MKO Planning and Environmental Consultants

Natura Impact Statement

Proposed Strategic Housing Development, Bóthar na Chóiste, Castlegar, Co. Galway

DOCUMENT DETAILS

Client:	**Tom Broderick**
Project Title:	**Proposed Strategic Housing Development, Bóthar na Chóiste, Castlegar, Co. Galway**
Project Number:	**180747**
Document Title:	**Natura Impact Statement**
Document File Name:	**NIS – F – 2022.07.22 – 180747**
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Rev	Status	Date	Author(s)	Approved By
01	Final	22.07.2022	JOS/CM	IR

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1. INTRODUCTION

1.1 Background

McCarthy Keville O'Sullivan Ltd. (MKO) has been appointed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Appropriate Assessment of a proposed strategic housing development located at Bóthar na Chóiste, Castlegar, Co. Galway.

An Appropriate Assessment Screening Report has been prepared and is provided in Appendix 1. This Article 6(3) Appropriate Assessment Screening Report has identified the European Sites upon which the proposed development has the potential to result in significant effects and the pathways by which those effects may occur. It has also identified those qualifying interests/special conservation interests that have the potential to be affected by the proposed development.

This report has been prepared in accordance with the European Commission guidance document Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2021), European Communities (2018) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission and the Department of the Environment's Guidance on the Appropriate Assessment of Plans and Projects in Ireland (December 2009, amended February 2010).

In addition to the guidelines referenced above, the following relevant guidance was considered in preparation of this report:

1. *European Communities (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,*
2. *Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg. European Commission,*
3. *EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence, opinion of the commission. European Commission.*

1.2 Statement of Authority

A field assessment was undertaken by Julie O'Sullivan (B.Sc., M.Sc.) on the 5th of March 2021, with a follow up bird surveys on the 30th of March 2021, 24th of November 2021, 15th of March 2022 and the 29th of March 2022. This report has been prepared by Julie O'Sullivan (B.Sc., M.Sc.) and Colin Murphy (B.Sc., M.Sc.). Julie is an experienced ecologist with over five years professional experience in ecological consultancy. Colin is an experienced ecologist with over two years' experience. The report has been reviewed by Inga Reich (Honours degree Biology, Ph.D. Applied Ecology). Inga has over 5 years' postdoctoral experience in Ecology.

2. CONCLUSIONS OF ARTICLE 6(3) APPROPRIATE ASSESSMENT SCREENING REPORT

The Article 6(3) Appropriate Assessment Screening report, that is provided as Appendix 1 to this NIS, identified the potential for the proposed development to result in significant effects on the following European Sites:

- Galway Bay Complex SAC
- Lough Corrib SAC
- Inner Galway Bay SPA
- Lough Corrib SPA

Each of these sites is discussed individually below in terms of the Qualifying Interests/Special Conservation Interests with the potential to be affected and the pathways by which any such effects may occur.

2.1 Galway Bay Complex SAC

The individual pathways for effect that were identified in Table 3.1 of the AA Screening Report (Appendix 1) and the QIs with the potential to be affected are described below.

The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SAC. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase also has the potential will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary, basis the following aquatic QI habitats and supporting habitat for aquatic QI species may be impacted:

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Coastal lagoons [1150]
- Large shallow inlets and bays [1160]
- Reefs [1170]
- *Salicornia* and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Turloughs [3180]
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]
- Alkaline fens [7230]
- *Lutra lutra* (Otter) [1355]
- *Phoca vitulina* (Harbour Seal) [1365]

2.2 Lough Corrib SAC

The individual pathways for effect that were identified in Table 3.1 of the AA Screening Report (Appendix 1) and the QIs with the potential to be affected are described below.

The proposed development site lies within the same groundwater catchment as this SAC (Clare-Corrib groundwater catchment). Although no watercourses were identified on-site, the construction phase of

the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase also has the potential will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis the following groundwater dependent terrestrial ecosystems and aquatic QI habitats and species may be impacted:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]
- Hard oligo-mesotrophic waters with benthic vegetation of Chara *spp.* [3140]
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]
- Alkaline fens [7230]
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
- *Lutra lutra* (Otter) [1355]
- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Salmo salar* (Salmon) [1106]

2.3 Inner Galway Bay SPA

The individual pathways for effect that were identified in Table 3.1 of the AA Screening Report (Appendix 1) and the SCIs with the potential to be affected are described below.

The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SPA. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase also has the potential will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary, basis the SCI habitats 'wetlands' may be impacted. Potential effects on all SCI species are considered under Wetland and waterbirds [A999].

Ballindooley Lough lies 400m north-east of the proposed development site and this lake and its surrounding wetland habitats may support some wintering bird species listed as Special Conservation Interests (SCIs) of Inner Galway Bay SPA (which may be linked to the SPA populations).

Three SCI species of Inner Galway Bay SPA, teal, grey heron and wigeon, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. On an extremely precautionary basis the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species, which could potentially use Ballindooley Lough:

- Grey Heron (*Ardea cinerea*) [A028]
- Wigeon (*Anas penelope*) [A050]
- Teal (*Anas crecca*) [A052]
- Redshank (*Tringa totanus*) [A162]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Lapwing (*Vanellus vanellus*) [A142]
- Curlew (*Numenius arquata*) [A160]

- Common Gull (*Larus canus*) [A182]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Black headed gull (*Chroicocephalus ridibundus*) [A179]
- Golden Plover (*Pluvialis apricaria*) [A140]

2.4 Lough Corrib SPA

The individual pathways for effect that were identified in Table 3.1 of the AA Screening Report (Appendix 1) and the SCIs with the potential to be affected are described below.

The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SPA. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase also has the potential will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary, basis the SCI habitats 'wetlands' may be impacted. Potential effects on all SCI species are considered under Wetland and waterbirds [A999].

Ballindooley Lough lies 400m north-east of the proposed development site and this lake and its surrounding wetland habitats may support some wintering bird species listed as Special Conservation Interests (SCIs) of Lough Corrib SPA (which may be linked to the SPA populations).

Three SCI species of Lough Corrib SPA, tufted duck, shoveler and coot, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. On an extremely precautionary basis the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species, which could potentially use Ballindooley Lough:

- Tufted Duck (*Aythya fuligula*)
- Coot (*Fulica atra*)
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]
- Gadwall (*Anas strepera*)
- Shoveler (*Anas clypeata*)
- Pochard (*Aythya ferina*)
- Golden Plover (*Pluvialis apricaria*)
- Greenland White-fronted Goose (*Anser albifrons flavirostris*)

3. DESCRIPTION OF PROPOSED DEVELOPMENT

3.1 Site Location

The proposed development site is located to the north of Bóthar na Chóiste within the townland of Castlegar, Co. Galway, approximately 2.8km north-east of Galway City (Grid reference: M 31488 28212). The subject lands extend overall to 4.286 ha in size. This includes the Bóthar Na Chóiste road for which road improvements are included in the proposed scheme.

The N84 Galway-Headford Road is situated approximately 600 metres to the west of the proposed development site. The proposed N6 Galway City Ring Road development boundary is located immediately north of the subject lands.

The site location is shown in Figure 3.1.

3.2 Characteristics of the Proposed Development

Planning permission is sought by Lock House Developments Limited (the applicant) for development on a site which extends to 4.626ha on lands located to the north of Bóthar Na Chóiste, in the townland of Castlegar, Galway.

The development will consist of the following:

1) Demolition of an existing house (124.6 m²), a ruined outbuilding (42.8 m²), and a ruined dwelling (41.7 m²)

2) Construction of 170 no. residential units comprising:

- 84 no. two storey houses (34 no. two-beds, 42 no. three-beds, 8 no. four-beds),
- 1 no. apartment block comprising 17 no. apartments (10 no. one-beds, 7 no. two-beds),
- 1 no. apartment block comprising 21 no. apartments (12 no. one-beds, 9 no. two-beds),
- 48 no. duplex units (11 no. one-beds, 24 no. two-beds, 13 no. three-beds).

3) Development of a two-storey creche facility with 46 no. child spaces (c. 300.36 sqm), associated outdoor play areas and parking.

4) Provision of all associated surface water and foul drainage services and connections including pumping station with all associated site works and ancillary services.

5) The upgrade of the existing Bothar an Chóiste road from the proposed development to the junction at L5041 consisting of road improvements, road widening and junction re-alignment.

6) Pedestrian, cyclist, and vehicular links throughout the development and access with Bóthar Na Chóiste, and pedestrian and cyclist link to the adjacent Greenway route.

7) Provision of shared communal and private open space, site landscaping and public lighting, resident and visitor parking including electric vehicle charging points, bicycle parking spaces, and all associated site development works.

3.2.1 Site Drainage

3.2.1.1 Foul water drainage

Details of the Foul Sewer are shown on Drawing No. 10750-2003 & 2004 of the Civil works report accompanying this application (Tobins, 2022). The foul water from the proposed development will discharge to the existing wastewater network.

It is proposed to discharge via gravity to a pumping station that will located in the southern area of the residential section of the site and then discharge via rising main to a proposed gravity sewer along Bóthar na Chóiste with header manholes starting 250m west of the proposed site entrance. The proposed gravity element of the network will tie in the existing 225mm diameter foul network located within the unnamed road to the south-west of the residential element of the site. This ultimately discharges to the Terryland and River Valley wastewater pumping station.

The pumping station will be designed in accordance with the requirements set out in the Irish Water specification for wastewater systems IW-CDS-5030-03. The pumping station will be 15m from the boundary of the nearest dwelling.

The pumping station will be designed to cater for 24 hr storage for the total number of properties in accordance with Irish Water requirements. The pumping station storage has been designed to cater for the 170 no. properties located within the proposed site and for an additional 100 no. units in the zoned residential area directly to the west of the proposed development should this area ever be developed in the future.

All sewers have been designed so that the velocities achieved fall within the limits of 0.75 and 3m/sec as set out in Irish Water Code of Practice for Wastewater Infrastructure and "Recommendations for Site Development Works" as published by the Department of Environment.

The drainage system has been designed in accordance with the Recommendations for Site Development Works as published by the Department of the Environment and Local Government and to Irish Water Code of Practice and Standard Details and also complies with Irish Water Wastewater Infrastructure – Code of Practice and Standard Details.

A pre-connection enquiry form was submitted to Irish Water outlining the proposed loadings from this development and the proposed tie-in location. Irish Water have confirmed that connection to Terryland River Waste water Treatment plant is feasible via a letter dated 10.12.2021 *(Customer Ref No: CDS21007628)*. The confirmation feasibility letter is available in Appendix 2 of the Appropriate Assessment Screening Report.

3.2.1.2 Surface Water Drainage

There is currently no existing storm drainage in the vicinity of the site which will be suitable for serving the proposed development. As a result, all surface water run-off from the site and the northern section of the upgrade road works will need to be discharged to ground water. There is an existing 400mm storm sewer on the L5041 local road. This existing storm sewer will cater for the catchment area of the southern section of the Bothar an Choiste road upgrade works.

The storm water drainage design has been designed to cater for all surface water runoff from all hard surfaces in the proposed development including roadways, roofs etc. The proposed residential development and road upgrade works have been divided into 6 No. catchment areas. 5 of the catchment areas will discharge to soakaways and percolate to the ground. Each soakaway has been strategically located to cater best for the associated catchment area. Due to the topography of the site a 6th catchment area, catering for the southern section of the road upgrade works, will discharge via gravity to the existing storm sewer as noted.

Precast concrete gullies including lockable cast iron grating and frame connected to a piped system will be provided to collect run-off from these areas. The proposed pipe diameter will range between 100 and a maximum of 300mm and will be laid at gradients varying between 1/35 and 1/300.

The storm drainage for the entire development has been designed using the Innovyze MicroDrainage Design Software in accordance with the Recommendations for Site Development Works for Housing Areas and also the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS).

3.2.1.2.1 *Sustainable Urban Drainage Measures*

The existing site primarily consist of greenfield with no existing drainage or SuDS measures in place. In order to maintain surface water runoff from the site to those of the current state, the surface water drainage for the proposed development will be designed in accordance with the principles of Sustainable Urban Drainage Systems (SuDS) as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of the greenfield site. SUDs measures incorporated into the design of the project include, Petrol interceptors and soakaways.

Petrol interceptors

It is proposed to install a Class 1 Bypass Petrol Interceptor upstream of the connection into each of the proposed soakaways. The reasoning for this is that the storm water entering the system will include run-off from the roadways and parking areas throughout the site and therefore may have hydrocarbons within their flow. These hydrocarbon pollutants require removal and are not to be discharged back into the environment. The separator has been sized to cater for roads, footways and driveway areas of the site.

Soakaways

Roof run-off impermeable areas will discharge to 5 No soakaways on the site. The soakaways are designed to hold water for the largest storage required over a 48-hour storm period with rainfall depths taken for the 100-year return period + 20% for climate change for sliding durations obtained from Met Eireann. The stormwater discharges to groundwater. The stone soakaway is constructed on top of clean stone base which extends to formation level or existing site levels. These stone beds allow for more capacity and an extra factor of safety.

3.2.2 Water Supply

The water supply services have been designed to take account of the requirements of the Civil Engineering Specification for the Water Industry (CESWI), subject to the particular requirements applied to it by Irish Water, as outlined in the Irish Water Code of Practice for Water Infrastructure. Other design guidelines adhered to include the Department of Environment “Recommendations for Site Development Works for Housing Areas”, 1998.

The water supply required for the proposed development shall be via a 150mm diameter watermain as per Irish Water requirements. It is proposed to connect to the existing 200mm diameter uPVC watermain located in the main junction south-west of the residential element of the development as shown on Drawing no. 10750-2002 of the civil works report accompanying this application (Tobins, 2022).

The watermain arrangement is shown on drawing No. 10750-2001 and 10750-2002. It is proposed to serve to site using a 150mm diameter ‘spine’ watermain down to the main junction in the proposed

development. All other branch mains from the 150mm will be 100mm PE. In accordance with Local authority standards, a water meter and Logging Device (Larson Type) are proposed at the connection into the proposed site. A sluice valve, strainer and 1500mm Ø by-pass arrangement is also proposed to allow for possible disconnection of water meters by the Local Authority.

A pre-connection enquiry has been submitted to Irish Water on the feasibility of connecting to the water mains. Irish Water confirms feasibility via a letter dated 10.12.2021 *(Customer Ref No: CDS21007628)*. The confirmation feasibility letter is available in Appendix 2 of the Appropriate Assessment Screening Report.

3.2.3 Landscape plan

The landscape design for the proposed residential development at Bóthar na Chóiste provides a high quality and visually attractive landscape setting for the benefit of future residents. The existing site is currently pasture land devoid of trees and offers very limited ecological value–a core element of the landscape scheme is the introduction a wide diversity of tree and shrub species, hedgerows and grasslands, with a focus on the use of native and pollinator friendly species to promote biodiversity and ecological value. A hierarchy of street tree and native tree planting will provide both visual structure and ecological value.

Linear parkland/greenway

Galway City Development Plan identifies an objective to develop a greenway along the western side of the site. The proposed landscape scheme incorporates a pedestrian linkage through a naturalistic liner parkland that runs the length of the site's western boundary– effectively implementing the first stage of such a greenway. The parkland incorporates a mix of native hedgerow and tree planting as well as mown amenity grass, creating a functional parkland of ecological and aesthetic value that provides permeability and a strategic linkage to the scheme and surrounding environment.

Communal garden space

This space will provide a high-quality sheltered garden space for residents to enjoy. The provision of hard surfaces circulation and intermittent seating areas facilitates social interaction. Native fruiting and pollinator friendly trees and shrubs will promote biodiversity and provide suitable feeding and nesting habitat for local species.

Treeline and hedgerow planting

Larger native or naturalised structure trees such as Oak, Beech and Alder will be selected where space allows such as parkland area and within native hedgerows to promote a bio-diverse setting into the future. These trees will add scale and structure to the landscape over a long period of time as well as important ecological benefit by creating nesting and foraging habitat.

The landscaping plan is available in appendix 2 of this report.

Map Legend

Site boundary

Drawing Title

Site Location

Project Title

Proposed Strategic Housing Development-Bothar na Choiste

Drawn By	Checked By
CM	IR
Project No.	Drawing No.
180747	Figure 3.1
Scale	Date
1:61,200	06.12.21

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4. CHARACTERISTICS OF THE RECEIVING ENVIRONMENT

The ecological surveys that were undertaken to inform this NIS are fully described in this section. A general description of the ecology of the site of the proposed development is provided in the AA Screening Report in Appendix 1. The specific surveys that were undertaken to assess the potential effects on the identified European Sites are described below.

