-17: Potential effects on water quality and the significance of post-mitigated effects

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
CONSTRUCTION PHASE					
Construction Activity (run-off or ingress of silt, pollutants, nutrients etc)					
Marine water quality	Negative	Not Significant to Slight	Localised	Temporary	Direct and Indirect

5.4.4 Current Effects from Incomplete Works

The site was completely cleared of all equipment, facilities and materials when works ceased on the 20th May 2024. The site remains un-used and has been fenced off. Consequently, the site is not operational.

The flood risk to the incomplete deep water quay site is coastal, from either tide surge events in isolation or tides in combination with wave climate. Based on the results of the Flood Risk Assessment (FRA) **Volume III: Appendix 7B**, the minimum level of the deep water quay was recommended to be +6.7mCD (+3.8m OD Malin) to protect against the present day 200-year return period tidal flood level. The current level of the site is +5mCD. Consequently, the site is susceptible to occasional inundation during spring high tides and other extreme weather events. The clearing of the site has reduced the potential for any contamination of water if the vacant site were to experience a flood event in this period between previous construction works and works to be completed.

DAFM has reported that there was no damage to the incomplete harbour facilities as a result of storm Éowyn in January 2025. This was the most severe known storm to have hit the west coast of Ireland in living memory. Subsequent bathymetric surveys of the site have confirmed the lack of damage. The location of the harbour deep within a sheltered inlet north of the main Galway Bay provides considerable protection to the development site.

Overall, the effects on sea water quality that may occur prior to the remaining works for the Deep Water Quay being undertaken are considered to be **slight, regional, short-term and reversible**.

Table 5-18: Rating of Post-Mitigation Operational Effects from Surface Runoff

Impact	Quality of Effect	Post-Mitigation Significance	Spatial Extent	Duration	Other Relevant Criteria
Surface Runoff	Negative	Slight	Regional	Short-term	Reversible

5.5 Residual Effects

Residual effects are effects that remain, once mitigation has been implemented or, effects that cannot be mitigated. Given that the ecological mitigation measures outlined in **Section 5.4.2** were implemented in full, it is considered that the effects on IEFs from the development works were avoided, reduced and mitigated sufficiently to ensure that no likely significant residual effects occurred. It is considered that the receiving environment within the Development site had the capacity to accommodate the Development without significant effects on habitats and faunal features discussed in this chapter. There is no need for any remedial mitigation measures. A summary of the unmitigated effects of the development works, including mitigation and residual effects, of the Development are detailed in **Table 5-19**.

Table 5-19: Residual Effects for rEIAR

Impact/Activity/Receptor	Quality Of Effect	Post Mitigation Significance Rating	Remedial Mitigation Measures	Residual Significance Rating
CONSTRUCTION EFFECTS				
Noise				
Disturbance and/or displacement				
Otter (<i>Lutra lutra</i>)	Negative	Not significant to slight	None	Not significant to slight
Hedgehog (<i>Erinaceus europaeus</i>)	Negative	Not significant to slight	None	Not significant to slight
Badger (<i>Meles meles</i>)	Negative	Not significant to slight	None	Not significant to slight
Pygmy Shrew (<i>Sorex minutus</i>)	Negative	Not significant to slight	None	Not significant to slight
Irish hare (<i>Lepus timidus hibernicus</i>)	Negative	Not significant to slight	None	Not significant to slight
Bats	Negative	Not significant to slight	None	Not significant to slight
Waders	Negative	Not significant to slight	None	Not significant to slight
Gulls	Negative	Not significant to slight	None	Not significant to slight
Other corvids & Passerines	Negative	Not significant to slight	None	Not significant to slight
Seabirds	Negative	Not significant to slight	None	Not significant to slight
Waterbirds (Ducks, Geese & Other Waterbird species)	Negative	Not significant to slight	None	Not significant to slight
Habitat Destruction Habitat Loss				
Dry-Humid Acid Grassland (GS3)	Negative	Not significant to slight	None	Not significant to slight
Scrub (WS1)	Negative	Not significant	None	Not significant
Coastal Lagoon (Priority Annex I Habitat [1150])	Negative	Not significant	None	Not significant
Siliceous Dry Heath	Negative	Not significant	None	Not significant
Habitat Destruction				
Habitat Alteration/Disturbance				
Dry-Humid Acid Grassland (GS3)	Negative	Not Significant to Slight	None	Not Significant to Slight
Scrub (WS1)	Negative	Not significant	None	Not Significant
Coastal Lagoon (Priority Annex I Habitat [1150])	Negative	Not significant	None	Not Significant
Siliceous Dry Heath	Negative	Not significant	None	Not Significant
Pollution				