4.1 Ecological Survey Methodologies

4.1.1 Desk study

The desk study undertaken for this assessment included a thorough review of the available ecological data associated with the study area of the proposed development. Sources of data included the following:

- Review of NPWS Conservation Objectives supporting documents, site synopsis, standard data forms and supporting documents for EU Designated Sites,
- Review of online web-mappers: National Parks and Wildlife Service (NPWS), Environmental Protection Agency (EPA),
- Review of NPWS records (data request)
- Review of the publicly available National Biodiversity Data Centre (NBDC) web-mapper,
- Review of NPWS Article 17 metadata and GIS database.
- Galway City Transport Project maps and ecological survey reports (available at http://www.n6galwaycity.ie)
- Review of Birdwatch Ireland IweBS data.

4.1.2 Ecological Multidisciplinary Walkover Surveys

Multi-disciplinary ecological walkover surveys were undertaken in accordance with NRA Guidelines on Ecological Surveying Techniques for Protected Flora and Fauna on National Road Schemes (NRA, 2009). This survey provided baseline data on the ecology of the study area and assessed whether further more detailed habitat or species specific ecological surveys were required. The multi-disciplinary ecological walkover survey comprehensively covered the entire study area.

Habitats were classified in accordance with the Heritage Council's 'Guide to Habitats in Ireland' (Fossitt, 2000). Habitat mapping was undertaken with regard to guidance set out in 'Best Practice Guidance for Habitat Survey and Mapping' (Smith et al., 2011).

Plant nomenclature for vascular plants follows 'New Flora of the British Isles' (Stace, 2010), while mosses and liverworts nomenclature follows 'Mosses and Liverworts of Britain and Ireland – a field guide' (British Bryological Society, 2010).

The walkover surveys were designed to detect the presence, or suitable habitat for a range of protected faunal species that are may occur in the vicinity of the proposed development.

During the multidisciplinary surveys, a search for Invasive Alien Species (IAS), with a focus on those listed under the Third Schedule of the European Communities Regulations 2011 (S.I. 477 of 2011), was also conducted.

The walkover survey was undertaken on the 5th of March 2021, with a follow up surveys on the 30th of March 2021, 24th of November 2021, 15th of March 2022 and the 29th of March 2022. Although the survey timing does not fall within the recognised optimum period for vegetation surveys/habitat

mapping, i.e. April to September (Smith et al., 2011), all habitats were readily identifiable at the time of the survey.

4.1.3 Faunal Surveys

There are no watercourses or drainage ditches within the proposed development site and the site offers no suitable habitat for otter or any other QI species of Galway Bay Complex SAC and Lough Corrib SAC, therefore dedicated surveys for these QI species were not carried out. No other protected faunal species or signs thereof were recorded.

4.1.3.1 Bird survey

Wintering bird surveys were carried out during the initial multidisciplinary walkover survey on the 5th of March 2021 with a follow up dedicated bird surveys on the 30th of March 2021, 24th of November 2021, 15th of March 2022 and the 29th of March 2022.

The winter bird surveys followed the Irish Wetland Bird Survey (I-WeBS) methodology; the simple 'look-see' method, whereby all birds present within a predefined area are counted (Gilbert et al., 2011; Birdwatch Ireland, 2018). The proposed development site was scanned from suitable vantage points that gave unobstructed views of potentially suitable habitat and roosting locations for wintering waterfowl and waders within the study area in advance of walkover surveys.

The surveys were carried out at suitable vantage points overlooking the proposed development site and Ballindooley Lough which lies 400m north-west (and down gradient) of the proposed development site boundary, and its surrounding wetland habitats. The wetland habitats surrounding the lake flood in winter and extent to 150m north of the site boundary. Walked transects were then undertaken within the site boundary.

All observations were recorded, and detailed point data was gathered for each species observation, with all bird species denoted using standard British Trust for Ornithology (BTO) codes and with the number of each species recorded next to each registration. The species recorded in the surveys were those covered by Irish Wetlands Bird Survey (I-WeBS) counts, i.e. all divers, grebes, cormorant, shag, herons, swans, geese, ducks, rails, crakes, waders, gulls and kingfisher. However, in addition to this, all other bird species, including all common and widespread passerines, were also recorded from within the proposed development site. Details of the surveys including survey dates and weather conditions are provided in Table 4-1.

Table 4-1 Bird survey details

Date	Weather conditions
05/03/2021	Wind speed: Light breeze Cloud cover: 66-100% Visibility: Good (> 2km) Rain: No Frost: None Snow: None
30/03/2021	Wind speed: Calm Cloud cover: 66-100% Visibility: Good (> 2km) Rain: None Frost: None Snow: None
24/11/2021	Wind speed: Light breeze Cloud cover: 100% Visibility: Good (> 2km) Rain: Yes Frost: None Snow: None

15/03/2022	Wind speed: Breezy Cloud cover: 50% Visibility: Good(>2km) Rain: Yes Frost: None Snow: none
29/03/2022	Wind speed: Breezy Cloud cover: 50% Visibility: Good(>2km) Rain: Yes Frost: None Snow: None

5. DESK STUDY RESULTS

5.1.1 EPA River Catchments & Watercourses

The EPA web-mapper (https://gis.epa.ie/EPAMaps/) was consulted on the 14th of April 2021 regarding the water quality and status of waterbodies that are located downstream of the site of the proposed development. Figure 5.1 and Figure 5.2 illustrate the proposed development site in relation to the hydrological catchment and designated sites.

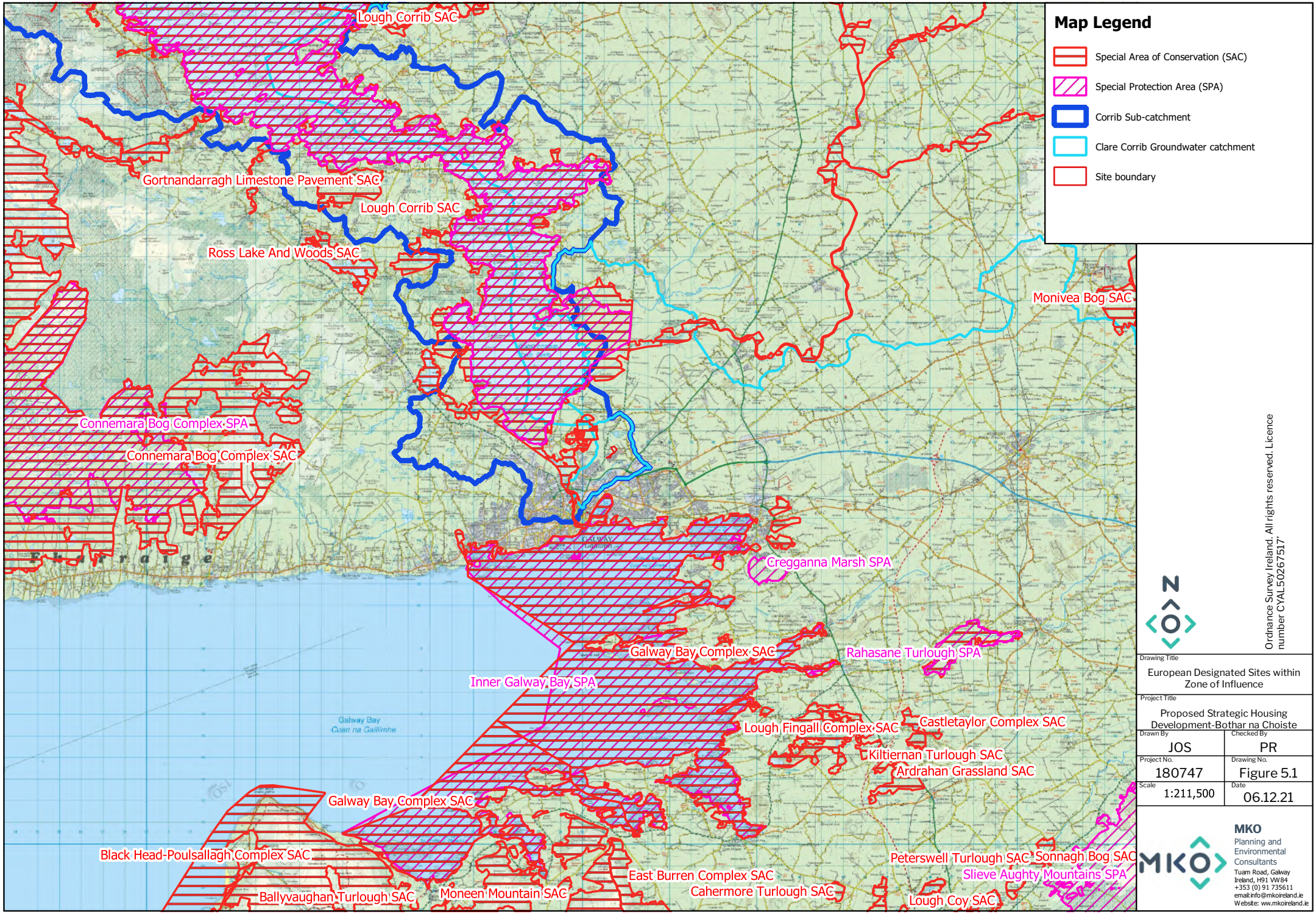
There are no drainage ditches or mapped EPA watercourses within or near the proposed development site. The site is located within the Corrib sub-catchment. The EPA web-mapper (https://gis.epa.ie/EPAMaps/) was consulted regarding the water quality and status of the nearby Lough Corrib (Corrib Lower IE_WE_30_666a). Lough Corrib was assigned 'good' status in the Water Framework Directive monitoring program for the period 2013-2018. Lough Corrib was assessed as 'not at risk' and therefore meets its Water Framework Directive objectives.

The site is located in the Clare Corrib groundwater catchment. The Water Framework Directive (WFD) Groundwater Monitoring Programme (2013-2018) assigned this groundwater catchments as having 'good' status.

Ballindooley Lough lies 400m north-west of the proposed development site. This lake is contained within the Lower Corrib catchment and within hydrometric area 30.

Ballindooley Lough was surveyed as part of the fisheries assessment surveys carried out for the N6 Galway City ring road (Triturus Ecology, 2018). This lough was identified as a valley fen lake and is alkaline in nature, reflected by the macrophyte plant communities present that included common club rush (*Schoenoplectus lacustris*), *Chara* species and alkaline fen vegetation surrounding the lough. the survey noted that Ballindooley lough has expansive beds of *Chara* spp. and *Utricularia* sp. vegetation. The survey noted that Ballindooley Lough is an isolated valley basin lake and not connected to a major river system.

Figure 5.1 provides a map of the proposed development site in relation to the hydrological catchments and European Sites.



Drawing Title
European Designated Sites within Zone of Influence

Project Title
Proposed Strategic Housing Development-Bothar na Choiste

Drawn By	Checked By
JOS	PR
Project No.	Drawing No.
180747	Figure 5.1
Scale	Date
1:211,500	06.12.21

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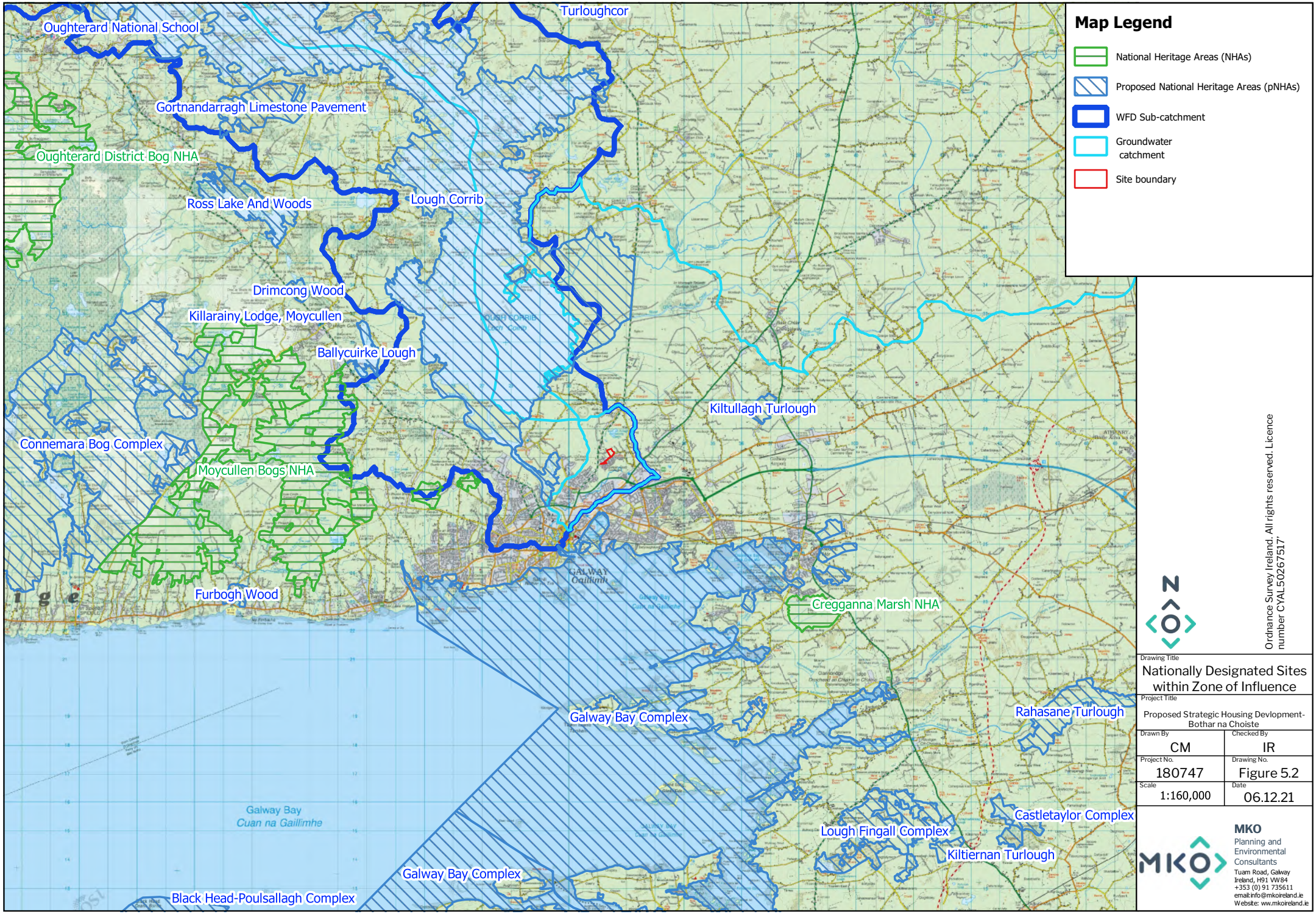

Drawing Title
Nationally Designated Sites within Zone of Influence

Project Title
Proposed Strategic Housing Devlopment- Bothar na Choiste

Drawn By	Checked By
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Project No.	Drawing No.
180747	Figure 5.2
Scale	Date
1:160,000	06.12.21

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5.1.2 Fisheries Surveys

Ballindooley Lough was surveyed in September 2015 as part of the fisheries assessment surveys carried out for the N6 Galway City ring road (Triturus Ecology, 2018). A total of four fish species were recorded from Ballindooley Lough during this survey. These included benthivorous tench (*Tinca tinca)*, pelagic rudd (*Scardinius erythropthalmus*) and piscivorous perch (*Perca fluviatilis)* and pike (*Esox Lucius*). No salmonids were recorded during the survey. The evaluation noted that good numbers of tench, pike, rudd and perch were recorded indicating the lake is an excellent coarse fishery but is not of importance as a salmonid fishery. The survey found that the lake had very clean water with low levels of human impact.

In 2011 Lower Lough Corrib had a draft fish ecological status 'moderate' and a species richness of eight with recorded species including bream, brown trout, European eel, perch, pike, roach; roach x bream hybrid, salmon and sea lamprey.

In 2014 Upper Lough Corrib had a draft fish ecological status 'good' and a species richness of eight with recorded species including bream, brown trout, brown trout (ferox), European eel, perch, pike, roach, roach x bream hybrid, salmon and three-spined stickleback.

5.1.3 Galway Bay Complex SAC

5.1.3.1 Review of conservation objectives

The relevant QIs and the associated conservation objectives are presented in Table 5-1.

Table 5-1 Qualifying Interest and Conservation Objectives

Qualifying Interest	Conservation Objective
Mudflats and sandflats not covered by seawater at low tide [1140]	To maintain the favourable conservation condition of Mudflats and sandflats not covered by seawater at low tide in Galway Bay Complex SAC
Coastal lagoons [1150]	To restore the favourable conservation condition of Coastal lagoons in Galway Bay Complex SAC
Large shallow inlets and bays [1160]	To maintain the favourable conservation condition of Large shallow inlets and bays in Galway Bay Complex SAC
Reefs [1170]	To maintain the favourable conservation condition of Reefs in Galway Bay Complex SAC
Salicornia and other annuals colonising mud and sand [1310]	To maintain the favourable conservation condition of Salicornia and other annuals colonizing mud and sand in Galway Bay Complex SAC
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]	To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) in Galway Bay Complex SAC
Mediterranean salt meadows (*Juncetalia maritimi*) [1410]	To restore the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) in Galway Bay Complex SAC
Turloughs [3180]	To maintain the favourable conservation condition of Turloughs in Galway Bay Complex SAC

Qualifying Interest	Conservation Objective
Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]	To maintain the favourable conservation condition of Calcareous fens with Cladium mariscus and species of the Caricion davallianae in Galway Bay Complex SAC
Alkaline fens [7230]	To maintain the favourable conservation condition of Alkaline fens in Galway Bay Complex SAC
Lutra lutra (Otter) [1355]	To restore the favourable conservation condition of Otter in Galway Bay Complex SAC
Phoca vitulina (Harbour Seal) [1365]	To maintain the favourable conservation condition of Harbour Seal in Galway Bay Complex SAC

5.1.3.2 Review of site-specific pressures and threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the SAC were reviewed and considered in relation to the proposed development. These are provided in 5-3.

Table 5-2 Site-specific threats, pressures and activities

Negative Impacts		
Rank	Threats and Pressures	
(Medium)	I01	Invasive non-native species
(High)	H01.08	Diffuse pollution to surface waters due to household sewage and waste waters
(Medium)	A04.02.02	Non- intensive sheep grazing
(Medium)	J02.01.02	Reclamation of land from sea, estuary or marsh
(Low)	D03.01.01	Slipways
(Low)	D01.01	Paths, tracks, cycling tracks
(Low)	J02.05.01	Modification of water flow (tidal & marine currents)
(Medium)	J02.01.02	Reclamation of land from sea, estuary or marsh
(Low)	G02.01	Golf course
(Medium)	C01.01	Sand and gravel extraction
(High)	H01.05	Diffuse pollution to surface waters due to agricultural and forestry activities
(High)	J02.12.01	Sea defence or coast protection works, tidal barrages
(Medium)	A04.02.01	Non- intensive cattle grazing
(High)	D03	Shipping lanes, ports, marine constructions

Negative Impacts		
Rank	Threats and Pressures	
(Low)	F02.03.01	Bait digging / collection

Pathways for impact with regard to *Diffuse pollution to surface waters due to household sewage and waste waters (H01.08)* were identified.

5.1.3.3 Qualifying interests

5.1.3.3.1 *Mudflats and sandflats not covered by seawater at low tide [1140]*

The extent of this habitat is illustrated on Map 3 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 744ha, using OSI data.

5.1.3.3.2 *Coastal lagoons [1150]*

The extent of this habitat is illustrated on Map 4 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 76.7ha, using data derived from calculated from spatial data derived from Oliver, 2007.

5.1.3.3.3 *Large shallow inlets and bays [1160]*

The extent of this habitat is illustrated on Map 5 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 10,825ha using OSi data and the Transitional Water Body area as defined under the Water Framework Directive.

5.1.3.3.4 *Reefs [1170]*

The extent of this habitat is illustrated on Map 6 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 2,773ha, using 2009 and 2010 intertidal survey data and 2009 subtidal survey data (Aquafact, 2010a, b; RPS, 2012).

5.1.3.3.5 *Salicornia and other annuals colonising mud and sand [1310]*

The extent of this habitat is illustrated on Map 9 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 1.347ha, based on data from the Saltmarsh monitoring Project (McCorry and Ryle, 2009). This habitat was recorded at eight of the ten sub-sites surveyed with Galway Bay Complex SAC. According to the site-specific conservation objectives (NPWS, 2013), further unsurveyed examples of this habitat may occur within the SAC.

5.1.3.3.6 *Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]*

The extent of this habitat is illustrated on Map 9 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 263.80ha, based on data from the Saltmarsh

monitoring Project (McCorry, 2007; McCorry and Ryle, 2009), with further unsurveyed examples of this habitat possibly occurring within the SAC.

5.1.3.3.7 Mediterranean salt meadows (Juncetalia maritimi) [1410]

The extent of this habitat is illustrated on Map 9 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of this habitat within Galway Bay Complex SAC is estimated as 19.887ha, based on data from the Saltmarsh monitoring Project (McCorry, 2007; McCorry and Ryle, 2009), with further unsurveyed examples of this habitat possibly occurring within the SAC.

5.1.3.3.8 Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]

According to the site-specific conservation objectives (NPWS, 2013) the full extent and distribution of this habitat within Galway Bay Complex SAC is unknown and further areas are likely to occur. Fen vegetation occurs in wetland areas to the east of Oranmore (Internal NPWS files). It has also been recorded in Ballindereen Lough. This habitat is found in mosaic with other habitats including the Annex I habitat: Alkaline fens.

5.1.3.3.9 Alkaline fens [7230]

According to the site-specific conservation objectives (NPWS, 2013) the full extent and distribution of this habitat within Galway Bay Complex SAC is unknown and further areas are likely to occur. The site synopsis for Galway Bay Complex SAC notes that "*Areas of alkaline and Cladium fen as best represented near Oranmore, and species such as Great Fen-sedge, Common Reed (Phragmites australis), Purple Moor-grass (Molinia caerulea), Bogbean (Menyanthes trifoliata) and Long-stalked Yellow-sedge (Carex lepidocarpa) are found along with the usually dominant, Black Bog-rush*," (NPWS, 2015).

5.1.3.3.10 Turloughs [3180]

According to the site-specific conservation objectives (NPWS, 2013) the full extent and distribution of this habitat within Galway Bay Complex SAC is unknown and further areas are likely to occur. According to map 10 of the SSCO documents the mapped area of this habitat is circa 59ha.

5.1.3.3.11 Lutra lutra (Otter) [1355]

The extent of terrestrial commuting otter habitat is illustrated on Map 11 of the site-specific conservation objective document (NPWS 2013). According to the site-specific conservation objectives (NPWS, 2013) the extent of terrestrial habitat within Galway Bay Complex SAC is estimated as 262ha, above high-water mark. These areas are mapped to include a 10m terrestrial buffer above the high-water mark along shorelines.

5.1.3.3.12 Phoca vitulina (Harbour Seal) [1365]

The extent of Seal habitat and breeding, moulting and resting sites is illustrated on Map 12 of the site-specific conservation objective document (NPWS, 2013). The harbour seal population monitoring program recorded a maximum count of 105 individuals in Oranmore Bay in 2009 and 122 individuals in 2010 (NPWS, 2010; NPWS 2011).

5.1.4 Lough Corrib SAC

5.1.4.1 Review of conservation objectives

The relevant QIs and the associated conservation objectives are presented in Table 5-3.

Table 5-3 Qualifying Interest and Conservation Objectives

Qualifying Interest	Conservation Objective
Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*)	To restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) in Lough Corrib SAC
Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea*	To restore the favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoëto-Nanojuncetea* in Lough Corrib SAC
Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.	To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Lough Corrib SAC
Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae**	To maintain the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae** in Lough Corrib SAC
Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation	To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in Lough Corrib SAC
Alkaline fens [7230]	To maintain the favourable conservation condition of alkaline fens in Lough Corrib SAC
Petrifying springs with tufa formation (*Cratoneurion*)	To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion)* in Lough Corrib SAC
Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]	To maintain the favourable conservation condition of Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) in Lough Corrib SAC
White-clawed Crayfish (*Austropotamobius pallipes*)	To maintain the favourable conservation condition of White-clawed Crayfish in Lough Corrib SAC
Brook Lamprey (*Lampetra planeri*)	To maintain the favourable conservation condition of Brook Lamprey in Lough Corrib SAC
Sea Lamprey (*Petromyzon marinus*)	To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC
Salmon (*Salmo salar*)	To maintain the favourable conservation condition of Atlantic Salmon in Lough Corrib SAC
Otter (*Lutra lutra*)	To maintain the favourable conservation condition of Otter in Lough Corrib SAC

5.1.4.2 Review of site-specific pressures and threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to impact on the SAC were reviewed and considered in relation to the proposed development. These are provided in Table 5-4.

Table 5-4 Site-specific threats, pressures and activities

Negative Impacts		
Rank	Threats and Pressures	
(High)	A02.01	Agricultural intensification

Negative Impacts		
Rank	Threats and Pressures	
(High)	I01	Invasive non-native species
(Medium)	D03.01.02	Piers / tourist harbours or recreational piers
(High)	H01.08	Diffuse pollution to surface waters due to household sewage and waste waters
(Medium)	E01.01	Continuous urbanization
(Medium)	B01	Forest planting on open ground
(Medium)	J02.01.03	Infilling of ditches, dykes, ponds, pools, marshes or pits
(Low)	C01.01	Sand and gravel extraction
(Medium)	A04.03	Abandonment of pastoral systems, lack of grazing
(Medium)	J02.15	Other human induced changes in hydraulic conditions
(Medium)	D01	Roads, paths and railroads
(High)	G05	Other human intrusions and disturbances
(Medium)	A10.01	Removal of hedges and copses or scrub
(High)	C01.03.02	Mechanical removal of peat
(Low)	E03.01	Disposal of household / recreational facility waste
(Medium)	A08	Fertilisation
(Medium)	E01.03	Dispersed habitation

Pathways for impact with regard to *Disposal of household / recreational facility waste (E03.01), Other human intrusions and disturbances (G05)* were identified.

5.1.4.3 Qualifying Interests

5.1.4.3.1 *White-clawed Crayfish (Austropotamobius pallipes) [1092]*

The distribution of white-clawed crayfish within Lough Corrib SAC is illustrated on Map 10 of the site-specific conservation objective document (NPWS, 2017). According to the site-specific conservation objectives white-clawed crayfish (*Austropotamobius pallipes*) the distribution of crayfish in Lough Corrib is uncertain. It certainly occurs in three 1km squares in the northern section of the lower basin (M2341, M2342, M2941) and is probably more widely distributed.

5.1.4.3.2 Brook Lamprey (Lampetra planeri) [1096]

According to the site-specific conservation objectives document (NPWS, 2017), 50% of surveyed sites in the catchment were positive in 2013 (IFI, unpublished data) compared with 49% in 2006 (O'Connor, 2007).

5.1.4.3.3 Sea Lamprey (Petromyzon marinus) [1095]

According to the site-specific conservation objects document "Sea lamprey (*Petromyzon marinus*) congregate and build spawning nests in the River Corrib in Galway city, both up- and downstream of the Salmon Weir Bridge. Their further upstream passage is impeded by the regulating weir immediately upstream. The combination of barriers to passage and low flows can impede further upstream passage in Irish catchments and prevent or reduce penetration and extensive colonisation (Gargan et al., 2011; Rooney et al., 2015). Sea lamprey have been recorded passing through the denil fish passage facility at the regulating weir" (NPWS, 2017).

According to the catchment wide survey of the Corrib for Juvenile Lamprey populations (O'Connor, 2007):

> '*Sea lampreys are present in the Corrib catchment but seem to be confined to below the Galway Regulating Weir. Although there are records of sea lampreys in some of the tributaries of Lough Corrib (Kurz & Costello, 1999), these records pre-date the construction of the existing weir. Sea lampreys are known to spawn below the weir and have been recently seen by fisheries board staff in Galway (Seamus Hartigan, pers. comm.). However, the success of sea lamprey spawning activity below the regulating weir is unknown'.*

5.1.4.3.4 Salmon (Salmo salar) [1106]

According to the site-specific conservation objectives document (NPWS, 2017), there are no barriers to migration of salmon (*Salmo salar*) in Lough Corrib SAC. Salmon spawn in the headwaters of Lough Corrib tributaries.

Lough Corrib (Lough Corrib Upper WE_30_666b) was surveyed as part of the Water Framework Directive fish monitoring surveys in 2011 and 2014. Salmon were recorded in Lough Corrib during the 2014 survey. Salmon have been recorded in the Owenriff River upstream of the site at the recording station (1km d/s of Lough Agraffard_A) in 2010.

5.1.4.3.5 Otter (Lutra lutra) [1355]

The extent of terrestrial commuting otter habitat is illustrated on Map 12 of the site-specific conservation objective document (NPWS, 2017). According to the site-specific conservation objectives (NPWS, 2013) the extent of freshwater (river) habitat is 314.2km. The river length calculated on the basis that otters will utilise freshwater habitats from estuary to headwaters. The site-specific conservation objective document states that areas mapped should include 10m terrestrial buffer along shoreline and river banks identified as critical for otters (NPWS, 2007).

5.1.4.3.6 Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation [3260]

According to the site-specific conservation objectives (NPWS, 2017) little is known, about the characteristics or sub-types of this habitat within the Lough Corrib SAC. Most of the rivers are in arterial drainage schemes that have altered aquatic plant distribution and species composition.

5.1.4.3.7 Molinia Meadows [6410]

Molinia meadows on calcareous, peaty or clayey-silt-laden soils (Molinion caeruleae) occurs mainly as small areas and in intimate association with other habitats in this SAC such as other grassland types and fens and is therefore difficult to map separately. O'Neill et al. (2013) surveyed and mapped some grassland sites within Lough Corrib SAC. However, the full extent of this habitat in this SAC is currently unknown.

5.1.4.3.8 Alkaline fen [7230]

Alkaline fens have not been mapped in detail for Lough Corrib SAC and thus total area of the qualifying habitat is unknown. While the full extent of Annex I fen habitats (both this habitat and Calcareous fens with Cladium mariscus and species of the Caricion davallianae (7210)) within the SAC is currently unknown, their area is extensive and they often occur in association with and transitional to other habitats including Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) (6410), Active raised bogs (7110), Petrifying springs with tufa formation (*Cratoneurion*) (7220) and Limestone pavements (8240) (NPWS internal files).

5.1.4.3.9 Calcareous fens with Cladium mariscus and species of the Caricion davallianae* [7210]

Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* have not been mapped in detail for Lough Corrib SAC and thus total area of the qualifying habitat is unknown. While the full extent of Annex I fen habitats (both this habitat and Alkaline fens (7230)) within the SAC is currently unknown, their area is extensive and they often occur in association with and transitional to other habitats including Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) (6410), Active raised bogs (7110), Petrifying springs with tufa formation (*Cratoneurion*) (7220) and Limestone pavements (8240) (NPWS internal files).

5.1.4.3.10 Petrifying springs with tufa formation (Cratoneurion)* in Lough Corrib SAC [7220]

Petrifying springs with tufa formation *(Cratoneurion)* have not been mapped within Lough Corrib SAC. The total area of the qualifying habitat in the SAC is unknown. The necessary ecological conditions required for this habitat occur around Lough Corrib. It is often associated with other habitats including Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* (7210), Alkaline fens (7230) and Limestone pavements (8240).

5.1.4.3.11 Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae) [3110]

According to the site-specific conservation objectives document the distribution of lake habitat 3110 in Lough Corrib SAC has not been fully surveyed (NPWS, 2017). Krause and King (1994) recorded it in the "western arm proper". Within Lough Corrib, it is likely to be restricted to this 'western arm' (the north-western bay). It may, however, occur elsewhere along the northern or western shoreline of Lough Corrib, in Ballydoo Lough (N. of Corrib) and in small lakes in the Owenriff catchment.

5.1.4.3.12 Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or Isoeto-Nanojuncetea [3130]

According to the site-specific conservation objectives document the full distribution and characteristics of lake habitat 3130 in Lough Corrib SAC have not been mapped (NPWS, 2017). While the characteristic species slender naiad (*Najas flexilis*) was recorded in the western arm of Lough Corrib, that area appears to be dominated by lake habitat 3110, with lake habitat 3130 found towards the

northern basin proper. The division between lake habitats 3130 and 3140 may be difficult to determine, and both habitats may occur throughout the lake. Habitat 3130 is thought likely to dominate Ballycuirke Lake.

5.1.4.3.13 *Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. [3140]*

According to the site-specific conservation objectives document the hard water lake habitat (3140) is found in Lough Corrib, notably the southern basin (NPWS, 2017). Its exact distribution and area has not been mapped however, and it is likely to also extend along the eastern side of the northern basin.