Impact/Activity/Receptor	Quality Of Effect	Post Mitigation Significance Rating	Remedial Mitigation Measures	Residual Significance Rating
Habitat Alteration/Disturbance				
Dry-Humid Acid Grassland (GS3)	Negative	Slight	None	Slight
Scrub (WS1)	Negative	Slight	None	Slight
Coastal Lagoon (Priority Annex I Habitat [1150])	Negative	Not significant	None	Not Significant to Slight
Siliceous Dry Heath	Negative	Not significant	None	Not Significant to Slight
Fauna	Negative	Not significant	None	Not Significant to Slight
Non-native Invasive Species				
Habitat Alteration/Disturbance				
Habitats	Negative	Not Significant to Slight	None	Not Significant to Slight
Fauna	Negative	Not Significant to Slight	None	Not Significant to Slight
Mammals (excluding Bats)				
Habitat Loss				
Hedgehog	Negative	Not Significant	None	Not Significant
Badger	Negative	Not Significant	None	Not Significant
Pygmy Shrew	Negative	Not Significant	None	Not Significant
Irish Hare	Negative	Not Significant	None	Not Significant
Otter	Negative	Not Significant	None	Not Significant
Mammals (excluding Bats)				
Disturbance/Displacement				
Hedgehog	Negative	Slight	None	Slight
Badger	Negative	Slight	None	Slight
Pygmy Shrew	Negative	Slight	None	Slight
Irish Hare	Negative	Slight	None	Slight
Otter	Negative	Slight	None	Slight
Birds				
Loss of Foraging/Resting Habitat				
Waders found to be associated with the Site	Negative	Not Significant	None	Not Significant
Gulls	Negative	Not Significant	None	Not Significant
Other Corvids and Passerines	Negative	Not Significant	None	Not Significant
Seabirds	Negative	Not Significant	None	Not Significant
Waterbirds (Ducks, Geese and Other Waterbirds)	Negative	Not Significant	None	Not Significant
Birds				
Loss of Breeding Habitat				
Other Corvids and Passerines	Negative	Not Significant to Slight	None	Not Significant to Slight
Birds				
Disturbance/Displacement (noise/human activity/water quality)				
Waders found to be associated with the Site	Negative	Slight	None	Slight
Gulls	Negative	Not Significant to Slight	None	Not Significant to Slight
Other Corvids and Passerines	Negative	Not Significant	None	Not Significant
Seabirds	Negative	Not Significant to Slight	None	Not Significant to Slight
Waterbirds (Ducks, Geese and Other Waterbirds)	Negative	Not Significant to Slight	None	Not Significant to Slight
Reptiles and Amphibians				
Habitat Loss/Alteration				

Impact/Activity/Receptor	Quality Of Effect	Post Mitigation Significance Rating	Remedial Mitigation Measures	Residual Significance Rating
Common frog	Negative	Not Significant to Slight	None	Not Significant to Slight
Smooth newt	Negative	Not Significant to Slight	None	Not Significant to Slight
Common lizard	Negative	Not Significant	None	Not Significant
Reptiles and Amphibians				
Disturbance/Displacement (noise/human activity)				
Common frog	Negative	Not Significant to Slight	None	Not Significant to Slight
Smooth newt	Negative	Not Significant	None	Not Significant
Common lizard	Negative	Not Significant	None	Not Significant
Disturbance/Displacement (water quality)				
Common frog	Negative	Not Significant to Slight	None	Not Significant
Smooth newt	Negative	Not Significant to Slight	None	Not Significant
Terrestrial Macro-Invertebrates				
Habitat Loss/Alteration	Negative	Not Significant	None	Not Significant
Disturbance/Displacement	Negative	Not Significant	None	Not Significant
Water Quality				
Construction Activity (run-off or ingress of silt pollutants, nutrients etc.)				
Marine water quality	Negative	Not Significant to Slight	None	Not Significant to Slight
Operational Phase				
Surface Runoff	Negative	Slight	None	Slight