5.1.5 Inner Galway Bay SPA

5.1.5.1 Review of Conservation Objectives

The relevant SCI and the associated conservation objective is presented in Table 5-5. The target and attributes for this habitat, as described in the Site-specific Conservation Objectives document, were reviewed and considered in this assessment.

Table 5-5 Qualifying Interest and Conservation Objectives

Special Conservation Interest (SCI)	Conservation Objective
Wetland and Waterbirds [A999]	To maintain the favourable conservation condition of wetland habitat in Inner Galway Bay SPA as a resource for the regularly occurring migratory waterbirds that utilise it.
Grey Heron (*Ardea cinerea*) [A028]	To maintain the favourable conservation condition of Grey Heron in Inner Galway Bay SPA
Wigeon (*Anas penelope*) [A050]	To maintain the favourable conservation condition of Wigeon in Inner Galway Bay SPA
Teal (*Anas crecca*) [A052]	To maintain the favourable conservation condition of Teal in Inner Galway Bay SPA
Redshank (*Tringa totanus*) [A162]	To maintain the favourable conservation condition of Redshank in Inner Galway Bay SPA
Bar-tailed Godwit (*Limosa lapponica*) [A157]	To maintain the favourable conservation condition of Bar-tailed Godwit in Inner Galway Bay SPA
Lapwing (*Vanellus vanellus*) [A142]	To maintain the favourable conservation condition of Lapwing in Inner Galway Bay SPA
Curlew (*Numenius arquata*) [A160]	To maintain the favourable conservation condition of Curlew in Inner Galway Bay SPA
Common Gull (*Larus canus*) [A182]	To maintain the favourable conservation condition of Common Gull in Inner Galway Bay SPA
Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]	To maintain the favourable conservation condition of Light-bellied Brent Goose in Inner Galway Bay SPA
Black headed gull (*Chroicocephalus ridibundus*) [A179]	To maintain the favourable conservation condition of Black-headed Gull in Inner Galway Bay SPA

Special Conservation Interest (SCI)	Conservation Objective
Golden Plover (*Pluvialis apricaria*) [A140]	To maintain the favourable conservation condition of Golden Plover in Inner Galway Bay SPA

5.1.5.2 Review of site-specific pressures and threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to effect on the SPA were reviewed and considered in relation to the proposed development. These are provided in Table 5-6.

Table 5-6 Site-specific threats, pressures and activities

Negative Impacts		
Rank	Threats and Pressures	
Medium	E02	Industrial or commercial areas
Low	A04	Grazing
Medium	F01	Marine and Freshwater Aquaculture
Medium	G01.02	Walking, horse-riding and non-motorised vehicles
Medium	J02.12	Dykes, embankments, artificial beaches, general
High	J02.01.02	Reclamation of land from sea, estuary or marsh
Medium	A08	Fertilisation
High	E01	Urbanised areas, human habitation
Medium	F02.03	Leisure fishing
High	E03	Discharges
Low	F03.01	Hunting
Medium	G01.01	Nautical sports

Pathways for impact with regard to the site-specific threats, pressures *''Discharges E03'* and '*Urbanised areas, human habitation E01'* were identified.

5.1.5.3 Special Conservation Interests (SCIs)

5.1.5.3.1 *Wetlands and Waterbirds*

The following relevant information has been extracted from the NPWS site synopsis and Natura 2000 Data From for the SPA:

> *"Inner Galway Bay SPA is a very large, marine-dominated site situated on the west coast of Ireland. The inner bay is protected from exposure to Atlantic swells by the Aran Islands and Black Head. Subsidiary bays and inlets (e.g. Poulnaclough, Aughinish and Kinvarra Bays) add*

texture to the patterns of water movement and sediment deposition, which lends variety to the marine habitats and communities. The terraced Carboniferous (Viséan) limestone platform of the Burren sweeps down to the shore and into the sublittoral. The long shoreline is noted for its diversity, and comprises complex mixtures of bedrock shore, shingle beach, sandy beach and fringing salt marshes. Intertidal sand and mud flats occur around much of the shoreline, with the largest areas being found on the sheltered eastern coast between Oranmore Bay and Kinvarra Bay. A number of small islands and rocky islets in the Bay are included within the site.

The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Great Northern Diver, Cormorant, Grey Heron, Light-bellied Brent Goose, Wigeon, Teal, Shoveler, Red-breasted Merganser, Ringed Plover, Golden Plover, Lapwing, Dunlin, Bar-tailed Godwit, Curlew, Redshank, Turnstone, Black-headed Gull, Common Gull, Sandwich Tern and Common Tern. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetland & Waterbirds

Inner Galway Bay SPA is of high ornithological importance with two wintering species having populations of international importance and a further sixteen wintering species having populations of national importance. The breeding colonies of Sandwich Tern, Common Tern and Cormorant are also of national importance. Also of note is that six of the regularly occurring species are listed on Annex I of the E.U. Birds Directive, i.e. Black-throated Diver, Great Northern Diver, Golden Plover, Bar-tailed Godwit, Sandwich Tern and Common Tern. Inner Galway Bay is a Ramsar Convention site and part of the Inner Galway Bay SPA is a Wildfowl Sanctuary".

5.1.5.3.2 Grey Heron (Ardea cinerea) [A028]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), during winter the site regularly supports 1% or more of the all-Ireland population of Grey Heron (Ardea cinerea). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 102 individuals. Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.3 Wigeon (Anas penelope) [A050]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.4 Teal (Anas crecca) [A052]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.5 Redshank (Tringa totanus) [A162]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.6 Bar-tailed Godwit (Limosa lapponica) [A157]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), during winter the site regularly supports 1% or more of the all-Ireland population of Bar-tailed Godwit (Limosa lapponica). The mean peak number of this Annex I species within the SPA during the baseline period (1995/96 – 1999/00) was 447 individuals. Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.7 Lapwing (Vanellus vanellus) [A142]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.8 Curlew (Numenius arquata) [A160]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.9 Common Gull (Larus canus) [A182]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.10 Light-bellied Brent Goose (Branta bernicla hrota) [A046]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), During winter the site regularly supports 1% or more of the biogeographical population of Light-bellied Brent Goose (*Branta bernicla hrota*). The mean peak number of this species within the SPA during the baseline period (1995/96 – 1999/00) was 676 individuals. Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.11 Black headed gull (Chroicocephalus ridibundus) [A179]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.5.3.12 Golden Plover (Pluvialis apricaria) [A140]

According to the Conservation Objectives Supporting Document (NPWS, March 2013), this species was recorded in numbers of all-Ireland importance during the baseline period (1995/96 – 1999/00). Based on the long-term (12-year) population trend for the site, it has been determined that this species has a favourable population i.e., the population of this species is stable/increasing.

5.1.6 Lough Corrib SPA

5.1.6.1 Review of Conservation Objectives

The relevant SCI and the associated conservation objective is presented in Table 5-7. The target and attributes for this habitat, as described in the Site-specific Conservation Objectives document, were reviewed and considered in this assessment.

Table 5-7 Qualifying Interest and Conservation Objectives

Special Conservation Interest (SCI)	Conservation Objective
Wetland and Waterbirds	To maintain or restore the favourable conservation condition of the wetland habitat at Lough Corrib SPA as a resource for the regularly occurring migratory waterbirds that utilise it.
Gadwall (*Anas strepera*) [A051]	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA.
Shoveler (*Anas clypeata*) [A056]	
Pochard (*Aythya ferina*) [A059]	
Tufted Duck (*Aythya fuligula*) [A061]	
Coot (*Fulica atra*) [A125]	
Golden Plover (*Pluvialis apricaria*) [A140]	
Black-headed Gull (*Chroicocephalus ridibundus*) [A179]	
Common Gull (*Larus canus*) [A182]	
Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	

5.1.6.2 Review of site-specific pressures and threats

As per the Natura 2000 Data Form, the site-specific threats, pressures and activities with potential to effect on the SPA were reviewed and considered in relation to the proposed development. These are provided in Table 5-8.

Table 5-8 Site-specific threats, pressures and activities

Negative Impacts		
Rank	Threats and Pressures	
Medium	A08	Fertilisation
Medium	B	Sylviculture, forestry
High	F03.01	Hunting
Low	G01.01	Nautical sports
High	E01	Urbanised areas, human habitation

High	F02.03	Leisure fishing
Low	A04	Grazing

Pathways for impact with regard to the site-specific threats, pressures *'Urbanised areas, human habitation (E01)'* were identified.

5.1.6.3 Wetlands and Waterbirds

The following relevant information has been extracted from the NPWS site synopsis and Natura 2000 Data From for the SPA:

> *'The site is a Special Protection Area (SPA) under the E.U. Birds Directive, of special conservation interest for the following species: Greenland White-fronted Goose, Gadwall, Shoveler, Pochard, Tufted Duck, Common Scoter, Hen Harrier, Coot, Golden Plover, Black-Headed Gull, Common Gull, Common Tern and Arctic Tern. The site is also of special conservation interest for holding an assemblage of over 20,000 wintering waterbirds. The E.U. Birds Directive pays particular attention to wetlands and, as these form part of this SPA, the site and its associated waterbirds are of special conservation interest for Wetlands & Waterbirds.*
>
> *Lough Corrib SPA is an internationally important site which supports in excess of 20,000 wintering waterbirds, including a population of Pochard that is, itself, of international importance. A further six species of wintering waterfowl have populations of national importance. The site also contains a nationally important communal roost site for Hen Harrier. Lough Corrib is the most important site in the country for breeding Common Scoter. Its populations of breeding gulls and terns are also notable, with nationally important numbers of Black-headed Gull, Common Gull, Common Tern and Arctic Tern occurring. It is of note that several species which regularly occur are listed on Annex I of the E.U. Birds Directive, i.e. Whooper Swan, Greenland White-fronted Goose, Hen Harrier, Golden Plover, Common Tern and Arctic Tern. Lough Corrib is a Ramsar Convention site.'*

5.2 Ecological Survey results

5.2.1 Habitats

A dedicated habitat survey of the proposed development site was undertaken on the 5th of March 2021, with a follow up survey on the 30th of March and the 24th of November 2021. All habitats within the works area were readily identifiable during the site visit. Habitats recorded within the development site are listed in Table 5-9. The habitat classifications and codes correspond to those described in '*A Guide to Habitats in Ireland*' (Fossitt, 2000). The habitats recorded during the site visit are described below and a habitat map is provided in Figure 5.3.

Table 5-9 Habitats recorded on the proposed development

Habitat	Code
Buildings and Artificial Surfaces	BL3
Amenity Grassland	*GA2*
Improved Agricultural Grassland	*GA1*
Ornamental flower beds and borders	*BC4*
Spoil and bare ground	ED2
Stonewalls and other stonework	*BL1*
Recolonising bare ground	*ED3*
Hedgerows	*WL1*
Treeline	WL2

Improved Agricultural Grassland (GA1) is the dominant habitat within the development site (Plate 5-1). This habitat had a low species diversity and a low sward height, and during the survey was being grazed by cattle. Species recorded in this habitat included abundant perennial rye-grass (*Lolium perenne*), cock's-foot (*Dactylis glomerata*), frequent Yorkshire fog (*Holcus lanatus*), annual meadow grass (*Poa annua*), creeping buttercup (*Ranunculus repens*), nettle (*Urtica dioica*), clovers (*Trifolium* spp.), dandelion (*Taraxacum officinale* agg.), broad-leaved dock (*Rumex obtusifolius*), mouse-ear chickweed (*Cerastium fontanum*), germander speedwell (*Veronica chamaedrys*) and ribwort plantain (*Plantago lanceolata*).

A derelict cottage lies in the south-eastern corner of the proposed development site, surrounded by gravel and classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 5-2). The building is constructed from 0.5m thick mortared rubble walls, with a slate roof which is partially collapsed. This building is clad in dense ivy. Two farm outbuildings occur to the rear of the cottage, used for agricultural purposes, and surrounded by ***Spoil and bare ground (ED2),*** associated with livestock poaching (Plate 3-3 & 5-4). The outbuildings are constructed from mortared rubble with corrugated metal roofs.

A poached farm track occurs from the access gate in the south-east corner and runs along the eastern boundary of the proposed development. This track is also heavily poached in places and is classified as ***spoil and bare ground (ED2)/Recolonising bare ground (ED3)*** mosaic (Plate 5-5). Recolonising weeds recorded in this habitat included greater plantain *(Plantago major),* pineappleweed *(Matricaria discoidea),* chickweed (*Cerastium fontanum*), annual meadow grass (*Poa annua*) and bittercress (*Cardamine spp.).*

The western and southern site boundaries are delineated by stonewalls classified as ***stonewalls and other stonework (BL1)*** and are fringed by ***Hedgerows (WL1).*** The eastern site boundary is demarcated by wire and post fence. A hedgerow also occurs outside the eastern site boundary, set back 5m. Species recorded in the hedgerows included bramble (*Rubus fructicosus*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra)*, hawthorn (*Crataegus monogyna*), willows (*Salix* spp.), holly (*Ilex aquilifolium*), ivy (*Hedera helix*), ash (*Fraxinus excelsior*) and flowering currant (*Ribes Sanguineum).* Species recorded in the field margins and hedgerow understory included Yorkshire fog (*Holcus lanatus*), common bent (*Agrostis capillaris*), pointed spear-moss (*Calliergonella cuspidata*), common sorrel (*Rumex acetosa*), meadow buttercup (*Ranunculus acris*), strawberry (*Fragaria vesca),* ribwort plantain (*Plantago lanceolata*), red fescue (*Festuca rubra*), dandelion (*Taraxacum officinale* agg.), primrose (*Primula vulgaris*), vetch (*Vicia* spp.), herb Robert (*Geranium robertianum*), lesser celandine (*Ficaria verna*), lords and ladies (*Arum maculatum*), creeping cinquefoil (*Potentilla reptans) and harts tongue fern (Asplenium scolopendrium*).

The site contains a residential dwelling house within the south-western section of the site, that will be demolished as part of the proposed development and is classified as ***Buildings and Artificial Surfaces (BL3). Amenity Grassland (GA2), Ornamental flower beds and borders (BC4), Buildings and Artificial Surfaces (BL3)*** and a non-native conifer ***Treeline (WL2)*** habitat surrounds the dwelling house.

The site boundary extends to include the local road to the south, leading to Castlegar Village and is classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 5-6). The road is fringed with ***Scrub habitat***

(WS1) and metal fencing classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 5-7). The scrub habitat recorded along the road was primarily dominated by bramble (*Rubus fructicosus*) and bracken (Pteridium aquilinum) with individual Hazel (*Corylus Avellana*), blackthorn (*Prunus spinosa*) and hawthorn (*Crataegus monogyna*) also present. Areas of ***Amenity Grassland (GA2)*** and ***Ornamental flower beds and borders (BC4)*** occurs along the road margin and in the south-west extent of the site boundary of the site near the village. Species recorded in the amenity grassland included Yorkshire fog (*Holcus lanatus*), annual meadow-grass (*Poa annua*), ribwort plantain (*Plantago lanceolata*), perennial rye-grass (*Lolium perenne*) and daisy (*Bellis perennis*). Species recorded in the flower bed included *Hebe spp.*, gorse (*Ulex europaeus)*, ash (*Fraxinus excelsior*), daffodil (*Narcissus* spp.), bramble (*Rubus fructicosus*) and lesser celandine (*Ficaria verna*).

No drainage ditches or watercourses occur within or immediately adjacent to the proposed site. Ballindooley Lough lies 400m north-west (and down gradient) of the proposed development site boundary. The wetland habitats surrounding the lake flood in winter and extend to 150m north of the site boundary (Plate 5-8). The wetland habitat to the south/south-west of the proposed development site have been identified in the Article 17 dataset as Annex I Molinia Meadows and this habitat was flooded during the initial site walkover survey on March 5th, but flood waters had receded by the survey on the 30th of March.

No botanical species protected under the Flora (protection) Order (1999, as amended 2015), listed in the EU Habitats Directive (92/43/EEC), or listed in the Irish Red Data Books were recorded on the site and no suitable habitat occurs within the site. All species recorded are common in the Irish landscape. No invasive species were observed within the proposed development site.

Plate 5-1 Improved Agricultural Grassland (GA1) within the southern section of the development site, view looking north.

Plate 5-2 A derelict cottage lies in the south-eastern corner of the proposed development site, surrounded by gravel and classified as buildings and artificial surfaces.

Plate 5-3 Sheds occur to the north of the cottage, used for agricultural purposes, and surrounded by Spoil and bare ground (ED2), associated with livestock poaching.

Plate 5-4 Spoil and bare ground (ED2), associated with livestock poaching, with Improved Agricultural Grassland (GA1) in the background. View looking south-west.

Plate 5-5 A farm track runs along/partly outside the eastern site boundary of the proposed development, classified as spoil and bare ground (ED2)/Recolonising bare ground (ED3). Hedgerows (WL2) occur set back 5m from the eastern site boundary.

Plate 5-6 The site boundary extends to include the local road to the south classified as Buildings and Artificial Surfaces (BL3).

Plate 5-7. Scrub habitat occurring along the local road

Plate 5-8 Ballindooley Lough lies 400m north-west, and downgradient, of the proposed development site boundary. The surrounding flooded wetland habitat, identified as Annex I Molinia Meadow, lies approximately 150m north of the site boundary.

Annex I habitat Assessment

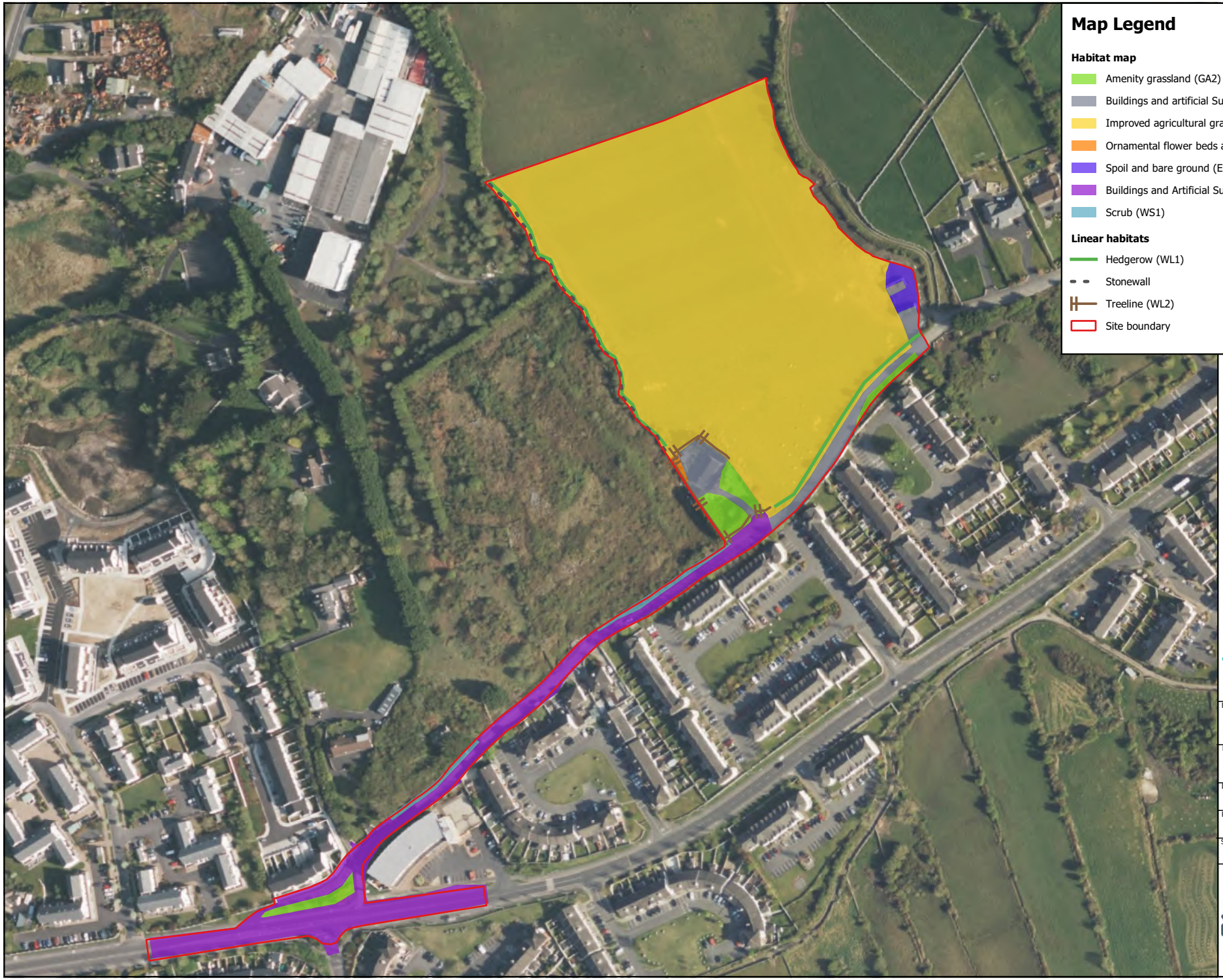
A review of the NPWS Article 17 Annex I habitat revealed that a very small portion (0.018ha) of the site along the Castlegar is mapped as Annex I Limestone pavement.

An additional site visit was undertaken on the 19.07.2022 to assess the current condition of this habitat and to investigate if the area conforms to Annex I Limestone pavement. The survey was carried out in line with the guideline set out in Wilson, S. & Fernández, F. (2013) *National survey of limestone pavement and associated habitats in Ireland.*

Following the site specific survey, it can be concluded the section of mapped Limestone pavement that occurs within the site boundary does not correspond to Annex I Limestone pavement. The habitat recorded in is dominated by bramble (*Rubus fructicosus*) and bracken (*Pteridium aquilinum*) with individual Hazel (*Corylus Avellana*) and corresponds to **Scrub (WS1)** habitat (See Plate 5-9). No exposed limestone boulders or large rocks were present. The ground flora was low in species diversity and was dominated by Common ivy (*Hedera helix).*

The habitats on site are of low ecological importance. There are no Annex I habitats listed under the EU Habitats Directive present within the site boundary. There will be no impact to Annex I habitats areas within or outside of Lough Corrib SAC and Galway Bay Complex SAC.

Plate 5-9. Location of Scrub habitat along the Castlegar road previously recorded as Annex I Limestone pavement



Drawing Title

Habitat map

Project Title

Proposed Strategic Housing Development- Bothar na Choiste

Drawn By	Checked By
JOS	JOS
Project No.	Drawing No.
180747	Figure 5.3
Scale	Date
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5.2.2 Fauna

5.2.2.1 Birds

Wintering bird surveys were carried out during the initial multidisciplinary walkover survey on the 5th of March 2021 with follow up dedicated bird surveys on the 30th of March 2021 and the 24th of November 2021.

The winter bird surveys followed the Irish Wetland Bird Survey (I-WeBS) methodology; the simple 'look-see' method, whereby all birds present within a predefined area are counted (Gilbert et al., 2011; Birdwatch Ireland, 2018). The proposed development site was scanned from suitable vantage points that gave unobstructed views of potentially suitable habitat and roosting locations for wintering waterfowl and waders within the study area in advance of walkover surveys.

The surveys were carried out at suitable vantage points overlooking the proposed development site and Ballindooley Lough which lies 400m north-west (and down gradient) of the proposed development site boundary, and its surrounding wetland habitats. The wetland habitats surrounding the lake flood in winter and extent to 150m north of the site boundary. Walked transects were then undertaken within the site boundary.

The majority of the bird species recorded within the proposed development site boundary during the site visits were an assemblage of common birds that are typical of the grassland and urban habitats in the wider area of the site. The SCI species of Lough Corrib SPA and Inner Galway Bay SPA recorded within the site are listed in Table 4-11 and those recorded on Ballindooley Lough and the surrounding flooded wetland habitats are listed in Table 4-12.

Only three SCI species of Lough Corrib SPA and Inner Galway Bay SPA were recorded utilising the habitats within the development site during the field survey; five Common Gulls (*Larus canus*) and one Black-headed Gull (*Chroicocephalus ridibundus*) were recorded feeding on improved agricultural grassland within the site. A single curlew (*Numenius arquata*) was also recorded feeding within the site during a March 2022 survey. .

Cormorant, a listed SCI species of Inner Galway Bay SPA, was recorded on one occasion flying over the proposed development site.

Three SCI species of Inner Galway Bay SPA, teal, grey heron and wigeon and three SCI of Inner Lough Corrib SPA, tufted duck, shoveler and coot, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird surveys.

Table 5-10 Bird species observed within the proposed development site during the field visit, and current conservation status.

Common Name	Latin Name	Date	Notes	Conservation Status
Cormorant	*Phalacrocorax carbo*	05/03	Flying over, does not land in site.	Amber listed (breeding and wintering). Listed SCI species of Inner Galway Bay SPA.
Common Gull	*Larus canus*	05/03	5 individuals feeding on improved agricultural grassland within the site.	Amber listed (breeding and wintering). Listed SCI species of Lough Corrib SPA and Inner Galway Bay SPA.
Black-headed Gull	*Chroicocephalus ridibundus*	24/11	1 individual feeding on improved agricultural grassland within the site.	Red listed (breeding and wintering). Listed SCI species of Lough Corrib SPA and Inner Galway Bay SPA.
Curlew	*Numenius arquata*	29/03/2022	Feeding on improved agricultural grassland within the site.	Red Listed (Breeding and wintering species). Listed as SCI species of Inner Galway Bay SPA.

Table 5-11 Species recorded on Ballindooley Lough and surrounding wetland habitats

Common Name	Latin Name	Date	Notes	Conservation Status
Teal	*Anas crecca*	05/03	32 individuals feeding/roosting on lake	Amber listed (breeding and wintering). Listed SCI species of Inner Galway Bay SPA.
Wigeon	*Anas penelope*	05/03	2 individuals feeding on lake	Amber listed (breeding and wintering). Listed SCI species of Inner Galway Bay SPA.
Coot	*Fulica atra*	05/03	1 individual feeding on lake	Green listed. Listed SCI species of Lough Corrib SPA.
		30/03	1 individual on middle lake	
		24/11	1 individual feeding on lake	
Grey Heron	*Ardea cinerea*	05/03	1 individual feeding on lake	Green listed. Listed SCI species of Inner Galway Bay SPA.
Tufted Duck	*Aythya fuligula*	30/03	10 individuals feeding on lake	Amber listed (breeding and

Common Name	Latin Name	Date	Notes	Conservation Status
				wintering). Listed SCI species of Lough Corrib SPA.

6. ASSESSMENT OF POTENTIAL ADVERSE EFFECTS

6.1 Potential for Direct Effects on the European Sites

The development site lies entirely outside of the boundary of any European Site. There is no potential for direct effects. There will be no direct effects on the Qualifying Interests of Galway Bay Complex SAC or Lough Corrib SAC. There will be no direct effects on the Special Conservation Interests of Inner Galway Bay SPA or Lough Corrib SPA. The proposed development is located in excess of 700m from the nearest European Designated Site and is buffered from them by agricultural fields and a network of urban infrastructure.

There are no Annex I habitats on site and the site does not contain significant supporting habitat for Annex II species. No potential for direct effects on any European Site exists.

6.2 Potential for Indirect Effects on European sites

6.2.1 Deterioration of groundwater quality

Although no watercourses were identified on-site, the construction and operational phase of the proposed works may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. A potential pathway for significant indirect effects on the water dependent and groundwater influenced QIs/SCIs of Galway Bay Complex SAC, Lough Corrib SAC, Inner Galway Bay SPA and Lough Corrib SPA was identified.

Best practice environmental control measures have been incorporated in the design of the development and are described in the following subsections.

6.2.1.1 Construction Phase Control Measures and Assessment

The pathway that would allow potentially adverse impacts to occur was considered in the design of the proposed development. The following best pest practice mitigation and environmental control measures have been incorporated into the proposal:

Site Set-up

- 2.5m high hoarding will be erected around the boundaries of the development site. All works will be located within the confines of this fencing
- A site compound will be established within the site boundary. The exact location of the site compound will be established by the contractor.
- Access routes will be clearly marked / identified. Access during construction to any working areas will be restricted to land within the outlined works area.

Pollution Prevention

- Surface water generated from the works during construction will be routed towards settlement tanks prior to controlled discharge to ground. There will be no direct discharge to surface waters.
- In the event of encountering groundwaters during excavation, the excavation will be de-watered using a pump equipped with a silt bag on the outlet if necessary, to capture any silty material prior to subsequent natural percolation to ground. Alternatively, this water will be tankered off site if required.
- All site plant will be inspected at the beginning of each day prior to use. Defective plant shall not be used until the defect is satisfactorily fixed. All major repair and maintenance operations will take place off site.
- Vehicles will never be left unattended during refuelling. Only dedicated trained and competent personnel will carry out refuelling operations and plant refuelling procedures shall be detailed in the contractor's method statements.
- Fuels, lubricants and hydraulic fluids for equipment used on the site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism, and provided with spill containment.
- All fuels, lubricants and hydraulic fluids will be stored at the site compound. The storage area will contain a small bund lined with an impermeable membrane in order to prevent any contamination of the surrounding soils and vegetation.
- Potential impacts caused by spillages etc. during the construction phase will be reduced by keeping spill kits and other appropriate equipment on-site.

Measures to avoid the release of cement-based material during construction

- No batching of wet-cement products will occur on site. Ready-mixed supply of wet concrete products and pre-cast elements for culverts and concrete works will be used.
- No washing out of any plant used in concrete transport or concreting operations will be allowed on-site.
- Where concrete is delivered on site, only chute cleaning will be permitted, using the smallest volume of water possible. No discharge of cement contaminated waters will be allowed on site.
- Weather forecasting will be used to plan dry days for pouring concrete.
- It will be ensured that the pour site is free of standing water and plastic covers will be ready in case of sudden rainfall event.

Measures to avoid effects associated with the disposal of wastewater

- A self-contained port-a-loo with an integrated waste holding tank will be used at the site compounds, maintained by the providing contractor, and removed from site on completion of the construction works.
- No wastewater will be discharged on-site during either the construction or operational phase.

Waste Management

- All waste will be collected in skips and the site will be kept tidy and free of debris at all times.
- Waste oils and hydraulic fluids will be collected in leak-proof containers and removed from the site for disposal or recycling.
- All construction waste materials will be stored within the confines of the site, prior to removal from the site to a licenced waste facility.

Environmental Monitoring

- The contractor will assign a member of the site staff as the environmental officer with the responsibility for ensuring the environmental measures prescribed in this document are adhered to. Any environmental incidents or non-compliance issues will immediately be reported to the project team.

Post implementation of best practice and preventive measures as described above, there is no potential for adverse impact on the listed QIs/SCIs of the Galway Bay Complex SAC, Lough Corrib SAC, Inner Galway Bay SPA, or Lough Corrib SPA as a result of deterioration in water quality.

The measures described ensure that the proposed project does not prevent or obstruct any of the QIs or SCIs from reaching Favourable Conservation Status as per Article 1 of the EU Habitats Directive.

6.2.1.2 Operational Phase Control Measures and Assessment

The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas.

Mitigation measures to block indirect effects during the operational stage of the development have been fully described in section 3.2.

With these measures in place to prevent any discharge of potentially polluting materials to groundwater during the operational phase of the development, no indirect effects on groundwater during the operational stage of the development are anticipated. There is no potential for adverse impact on the listed QIs/SCIs of the Galway Bay Complex SAC, Lough Corrib SAC, Inner Galway Bay SPA or Lough Corrib SPA as a result of deterioration in water quality.

The measures described ensure that the proposed project does not prevent or obstruct any of the QIs or SCIs from reaching Favourable Conservation Status as per Article 1 of the EU Habitats Directive.

6.2.2 Bird Disturbance/displacement

On an extremely precautionary basis the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species of Lough Corrib SPA and Inner Galway Bay SPA.

An assessment of the potential effects on these SCI species in respect of disturbance and displacement impacts is provided below and is based on a detailed desk study of recent scientific literature described. The potential for adverse effects on these species in view of their site-specific conservation objectives have been considered in this assessment.

Only three SCI species of Inner Galway Bay SPA (Five Common Gull, one Black-headed gull and one Curlew) were recorded utilise the agricultural grassland habitat within the site throughout the 2021 and 2022 surveys. Agricultural grassland habitat is widespread and abundant in the areas surrounding the site of the proposed development and only five Common Gull, one Black-headed gull and one Curlew were recorded feeding here. Therefore, these species are not in anyway dependant on the site and the loss of this habitat within the development site would not significantly effect the conservation objects of Common gull, Black-headed gull or Curlew, listed as an Special Conservation Interests of Inner Galway Bay SPA. Furthermore, the SPA is located over 1.9km from the development site extensively buffered from the development site by grasslands and residential dwellings.