5.6 Cumulative Effects

As well as singular effects, the potential for cumulative effects also needs to be considered. A cumulative effect arises from incremental changes caused by other past, present, or reasonably foreseeable activities interacting synergistically with the impacts generated by the Development in a manner that has the potential to cause effects on the receiving environment. According to EPA (2022), cumulative effects can be described as ‘the addition of many minor or insignificant effects, including effects of other projects, to create larger, more significant effects’.

The plans, projects activities and pressures identified as plausible sources of impacts to be assessed for their potential to generate cumulative effects are discussed in **Sections 5.6.1.1 to 5.6.1.4**.

5.6.1.1 Plans

With regards to the potential for in-combination effects, the Galway County Development Plan (CDP) (2022 – 2028)²⁸ was reviewed. This plan came into effect on the 20th June 2022 and covered the overall period during which both the authorised and unauthorised works took place.

A review of the Galway CDP (2022-2028) determined that the harbour at Ros an Mhíl ‘is the largest and busiest port in County Galway with a number of key functions that are pivotal to the success of the marine sector’. Also within the CDP, the importance of the continued development of County Galway’s Marine and Coastal Economy is highlighted with specific reference to the expansion of Ros an Mhíl as a port of significance and to ensure its development potential is fully realised in accordance with environmental considerations.’

²⁸ [Galway County Council](#) Accessed: 24th May 2025

5.6.1.2 Permitted and Developments in the Locality

A search of the Galway County Council (GCC) online planning enquiry system²⁹ for granted or on-going planning applications for the townland of Rossaveel (Ros an Mhíl and Rossaveel were also used as search terms) was undertaken in October 2025 to identify other developments in the locality which may have had the potential to interact with the development works. On a precautionary basis, the search period used to inform this desktop exercise was 11th July 2018 (to account for five years prior to the start date of the unauthorised development works) to present day.

In relation to the townland of Rossaveel (Ros an Mhíl and Rossaveel), the on-line search yielded a substantial number of previously permitted and outstanding development applications. The vast majority of these pertained/pertain to construction/renovation/modification of private dwellings. A minor number of granted/outstanding permissions pertain to construction/modification of agricultural buildings (refer to **Volume II Chapter 1** Introduction of the rEIAR). There were also several previously permitted applications for other minor works near the development site such as the Small Craft Harbour and refurbishment of an existing slipway.

5.6.1.3 EPA Licenced/Registered Facilities

A review of the EPA mapping tool determined that there is one EPA licensed facility within the immediate vicinity of the development, namely Ros an Mhíl Harbour Development (Waste Licence No. W0172-01) located within the footprint of the DWQ. There are no IPPC, IPC or IEL³⁰ actively licensed facilities within the surrounding areas of the subject site – the nearest is Galoptical Teo (IEL Licence No. P0210-01) located in Cashla almost three kilometres north of the development site.

Other EPA licenced facilities comprise Carraroe³¹ Urban Wastewater Treatment (UWWT) plant located across the bay at Sruthán Pier approximately one kilometre northwest of the development site. This wastewater treatment system discharges untreated wastewater to Cashla Bay and the building of a new treatment plant is considered by the EPA to be a priority action³². Uisce Éireann is proposing to construct a new Carraroe wastewater treatment plant but has been unable to acquire all of the required lands on a voluntary basis and is, therefore, endeavouring to purchase the required lands by way of a Compulsory Purchase Order (CPO)³³.

5.6.1.4 Existing Land-use and On-going Activities

Existing land-use within the immediate vicinity of the development site is concerned mainly with fishing-related activities and services, and recreational/touristic activities.

The existing Pier 1 and Pier 2 immediately northeast of the development site hosts a variety of business and services including the harbourmaster offices, a boat rental company, a company chartering fishing trips, and the Aran Island Ferries Terminal and ticket office. The ferry service operates year-round sailing from Ros an Mhíl to the Aran Islands and is incredibly popular with national and international visitors alike.