Three SCI species of Lough Corrib SPA, tufted duck, shoveler and coot, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. No SCI species of Lough Corrib SPA were recorded foraging or roosting within the development site.

The proposed development site is set back 400m from Ballindooley Lough (and 150m from the flooded surroundings) and is buffered from the shoreline by agricultural land. The northern section of the proposed development site is visible from the western section of the wetlands surrounding Ballindooley Lough, which may be utilised by wintering birds. The potential for disturbance due to an increase in anthropogenic activity in the wider area was also considered. Ballindooley Lough is located adjacent to the N84, therefore any SCI species utilising Ballindooley Lough are likely to be habituated to some degree of general visual and/or noise stimuli in the area. There will be no works or works access undertaken within 150m of the intertidal habitat. All works will be confined to the footprint of the proposed development and there will be no access to the lake shore or the surrounding wetland habitats. The following best practice disturbance limitation measures will be adhered to during the construction phase:

- All plant and equipment for use will comply with Statutory Instrument No 359 of 1996 "European Communities (Construction Plant and Equipment) (Permissible Noise Levels) Regulations 1996".
- Plant machinery will be turned off when not in use.
- Operating machinery will be restricted to the proposed development site area.
- Construction works will be limited to daylight hours and artificial lighting to facilitate works will not be permitted.
- All works will be confined will be confined to the site footprint and there will be no access toBallindooley Lough

Based on the results of the wintering birds survey carried out over 2021 and 2022, it can be concluded that there will be no significant effect on the conservation objectives of the SCIs of Lough Corrib SPA and Inner Galway Bay SPA as a result of the proposed development. Given the low number of species recorded and the lack of significant bird assemblages recorded within or adjacent to the site, significant impacts as a result of disturbance or displacement are not anticipated on bird species at any geographic scale.

7. RESIDUAL IMPACT ASSESSMENT

The sections provided below detail the site-specific residual impact assessment in relation to the relevant QIs and SCIs of the screened in European sites in light of their site-specific targets and attributes.

7.1 Galway Bay Complex SAC

7.1.1 Mudflats and sandflats not covered by seawater at low tide [1140]

The conservation objective for mudflats and sandflats not covered by seawater at low tide is:

'To maintain the favourable conservation condition of mudflats and sandflats not covered by seawater at low tide in Galway Bay Complex SAC'.

The attributes and targets for mudflats and sandflats not covered by seawater at low tide as per the Site Specific Conservation Objectives (SSCOs) for Galway Bay Complex SAC (NPWS Version 1, April 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-1 below.

Table 7-1 Targets and attributes associated with nominated site-specific conservation objectives for Mudflats and sandflats not covered by seawater at low tide [1140]

Attribute	Target	Assessment
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	There will be no reduction in habitat area. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Community distribution	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; and Intertidal sand community complex.	There will be no reduction in community distribution. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.

7.1.1.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Mudflats and sandflats not covered by seawater at low tide associated with the Galway Bay Complex SAC, in any phase of development.

7.1.2 Coastal lagoons [1150]

The conservation objective for coastal lagoons is:

'To restore the favourable conservation condition of coastal lagoons in Galway Bay Complex SAC'.

The attributes and targets for coastal lagoons as per the SSCO for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-2.

Table 7-2 Targets and attributes associated with nominated site-specific conservation objectives for Coastal lagoons [1150]

Attribute	Target	Assessment
Habitat area	Area stable, subject to slight natural variation. Favourable reference area 76.7ha	There will be no reduction in habitat area or distribution. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat Distribution	No decline, subject to natural processes	
Salinity regime	Median annual salinity and temporal variation within natural ranges	There will be no alterations to the hydrological/salinity regime. No structures/works which could result in changes to hydrology are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Hydrological regime	Annual water level fluctuations and minima within natural ranges	
Barrier: connectivity between lagoon and sea	Appropriate hydrological connections between lagoons and sea, including where necessary, appropriate management	The proposed works will not result in any barrier to connectivity between lagoons and the sea.
Water quality: Chlorophyll a	Annual median chlorophyll a within natural ranges and less than 5ug/L	

Attribute	Target	Assessment
Water quality: Molybdate Reactive Phosphorus (MRP)	Annual median MRP within natural ranges 0.1mg/L	There will be no deterioration of water quality. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water quality: Dissolved Inorganic Nitrogen (DIN)	Annual median DIN within natural ranges and less than 0.15mg/L	
Depth of macrophyte colonisation	Macrophyte colonisation to at least 2m depth	There will be no changes to the depth of macrophyte colonisation. There will be no changes to the hydrology of Galway Bay Complex SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Typical plant species	Maintain number and extent of listed lagoonal specialists, subject to natural variation	There will be no changes to plant, animal or negative indicator species composition. The proposed works are located 1.9km from the SAC and will not result in changes to the character or hydrology of Galway Bay Complex SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Typical animal species	Maintain listed lagoon specialists, subject to natural variation	
Negative indicator species	Negative indicator species absent or under control	

7.1.2.1 Determination of adverse effect

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Coastal Lagoons associated with the Galway Bay Complex SAC, in any phase of development.

7.1.3 Large shallow inlets and bays [1160]

The conservation objective for large shallow inlets and bays is:

'To maintain the favourable conservation condition of large shallow inlets and bays in Galway Bay Complex SAC'.

The attributes and targets for large shallow inlets and bays as per the Site Specific Conservation Objectives (SSCOs) for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the

proposed development against the nominated attributes and targets for the species is provided in Table 7-3.

Table 7-3 Targets and attributes associated with nominated site-specific conservation objectives for Large shallow inlets and bays [1160]

Attribute	Target	Assessment
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	There will be no reduction in habitat area. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Community extent	Maintain the extent of the *Zostera*-dominated community complex and the maërl-dominated community, subject to natural processes.	There will be no changes to community extent. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Community structure: *Zostera* density	Conserve the high quality of *Zostera*-dominated communities, subject to natural processes	There will be no changes to community structure or the community distribution. The proposed works are located 1.9km from the SAC and will not result in changes to the character or hydrology of Galway Bay Complex SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Community structure: Biological composition	Conserve the high quality of the maërl-dominated community, subject to natural processes	
Community Distribution	Conserve the following community types in a natural condition: Intertidal sandy mud community complex; Intertidal sand community complex; Fine to medium sand with bivalves community complex; Sandy mud to mixed sediment community complex; Mixed sediment dominated by Mytilidae community complex; Shingle; Fucoid-dominated community complex; Laminaria-dominated community complex; and Shallow sponge-dominated community complex.	

7.1.3.1 Determination of adverse effect

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Large shallow inlets and bays associated with the Galway Bay Complex SAC, in any phase of development.

7.1.4 Reefs [1170]

The conservation objective for reefs is:

'To maintain the favourable conservation condition of reefs in Galway Bay Complex SAC'.

The attributes and targets for coastal lagoons as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-4 below.

Table 7-4 Targets and attributes associated with nominated site-specific conservation objectives for Reefs [1170]

Attribute	Target	Assessment
Distribution	The distribution of reefs is stable or increasing, subject to natural processes.	There will be no changes in the distribution of this habitat as a result of the proposed development. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat area	The permanent habitat area is stable or increasing, subject to natural processes.	There will be no reduction in habitat area. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Community extent	Maintain the extent of the *Mytilus*-dominated reef community, subject to natural processes.	There will be no changes to the *Mytilus*-dominated reef community extent. The proposed development is located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Community structure: *Mytilus* density	Conserve the high quality of the *Mytilus*-dominated communities, subject to natural processes	There will be no changes to community structure. The proposed

Attribute	Target	Assessment
Community structure: Biological composition	Conserve the following community types in a natural condition: Fucoid dominated community complex; Laminaria dominated community complex; and Shallow sponge-dominated community complex	works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.

7.1.4.1 Determination on potential for adverse effect

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Reefs associated with the Galway Bay Complex SAC, in any phase of development.

7.1.5 *Salicornia* and other annuals colonising mud and sand [1310]

The conservation objective for *Salicornia* and other annuals colonising mud and sand is:

'To maintain the favourable conservation condition of Salicornia and other annuals colonising mud and sand in Galway Bay Complex SAC'.

The attributes and targets for Salicornia and other annuals colonising mud and sand [1310]as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-5 below.

Table 7-5 Targets and attributes associated with nominated site-specific conservation objectives for Salicornia and other annuals colonising mud and sand [1310]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House - 0.067ha, Seaweed Point - 0.003ha, Roscam West and South - 0.023ha, Kilcaimin - 0.015, Kileenaran - 0.007ha, Kinvara West - 0.017ha, Scanlan's Island - 0.117ha, Tawin Island - 1.098ha	There will be no reduction in habitat area or distribution. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: sediment supply	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no changes to physical structure of the SAC as a result of the proposed development. The proposed works are located 1.9km from the SAC.
Physical structure: creeks and pans	Maintain, or where necessary restore creek and pan structure, subject to natural processes, including erosion and succession	

Attribute	Target	Assessment
Physical structure: flooding regime	Maintain natural tidal regime	Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages
Vegetation structure: zonation	Maintain the range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	There will be no changes to vegetation structure within the SAC. The proposed works are located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation structure: vegetation height	Maintain structural vegetation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Maintain the range of species-poor communities with typical species listed in SMP (McCorry and Ryle, 2009)	There will be no changes to vegetation composition within the SAC. The proposed works are located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation composition structure within the SAC are proposed.
Vegetation structure: negative indicator species – *Spartina anglica*	There is currently no common cordgrass (*Spartina anglica*) in this SAC. Prevent establishment of cordgrass	

7.1.5.1 Determination on potential for adverse effect

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Salicornia and other annuals colonising mud and sand [1310] associated with the Galway Bay Complex SAC, in any phase of development.

7.1.6 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]

The conservation objective for Atlantic salt meadows is:

'To restore the favourable conservation condition of Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) *in Galway Bay Complex SAC'.*

The attributes and targets for Atlantic salt meadows as per the SSCO's for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-6 below.

Table 7-6 Targets and attributes associated with nominated site-specific conservation objectives for Atlantic salt meadows (Glauco-Puccinellietalia maritimae) [1330]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House – 2.33haha, Seaweed Point – 1.41ha, Roscam West and South – 3.3ha, Oranmore North – 4.24ha, Kilcaimin – 6.82ha, Tawin Island – 53.85ha, Tyrone House-Dunbulcaun Bay – 9.83ha, Kileenaran – 15.37ha, Kinvara West – 13.33ha, Scanlan's Island – 4.13ha	There will be no reduction in habitat area or distribution. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: sediment supply	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no changes to physical structure of the SAC. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	There will be no changes to vegetation structure within the SAC. The proposed works are located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation structure: vegetation height	Maintain structural vegetation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)	There will be no changes to vegetation composition within the SAC. The proposed works are located 1.9km from the SAC and no

Attribute	Target	Assessment
Vegetation structure: negative indicator species – *Spartina anglica*	There is currently no common cordgrass (*Spartina anglica*) in this SAC. Prevent establishment of cordgrass	works which could disturb vegetation or alter vegetation composition structure within the SAC are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.

7.1.6.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) associated with the Galway Bay Complex SAC, in any phase of development.

7.1.7 Mediterranean salt meadows (*Juncetalia maritimi*) [1410]

The conservation objective for Mediterranean salt meadows is:

'To restore the favourable conservation condition of Mediterranean salt meadows (*Juncetalia maritimi*) *in Galway Bay Complex SAC'.*

The attributes and targets for Mediterranean salt meadows as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-7 below.

Table 7-7 Targets and attributes associated with nominated site-specific conservation objectives for Mediterranean salt meadows (Juncetalia maritimi) [1410]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes, including erosion and succession. For sub-sites mapped: Barna House – 0.282ha, Seaweed Point – 0.931ha, Kilcaimin – 0.005ha, Tawin Island – 1.799ha, Tyrone House-Dunbulcaun Bay – 8.184ha, Kileenaran – 0.271ha	There will be no reduction in habitat area or distribution. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, or change in habitat distribution, subject to natural processes.	
Physical structure: sediment supply	Maintain/restore, natural circulation of sediments and organic matter, without any physical obstructions	There will be no changes to physical structure of the SAC. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages
Physical structure: creeks and pans	Maintain creek and pan structure, subject to natural processes, including erosion and succession	
Physical structure: flooding regime	Maintain natural tidal regime	
Vegetation structure: zonation	Maintain range of coastal habitats including transitional zones, subject to natural processes including erosion and succession.	There will be no changes to vegetation structure within the SAC. The proposed works are located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Vegetation structure: vegetation height	Maintain structural vegetation within sward	
Vegetation structure: vegetation cover	Maintain more than 90% of area outside creeks vegetated	
Vegetation composition: typical species and subcommunities	Maintain range of sub-communities with typical species listed in SMP (McCorry and Ryle, 2009)	There will be no changes to vegetation composition within the SAC. The proposed works are located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation composition, structure within the SAC are proposed. Strict biosecurity measures will be adhered to while onsite
Vegetation structure: negative indicator species – *Spartina anglica*	There is currently no common cordgrass (*Spartina anglica*) in this SAC. Prevent establishment of cordgrass	

Attribute	Target	Assessment
		Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.

7.1.7.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Mediterranean salt meadows (Juncetalia maritimi) [1410] associated with the Galway Bay Complex SAC, in any phase of development.

7.1.8 Otter (*Lutra lutra*) [1355]

The conservation objective for otter is:

'To restore the favourable conservation condition of otter in Galway Bay Complex SAC'.

The attributes and targets for otter as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-8 below.

Table 7-8 Targets and attributes associated with nominated site-specific conservation objectives for otter (Lutra lutra) [1355]

Attribute	Target	Assessment
Distribution	No significant decline	There will be no decline in distribution. The proposed works are located 1.9km from the SAC. No otter habitat is present within the proposed development site and the development will not impact on otter or otter distribution. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 262ha above high water mark (HWM); 14ha along river banks/around ponds	There will be no decline in the extent of terrestrial habitat. The proposed works are located 1.9km from the SAC and no watercourses present within the proposed development site .

Attribute	Target	Assessment
Extent of marine habitat	No significant decline. Area mapped and calculated as 2040ha	There will be no decline in the extent of marine habitat. The proposed works are located 1.9km from the SAC and any marine otter habitat. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 4km	There will be no decline in the extent of freshwater habitat. The proposed works are located 1.9km from the SAC and no otter habitat is present within or adjacent to the development site boundary. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Extent of freshwater (lake/lagoon) habitat	No significant decline. Area mapped and calculated as 21ha	There will be no decline in the extent of lake/lagoon habitat. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Couching sites and holts	No significant decline	There will be no decline in couching sites and holts. The site does not support suitable habitat for otter..
Fish biomass available	No significant decline	There will be no decline in fish biomass. There are no watercourses within or adjacent to the proposed development. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid

Attribute	Target	Assessment
		all water pollution during the construction and operational stages.
Barriers to connectivity	No significant increase.	The proposed development will not result in any increase in barriers to connectivity.

7.1.8.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Otter (*Lutra lutra*) associated with the Galway Bay Complex SAC, in any phase of development.

7.1.9 Harbour seal (*Phoca vitulina*) [1365]

The conservation objective for harbour seal is:

'To maintain the favourable conservation condition of harbour seal in Galway Bay Complex SAC'.

The attributes and targets for harbour seal as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-9 below.

Table 7-9 Targets and attributes associated with nominated site-specific conservation objectives for harbour seal (Phoca vitulina) [1365]

Attribute	Target	Assessment
Access to suitable habitat	Species range within the site should not be restricted by artificial barriers to site use.	The proposed development is located 1.9km from the SAC. The proposed development will not result in any barriers to site use.
Breeding behaviour	Conserve breeding sites in a natural condition.	The proposed development is located 1.9km from the SAC. The breeding site as mapped in Map 12 of the SSCOs will not be impacted by the development.
Moulting behaviour	Conserve moult haul-out sites in a natural condition.	The proposed development is located 1.9km from the SAC. The mapped moulting site will not be impacted by the development.
Resting behaviour	Conserve resting haul-out sites in a natural condition.	The proposed development is located 1.9km from the SAC. The mapped resting site will not be impacted by the proposed development.
Disturbance	Human activities should occur at levels that do not adversely affect the harbour seal population at the site	The proposed development is located 1.9km from the SAC. The proposed development will not result in an increase in human activity in proximity to harbour seal sites.

7.1.9.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Harbour seal (*Phoca vitulina*) associated with the Galway Bay Complex SAC, in any phase of development.

7.1.10 Turloughs [3180]

The conservation objective for Turloughs is:

'To maintain the favourable conservation condition of Turloughs in Galway Bay ComplexSAC.

The attributes and targets for Turloughs as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 7-10 below.

Table 7-10 Targets and attributes associated with nominated site-specific conservation objectives for Turloughs [3180]

Attribute	Target	Assessment
Habitat area	Area stable at c.59ha or increasing, subject to natural processes.	There will be no reduction in turlough habitat area or distribution or the hydrological regime of the SAC. The proposed development is located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all groundwater pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes	
Hydrological regime: flood duration, frequency, area, depth; permanently flooded area	Appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	
Soil type: area	Variety, area and extent of soil types necessary to support turlough vegetation and other biota	There will be no changes to physical structure of the SAC. The proposed development is located 1.9km from the SAC and no works which could alter physical structure are proposed.
Soil nutrient status: nitrogen and phosphorous	Nutrient status appropriate to soil types	
Physical structure: bare ground	Sufficient wet bare ground, as appropriate	
Chemical processes: calcium carbonate deposition and concentration	Appropriate $CaCO^3$ deposition rates and concentration in soil	There will be no changes to chemical balance within the SAC. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of
Water quality: nutrients; colour; phytoplankton; epiphyton	Appropriate water quality to support the natural structure and functioning of the habitat	

Attribute	Target	Assessment
Active peat formation	Active peat formation, where appropriate	measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Vegetation composition: area of vegetation communities	Maintain area of sensitive and high conservation value vegetation communities/units at each turlough	There will be no changes to vegetation composition or structure within the SAC. The proposed development is located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation composition, structure within the SAC are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Vegetation composition: vegetation zonation	Maintain vegetation zonation/mosaic characteristic of each turlough	
Vegetation structure: sward height	Sward heights appropriate to the vegetation unit, and a variety of sward heights across each turlough	
Typical species: terrestrial, wetland and aquatic plants, invertebrates and birds	Maintain typical species within and across all turloughs	
Fringing habitats: area	Maintain marginal fringing habitats that support turlough vegetation, invertebrate, mammal and/or bird populations	
Vegetation structure: turlough woodland	Maintain appropriate turlough woodland diversity and structure	

7.1.10.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Turloughs associated with the Galway Bay Complex SAC, in any phase of development.

7.1.11 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]

The conservation objective for Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* is:

'To maintain the favourable conservation condition of Calcareous fens with Cladium mariscus and species of the Caricion davallianae in Galway Bay Complex SAC.

The attributes and targets for Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 5-11 below.

Table 7-11 Targets and attributes associated with nominated site-specific conservation objectives for Calcareous fens with Cladium mariscus and species of the Caricion davallianae [7210]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution or the hydrological regime of the SAC. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	
Peat formation	Active peat formation, where appropriate	There will be no changes to peat forming processes associated with this SAC. The proposed development is located 1.9km from the SAC and no works which could alter physical structure are proposed.
Water quality: nutrients	Appropriate water quality to support the natural structure and functioning of the habitat	There will be no deterioration of water quality. The proposed works are located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Vegetation composition: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants	There will be no changes to the vegetation composition or physical structure within the SAC. The proposed works are located 1.9km from the SAC and no works which could alter vegetation composition or physical structure within the SAC are proposed.
Vegetation composition: trees and shrubs	Cover of scattered native trees and shrubs not more than 10%	
Physical structure: disturbed bare ground	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%	
Physical structure: drainage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling not more than 10%	

7.1.11.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210] associated with the Galway Bay Complex SAC, in any phase of development.

7.1.12 Alkaline fens [7230]

The conservation objective for Alkaline fens is:

'To maintain the favourable conservation condition of Alkaline fens in Galway Bay Complex SAC'.

The attributes and targets for Alkaline fens as per the SSCOs for Galway Bay Complex SAC (NPWS Version 1, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in Table 5-12 below.

Table 7-12 Targets and attributes associated with nominated site-specific conservation objectives for Alkaline fens [7230]

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes	
Hydrological regime	Appropriate natural hydrological regime necessary to support the natural structure and functioning of the habitat	
Peat formation	Active peat formation, where appropriate	There will be no changes to physical structure or water quality of the SAC. The proposed development is located 1.9km from the SAC and no works which could alter physical structure are proposed.
Water quality: nutrients	Appropriate water quality to support the natural structure and functioning of the habitat	
Vegetation composition: trees and shrubs	Cover of scattered native trees and shrubs less than 10%	There will be no changes to vegetation structure within the SAC. The proposed development is located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: typical species	Maintain vegetation cover of typical species including brown mosses and vascular plants	
Physical structure: disturbed bare ground	Cover of disturbed bare ground less than 10%. Where tufa is present, disturbed bare ground less than 1%	
Physical structure: drainage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%	

7.1.12.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Alkaline fens [7230] associated with the Galway Bay Complex SAC, in any phase of development.

7.1.13 Determination on Potential for Adverse Effects Galway Bay Complex SAC

Based on the above review of the individual Qualifying Interests, and following implementation of best practice and mitigation measures described in Section 3 and Section 6 of this report, it can be concluded, in view of best scientific knowledge and based on objective information, that the Proposed Project will not adversely affect this SAC.

7.2 Inner Galway Bay SPA

The potential for adverse residual effects on each of the individual Special Conservation Interest that was identified as being at risk of potential effects in the AA Screening Report is assessed in this section in view of the Conservation Objectives of that habitat.

7.2.1 Wetland and Waterbirds [A999]

The attributes and targets for Wetland and Waterbirds as per the Site Specific Conservation Objectives (SSCOs) for Inner Galway Bay SPA (NPWS, 2013) and an assessment of the proposed development against the nominated attributes and targets for the SCI is provided in the table below.

Table 7-13 Targets and attributes associated with nominated site-specific conservation objectives for Wetland and Waterbirds [A999]

Attribute	Target	Assessment
Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 13,267ha, other than that occurring from natural patterns of variation.	The site does not support significant suitable wetland habitat for SCI bird species. There will be no reduction in the area occupied by wetland habitat as a result of the development. The results of the winter birds survey show the site does not provide significant supporting habitat for SCI species associated with Inner Galway Bay SPA A suite of best practice measures has been incorporated into the project design to avoid and minimise potential impacts caused by degradation in water quality. Taking into consideration the preventative measures to avoid impact, it can be concluded that the proposed develop. pment will not result in any impacts which could adversely affect the extent of wetland habitat area. Taking into consideration the preventative measures to avoid impact (as described in section 6.2.2, it can be concluded that the proposed development will not result in any impacts which could adversely affect the extent of wetland habitat area.

7.2.1.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Wetland and Waterbirds associated with the Inner Galway Bay SPA in any phase of development.

7.2.2 SCI Bird Species

The attributes and targets for the SCI bird species as per the Site Specific Conservation Objectives (SSCOs) for Inner Galway Bay SPA (NPWS, 2013) and an assessment of the proposed development against the nominated attributes and targets for the species is provided in the table below.

Table 7-14. Target and attributes associated with site specific conservation objectives for SCI species

Species	Attribute	Target	Assessment
• Great Northern Diver • Grey Heron • Brent Goose • Wigeon • Teal • Shoveler • Red-breasted Merganser • Ringed Plover • Golden Plover • Lapwing • Dunlin • Bar-tailed Godwit • Curlew • Turnstone • Black-headed Gull • Common Gull • Cormorant	Population trend	Long term population trend stable or increasing	The site does not support significant suitable wetland habitat for any of these SCI bird species associated with Inner Galway Bay SPA. The loss of the habitats within the proposed development site will have no effect on population trends of these species.
	Distribution	No significant decrease in the range, timing or intensity of use of areas by the species, other than that occurring from natural patterns of variation	The site does not support significant suitable wetland habitat for any of these SCI bird species associated with Inner Galway Bay SPA. There will be no changes in the distribution of these species as a result of the proposed development.
• Sandwich tern • Common tern • Cormorant	Breeding population abundance; apparently occupied nests	No significant decline	There will be no significant decline in any of these attributes. The site does not support significant suitable wetland habitat for these SCI bird species.
	Productivity rate: fledged young per breeding pair		
	Distribution: breeding colonies		
	Prey biomass available		
	Barriers to connectivity		
	Disturbance at breeding site	Human activities should occur at levels that do not adversely affect the breeding population	There will be no increase in disturbance to these species. The site does not support significant suitable wetland habitat for these SCI bird species. The proposed development will not provide additional connectivity between the site and the SPA.

7.2.2.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the SCI bird species associated with the Inner Galway Bay SPA in any phase of development.

7.3 Lough Corrib SAC

7.3.1 Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]

The conservation objective for Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) is:

'To restore the favourable conservation condition of Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) in Lough Corrib SAC, which is defined by the following list of attributes and targets'

Table 7-15. Targets and attributes associated with Oligotrophic waters containing very few minerals

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes. See map 3 for indicative lake habitat distribution	
Typical species	Typical species present, in good condition, and demonstrating typical abundances and distribution	There will be no changes to vegetation structure within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: characteristic zonation	All characteristic zones should be present, correctly distributed and in good condition	
Vegetation distribution: maximum depth	Restore maximum depth of vegetation, subject to natural processes	
Hydrological regime: water level fluctuations	Maintain appropriate natural hydrological regime necessary to support the habitat	There will be no changes to hydrological regime or water quality of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the
Lake substratum quality	Restore appropriate substratum type, extent and chemistry to support the vegetation	
Water quality: transparency	Restore appropriate Secchi transparency. There should be no	

Attribute	Target	Assessment
	decline in Secchi depth/transparency	proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water quality: nutrients	Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	
Water quality: phytoplankton biomass	Restore appropriate water quality to support the habitat, including high chlorophyll a status	
Water quality: phytoplankton composition	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	
Water quality: attached algal biomass	Restore/maintain trace/absent attached algal biomass (	
Water quality: macrophyte status	Maintain high macrophyte status	
Acidification status	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	There will be no changes to acidification levels or changes in water colour of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water colour	Restore/maintain appropriate water colour to support the habitat	
Dissolved organic carbon (DOC)	Restore/maintain appropriate organic carbon levels to support the habitat	There will be no changes to water chemistry or turbidity levels of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Turbidity	Restore/maintain appropriate turbidity to support the habitat	
Fringing habitat: area and condition	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3110	There will be no reduction in the extent of fringing habitat cover of the SAC. The proposed development is located 0.7km from the SAC.

7.3.1.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely

affect the QI Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) associated with the Lough Corrib SAC, in any phase of development.

7.3.2 Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]

The conservation objective for Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* is:

'To restore the favourable conservation condition of Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoëto-Nanojuncetea* in Lough Corrib SAC, which is defined by the following list of attributes and targets'

Table 7-16. Targets and attributes associated with Oligotrophic waters to mesotrophic standing waters

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes. See map 3 for indicative lake habitat distribution	
Typical species	Typical species present, in good condition, and demonstrating typical abundances and distribution	There will be no changes to vegetation structure within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: characteristic zonation	All characteristic zones should be present, correctly distributed and in good condition	
Vegetation distribution: maximum depth	Restore maximum depth of vegetation, subject to natural processes	
Hydrological regime: water level fluctuations	Maintain appropriate natural hydrological regime necessary to support the habitat	There will be no changes to physical structure or water quality of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in
Lake substratum quality	Restore appropriate substratum type, extent and chemistry to support the vegetation	

Attribute	Target	Assessment
Water quality: transparency	Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water quality: nutrients	Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	
Water quality: phytoplankton biomass	Restore appropriate water quality to support the habitat, including high chlorophyll a status	
Water quality: phytoplankton composition	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	
Water quality: attached algal biomass	Restore/maintain trace/absent attached algal biomass (	
Water quality: macrophyte status	Maintain high macrophyte status	
Acidification status	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	There will be no changes to acidification levels or changes in water colour of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water colour	Restore/maintain appropriate water colour to support the habitat	
Dissolved organic carbon (DOC)	Restore/maintain appropriate organic carbon levels to support the habitat	There will be no changes to water chemistry or turbidity levels of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Turbidity	Restore/maintain appropriate turbidity to support the habitat	
Fringing habitat: area and condition	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3130	There will be no reduction in the extent of fringing habitat cover of the SAC. The proposed development is located 0.7km from the SAC.

7.3.2.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* associated with the Lough Corrib SAC, in any phase of development.

7.3.3 Hard Oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140]

The conservation objective for Hard Oligo-mesotrophic waters with benthic vegetation of Chara spp.is:

'To restore the favourable conservation condition of Hard oligo-mesotrophic waters with benthic vegetation of Chara spp. in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-17. Targets and attributes for Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Typical species	Typical species present, in good condition, and demonstrating typical abundances and distribution	There will be no changes to vegetation structure within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: characteristic zonation	All characteristic zones should be present, correctly distributed and in good condition	
Vegetation distribution: maximum depth	Restore maximum depth of vegetation, subject to natural processes	
Hydrological regime: water level fluctuations	Maintain appropriate natural hydrological regime necessary to support the habitat	There will be no changes to physical structure or water quality of the SAC. The proposed development is located 1.9km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Lake substratum quality	Restore appropriate substratum type, extent and chemistry to support the vegetation	
Water quality: transparency	Restore appropriate Secchi transparency. There should be no decline in Secchi depth/transparency	

Attribute	Target	Assessment
Water quality: nutrients	Restore the concentration of nutrients in the water column to sufficiently low levels to support the habitat and its typical species	
Water quality: phytoplankton biomass	Restore appropriate water quality to support the habitat, including high chlorophyll a status	
Water quality: phytoplankton composition	Maintain appropriate water quality to support the habitat, including high phytoplankton composition status	
Water quality: attached algal biomass	Restore/maintain trace/absent attached algal biomass (	
Water quality: macrophyte status	Maintain high macrophyte status	
Acidification status	Maintain appropriate water and sediment pH, alkalinity and cation concentrations to support the habitat, subject to natural processes	There will be no changes to acidification levels or changes in water colour of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water colour	Restore/maintain appropriate water colour to support the habitat	
Dissolved organic carbon (DOC)	Restore/maintain appropriate organic carbon levels to support the habitat	There will be no changes to water chemistry or turbidity levels of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Turbidity	Restore/maintain appropriate turbidity to support the habitat	
Fringing habitat: area and condition	Maintain the area and condition of fringing habitats necessary to support the natural structure and functioning of habitat 3130	There will be no reduction in the extent of fringing habitat cover of the SAC. The proposed development is located 0.7km from the SAC.

7.3.3.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Hard oligo-mesotrophic waters with benthic vegetation of Chara spp associated with the Lough Corrib SAC, in any phase of development.

7.3.4 Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]

The conservation objective for Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation is:

'To maintain the favourable conservation condition of Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-18. Targets and attributes for Water courses of plain to montane levels with Ranunculions fluitantis and Callitricho-Batrachion vegetation

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Hydrological regime: river flow	Maintain appropriate hydrological regimes	There will be no changes to hydrological regime or water quality of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Hydrological regime: groundwater discharge	Maintain appropriate hydrological regimes	
Substratum composition: particle size range	Maintain appropriate substratum particle size range, quantity and quality, subject to natural process	
Water quality	Maintain appropriate water quality to support the natural structure and functioning of the habitat	
Vegetation composition: typical species	Typical species of the relevant habitat sub-type should be present and in good condition	There will be no changes to vegetation composition within the SAC. The proposed development is located 1.9km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.

Attribute	Target	Assessment
Floodplain connectivity: area	The area of active floodplain at and upstream of the habitat should be maintained	There will be no changes or reduction in floodplain connectivity or riparian habitat as a result of the within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Riparian habitat: area	Maintain the area and condition of fringing habitats necessary to support the habitat and its sub-types	

7.3.4.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Hard oligo-mesotrophic waters with benthic vegetation of Chara spp associated with the Lough Corrib SAC, in any phase of development.

7.3.5 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]

The conservation objective for Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* is:

'To maintain the favourable conservation condition of Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-19. Targets and attricbutes for Calcareous fens with Cladium mariscus and species of the Caricion davallinae

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Ecosystem function: hydrology	Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	There will be no changes to hydrology, peat forming ability or water quality of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed
Ecosystem function: peat formation	Maintain active peat formation, where appropriate	

Attribute	Target	Assessment
Ecosystem function: water quality	Maintain vegetation cover of typical species including brown mosses and vascular plants	development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Vegetation structure: typical species	Maintain appropriate water quality to support the natural structure and functioning of the habitat	There will be no changes to vegetation structure or species composition within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: nonnative species	Cover of non-native species less than 1%	
Vegetation composition: trees and shrubs	Cover of scattered native trees and shrubs less than 10%	
Physical structure: disturbed bare ground	Cover of disturbed bare ground not more than 10%. Where tufa is present, disturbed bare ground not more than 1%	There will be no changes to the vegetation composition or physical structure within the SAC. The proposed works are located 0.7km from the SAC and no works which could alter vegetation composition or physical structure within the SAC are proposed.
Physical structure: drainage	Areas showing signs of drainage as a result of drainage ditches or heavy trampling not more than 10%	
Indicators of local distinctiveness	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	

7.3.5.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* associated with the Lough Corrib SAC, in any phase of development.