Vehicular parking areas are located opposite the southern ends of Piers 1 and 2 while the Irish Coast Guard building with helipad lies south of Pier 1. North east of the ferry pontoons there is the Ros an Mhíl Small Craft

²⁹[Select Search Type \(eplanning.ie\)](#) Accessed: 14th March 2024

³⁰ Integrated Pollution Control (IPC) Licence (formerly IPPC Licence), and Industrial Emissions Licence (IEL)

³¹ Active License Number: D0388-01

³² [Priority-areas-for-website-April-2025.pdf](#) Accessed: 30th May 2025

³³ [Carraroe Sewerage Scheme | Projects | Uisce Éireann \(formerly Irish Water\)](#) Accessed: 30th May 2025

Harbour which caters for small, open deck vessels on its pier and berths with an associated two-storey Amenity Building providing welfare facilities and administrative offices. On-going activities associated with these facilities comprise typical boating and other operational activities associated with marinas, boatyards, piers, quays and water-based recreational activities.

The fish processing plant Iasc Mara Teoranta lies immediately southeast of the Small Craft Harbour while adjacent to the plant, the Galway and Aran Fisherman's Co-op operates a Fishery Harbour Centre with a fully automatic ice plant, administrative offices, chill rooms and auction hall from where the majority of catch is sold (mainly whitefish and shellfish)³⁴.

The small settlement of Ros an Mhíl to the northeast of the development site is characterised generally by one-off private dwellings and holiday homes, schools, bars, and small retail outlets in conjunction with the high recreational and amenity land-use associated with Cashla Bay and the surrounding shoreline. Within the wider area, other recreational, tourism and cultural offerings include accommodation, various marinas and quays, RTÉ Radió na Gaeltachta studios, art galleries, and private marinas/harbours present along the shorelines of Cashla Bay and the North Atlantic Ocean.

5.6.1.5 Potential for Significant In-combination Effects

With regard to potential cumulative effects arising from habitat loss and alteration, increased lighting, increased noise and human activity and water quality, these aspects of the development have been discussed in detail in relation to permitted and developments in the locality in **Section 5.6.1.2**. In the context of the existing land-use and on-going activities in the locality, significant cumulative habitat or species effects from the development works completed are not evident or expected.

With regard to water quality effects during construction, it is noted that there are no watercourses located within the Site and significant cumulative water quality effects on existing drainage features were not predicted. No significant cumulative water quality effects were envisaged as a result of potential interaction between the development works and existing land-use and on-going activities in the locality.

In conclusion, significant cumulative or in-combination effects as a result of interaction between any aspect of the development works and other plans, permitted developments, EPA licenced facilities or other existing land-uses and on-going activities were not predicted (see **Table 5-20**).

Table 5-20: Characterisation of Cumulative Effects (pre-mitigation) for Development

Other Activities	Characterisation of Effect			Confidence level
	Quality	Significance	Duration	
Plans	Neutral	Imperceptible	Long-term	Near certain
Permitted and Development	Neutral	Slight to Moderate	Long-term	Near certain
EPA licenced facilities	Neutral	Imperceptible	Long-term	Near certain

5.7 Conclusion

As the Development was constructed in accordance with the design, best practice and mitigation measures stipulated, no significant residual effects on biodiversity are evident or expected on any Important Ecological Feature (IEF) at any scale. The application of mitigation and protection measures during the development work

³⁴ [Fishery Harbour Centres](#) Accessed: 31st May 2025

and the clearing of the site after cessation of the works ensured that no significant residual effects occurred from the development works, either alone or in combination with other plans or projects. There is consequently no requirement for any remedial mitigation measures.

5.8 References

Chartered Institute of Ecology and Environmental Management (CIEEM) (2018). *Guidelines for Ecological Impact Assessment in the UK and Ireland. Terrestrial, Freshwater, Coastal and Marine*. Institute of Ecology and Environmental Management, Winchester.

National Roads Authority (NRA) (2009). *Ecological Surveying Techniques for Protected Flora and Fauna during the Planning of National Road Schemes*. National Roads Authority, Parkgate Street, Dublin 8.