7.3.6 Petrifying springs with tufa formation (Cratoneurion) [7220]

The conservation objective for Petrifying springs with tufa formation (Cratoneurion) is:

'To maintain the favourable conservation condition of Petrifying springs with tufa formation (Cratoneurion)* in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-20. Targets and attributes for Petrifying springs with Tufa Formation

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 1.9km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Hydrological regime: height of water table; water flow	Maintain appropriate hydrological regimes	There will be no changes to the hydrological regime or water quality of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Water quality - nitrate level	No increase from baseline nitrate level and less than 10mg/l	
Water quality - phosphate level	No increase from baseline phosphate level and less than 15µg/l	
Vegetation composition: positive indicator species	At least three positive/high quality indicator species as listed in Lyons and Kelly (2016) and no loss from baseline number	There will be no changes to vegetation or physical structure within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: negative indicator species	Potentially negative indicator species should not be Dominant or Abundant; invasive species should be absent	
Vegetation structure: sward height	Field layer height between 10cm and 50cm (except for bryophyte-dominated ground	
Physical structure: trampling/dung	Cover should not be Dominant or Abundant	

7.3.6.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Petrifying springs with tufa formation (Cratoneurion) associated with the Lough Corrib SAC, in any phase of development.

7.3.7 Alkaline fens [7230]

The conservation objective for Alkaline fens is:

'To maintain the favourable conservation condition of Alkaline fens in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-21. Targets and attributes for alkaline fens.

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Ecosystem function: soil nutrients	Maintain soil nutrient status within natural range	There will be no changes to soil nutrients within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter soil nutrients within the SAC are proposed.
Ecosystem function: peat formation	Maintain active peat formation, where appropriate	There will be no changes to physical structure or water quality of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed.
Ecosystem function: hydrology	Maintain appropriate natural hydrological regimes necessary to support the natural structure and functioning of the habitat	
Ecosystem function: water quality	Maintain appropriate water quality, particularly nutrient levels, to support the natural structure and functioning of the habitat.	There will be no changes to vegetation structure, composition or diversity within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Community diversity	Maintain variety of vegetation communities, subject to natural processes	
Vegetation composition: number of positive indicator species (brown mosses)	Number of brown moss species present at each monitoring stop is at least one	
Vegetation composition: number of positive indicator species (vascular plants)	Number of positive vascular plant indicator species present at each monitoring stop is at least two for small-sedge flushes and at least three for black bog-rush (Schoenus nigricans) flush and bottle sedge (Carex rostrata) fen	

Attribute	Target	Assessment
Vegetation composition: cover of positive indicator species	Total cover of brown moss species and positive vascular plant indicator species at least 20% for small-sedge flushes and at least 75% cover for black bog-rush (Schoenus nigricans) flush and bottle sedge (Carex rostrata) fen	
Vegetation composition: negative indicator species	Total cover of negative indicator species less than 1%	
Vegetation composition: nonnative species	Cover of non-native species less than 1%	
Vegetation composition: native trees and shrubs	Cover of scattered native trees and shrubs less than 10%	
Vegetation composition: soft rush and common reed cover	Total cover of soft rush (Juncus effusus) and common reed (Phragmites australis) less than 10%	
Vegetation structure: height	Proportion of live leaves and/or flowering shoots of vascular plants that are more than 5cm above the ground surface should be at least 50%	
Physical structure: disturbed bare ground	Cover of disturbed bare ground less than 10%	There will be no change to the physical structure within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Physical structure: drainage	Area showing signs of drainage as a result of drainage ditches or heavy trampling less than 10%	
Physical structure: tufa formations	Disturbed proportion of vegetation cover where tufa is present is less than 1%	
Indicators of local distinctiveness	No decline in distribution or population sizes of rare, threatened or scarce species associated with the habitat	

7.3.7.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Alkaline fens associated with the Lough Corrib SAC, in any phase of development.

7.3.8 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]

The conservation objectives for *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae)* is:

'To maintain the favourable conservation condition of *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-22. Targets and attributes for Molinia meadows

Attribute	Target	Assessment
Habitat area	Area stable or increasing, subject to natural processes	There will be no reduction in habitat area or distribution. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat distribution	No decline, subject to natural processes.	
Vegetation composition: typical species	At least seven positive indicator species present, including one "high quality" species as listed in O'Neill et al. (2013)	There will be no changes to vegetation structure, composition or diversity within the SAC. The proposed development is located 0.7km from the SAC and no works which could disturb vegetation or alter vegetation structure within the SAC are proposed.
Vegetation composition: negative indicator species	Negative indicator species collectively not more than 20% cover, with cover by an individual species not more than 10%	
Vegetation composition: nonnative species	Cover of non-native species not more than 1%	
Vegetation composition: moss species	Hair mosses (Polytrichum spp.) not more than 25% cover.	
Vegetation structure: woody species and bracken	Cover of woody species and bracken (*Pteridium aquilinum*) not more than 5%	
Vegetation structure: broadleaf herb: grass ratio	Broadleaf herb component of vegetation between 40% and 90%	
Vegetation structure: sward height	At least 30% of sward between 10cm and 80cm tall	

Attribute	Target	Assessment
Vegetation structure: litter	Litter cover not more than 25%	
Physical structure: bare soil	Not more than 10% bare soil	There will be no changes to physical structure of the SAC. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed.
Physical structure: disturbance	Area showing signs of serious grazing or other disturbance less than 20m²	

7.3.8.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) associated with the Lough Corrib SAC, in any phase of development.

7.3.9 *Lutra lutra* [Otter] [1355]

The conservation objective for Otter is:

To maintain the favourable conservation condition of Otter in Lough Corrib SAC, which is defined by the following list of attributes and targets:

Table 7-23. Targets and attributes for Otter

Attribute	Target	Assessment
Distribution	No significant decline	There will be no decline in distribution. The proposed works are located 0.7km from the SAC. No otter habitat is present within the proposed development site and the development will not impact on otter or otter distribution. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Extent of terrestrial habitat	No significant decline. Area mapped and calculated as 1,054ha along river banks/ lake shoreline/around ponds	There will be no decline in the extent of terrestrial habitat. The proposed works are located 1.9km from the SAC and no watercourses present within the proposed development site
Extent of freshwater (river) habitat	No significant decline. Length mapped and calculated as 314.2km	There will be no decline in the extent of freshwater habitat. The proposed works are located 0.7km from the SAC and no otter habitat

Attribute	Target	Assessment
		is present within or adjacent to the development site boundary. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Extent of freshwater (lake) habitat	No significant decline. Area mapped and calculated as 4,178ha	There will be no decline in the extent of lake/lagoon habitat. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Couching sites and holts	No significant decline	There will be no decline in couching sites and holts. The site does not support suitable habitat for otter.
Fish biomass available	No significant decline	There will be no decline in fish biomass. There are no watercourses within or adjacent to the proposed development. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Barriers to connectivity	No significant increase.	The proposed development will not result in any increase in barriers to connectivity.

7.3.10 *Austropotamobius pallipes* (White-clawed Crayfish) [1092]

The conservation objective for White-clawed crayfish is:

'To maintain the favourable conservation condition of White-clawed Crayfish in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-24. Targets and attributes for White-clawed crayfish.

Attribute	Target	Assessment
Distribution: rivers	No reduction from baseline.	There will be no decline in distribution., from rivers or Lough Corrib The proposed works are located 0.7km from the SAC. No white-clawed crayfish habitat is present within the proposed development site and the development will not impact on otter or otter distribution.
Distribution: Lough Corrib	No reduction from baseline	

Attribute	Target	Assessment
		Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Population structure: recruitment	Juveniles and/or females with eggs in all occupied tributaries and occupied parts of Lough Corrib	There will be no changes to population structure, recruitment or increase in negative indicator or dieses species as a result of the development. The proposed development is located 0.7km from the SAC and no works which could alter population structure are proposed.
Negative indicator species	No alien crayfish species	
Disease	No instances of disease	
Water quality	At least Q3-4 at all sites sampled by EPA	There will be no changes to water quality or habitat quality of the SAC. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Habitat quality: heterogeneity	No decline in habitat heterogeneity or habitat quality	

7.3.10.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI White clawed crayfish associated with the Lough Corrib SAC, in any phase of development.

7.3.11 Brook Lamprey *Lampetra planeri* [1096]

The conservation objective for Brook lamprey is:

'To maintain the favourable conservation condition of Brook Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-25. Targets and attributes for brook lamprey.

Attribute	Target	Assessment
Distribution	Access to all watercourses down to first order streams	There will be no decline in distribution. The proposed works are located 0.7km from the SAC. No brook lamprey habitat is present within the proposed development site and the development will not impact on brook lamprey distribution.

Attribute	Target	Assessment
		Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Population structure of juveniles	At least three age/size groups of brook/river lamprey present	There will be no changes to population structure or juvenile density species as a result of the development. The proposed development is located 0.7km from the SAC.
Juvenile density in fine sediment	Mean catchment ammocoete density of brook/river lamprey at least 5/m²	
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	There will be no changes to the extant and distribution of spawning or juvenile habitat of the development. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed.
Availability of juvenile habitat	More than 50% of sample sites positive	

7.3.11.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Brook lamprey associated with the Lough Corrib SAC, in any phase of development.

7.3.12 Sea lamprey (*Petromyzon marinus*) [1095]

The conservation objective for Sea lamprey is:

'To restore the favourable conservation condition of Sea Lamprey in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-26. Targets and attributes for sea lamprey

Attribute	Target	Assessment
Distribution: extent of anadromy	Greater than 75% of main stem length of rivers accessible from estuary	There will be no decline in distribution. The proposed works are located 0.7km from the SAC. No sea lamprey habitat is present within the proposed development site and the development will not impact on sea lamprey distribution. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Population structure of juveniles	At least three age/size of groups present	There will be no changes to population structure or juvenile density species as a result of the

Attribute	Target	Assessment
Juvenile density in fine sediment	Mean catchment juvenile density at least 1/m²	development. The proposed development is located 0.7km from the SAC.
Extent and distribution of spawning habitat	No decline in extent and distribution of spawning beds	There will be no changes to the extant and distribution of spawning or juvenile habitat of the development. The proposed development is located 0.7km from the SAC and no works which could alter physical structure are proposed.
Availability of juvenile habitat	More than 50% of sample sites positive, with a minimum of four positive sites in a catchment, which are at least 5km apart	

7.3.12.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Sea lamprey associated with the Lough Corrib SAC, in any phase of development.

7.3.13 Salmon (*Salmo salmo*) [1106]

The conservation objective for Salmon is:

'To maintain the favourable conservation condition of Atlantic Salmon in Lough Corrib SAC, which is defined by the following list of attributes and targets:'

Table 7-27. Targets and attributes for Salmon.

Attribute	Target	Assessment
Distribution: extent of anadromy	100% of river channels down to second order accessible from estuary	There will be no decline in distribution. The proposed works are located 0.7km from the SAC. No salmon habitat is present within the proposed development site and the development will not impact on salmon distribution.
Adult spawning fish	Conservation limit (CL) for each system consistently exceeded	There will be no decline in spawning adult fish. The proposed works are located 0.7km from the SAC. The development will not impact on the distribution of spawning adult fish.
Salmon fry abundance	Maintain or exceed 0+ fry mean catchment-wide abundance threshold value. Currently set at 17 salmon fry/5 minutes sampling	There will be no changes to population fry or smolt abundance as a result of the development. The proposed development is located 0.7km from the SAC and no works which could alter population abundances of this QI species.
Out-migrating smolt abundance	No significant decline	

Attribute	Target	Assessment
		Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.
Number and distribution of redds	No decline in number and distribution of spawning redds due to anthropogenic causes	There will be no changes or reduction to the distribution of redds within the SAC. The proposed development is located 1.9km from the SAC and no works which could disturb or alter reed structure or distribution within the SAC are proposed.
Water quality	At least Q4 at all sites sampled by EPA	There will be no changes to water quality SAC. The proposed development is located 0.7km from the SAC. Indirect pathways that would allow impacts to occur were considered in the design of the proposed development and a range of measures, outlined in Section 3.2.1 & 6.2 of this report are in place to avoid all water pollution during the construction and operational stages.

7.3.13.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Salmon associated with the Lough Corrib SAC, in any phase of development.

7.3.14 Determination on potential for adverse effects on Lough Corrib SAC

Based on the above review of the individual Qualifying Interests, and following implementation of best practice and mitigation measures described in Section 3 and Section 6 of this report, it can be concluded, in view of best scientific knowledge and based on objective information, that the Proposed Project will not adversely affect this SAC.

7.4 Lough Corrib SPA [004042]

The potential for adverse effects on the SCI of Lough Corrib SPA [004042] 'Wetland and Waterbirds [A999]' is assessed in this section in view of its Conservation Objectives. A potential pathway for indirect effects on the SCI 'Wetlands and Waterbirds' was identified in the form of deterioration of groundwater quality due to pollution associated with construction and operational activities.

The conservation objectives document for Lough Corrib SPA does not provide any site-specific targets and attributes for SCIs, including Wetlands and Waterbirds'. As such, the table below provides the targets and attributes for the closest SPA with Wetlands and Waterbirds listed as an SCl, which in this case is Inner Galway Bay SPA.

Table 7-28. Targets and attributes associated with nominated site-specific conservation objectives for Wetland and Waterbirds [A999] associated with Inner Galway Bay SPA

Attribute	Target	Assessment
Habitat area	The permanent area occupied by the wetland habitat should be stable and not significantly less than the area of 13,267ha, other than that occurring from natural patterns of variation.	The site does not support significant suitable wetland habitat for SCI bird species. There will be no reduction in the area occupied by wetland habitat as a result of the development. The results of the winter birds survey show the site does not provide significant supporting habitat for SCI species associated with Inner Galway Bay SPA A suite of best practice measures has been incorporated into the project design to avoid and minimise potential impacts caused by degradation in water quality. Taking into consideration the preventative measures to avoid impact, it can be concluded that the proposed development will not result in any impacts which could adversely affect the extent of wetland habitat area. Taking into consideration the preventative measures to avoid impact (as described in section 6.2.2, it can be concluded that the proposed development will not result in any impacts which could adversely affect the extent of wetland habitat area.

7.4.1.1 Determination on potential for adverse effects

Based on the above, it can be concluded, in view of best scientific knowledge and based on objective information and the conservation objectives of the site, that the Proposed Project will not adversely affect the QI Wetland and Waterbirds associated with the Lough Corrib SPA in any phase of development.

7.4.1.2 Conclusion of Residual Impact Assessment

Taking cognisance of measures to avoid impacts and best practice/mitigation measures incorporated into the project design which are considered in the preceding section, the proposed project will not have an adverse effect on the integrity of any European site.

The proposed project will not prevent the QIs/SCIs of European Sites from achieving/maintaining favourable conservation status in the future as defined in Article 1 of the EU Habitats Directive. A definition of Favourable Conservation Status is provided below:

> 'conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within the territory referred to in Article 2;

The conservation status will be taken as 'favourable' when:

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

Based on the above, it can be concluded in view of best scientific knowledge, on the basis of objective information that the proposed development will not adversely affect the Qualifying Interests/Special Conservation Interests associated with the following European sites:

- Galway Bay Complex SAC [000268]
- Inner Galway Bay SPA [004031]
- Lough Corrib SPA [004042]
- Lough Corrib SAC [000297]

8. CUMULATIVE EFFECTS

A search and review in relation to plans and projects that may have the potential to result in cumulative and/or in-combination impacts on European Sites was conducted. This assessment focuses on the potential for cumulative in-combination effects on the European Sites where potential for adverse effects was identified at the screening stage (Appendix 1). This included a review of online Planning Registers, development plans and other available information and served to identify past and future plans and projects, their activities and their predicted environmental effects.

8.1 Plans

The proposed project lies within land zoned as residential in the Galway City Council Development Plan 2017-2023. The policies and objectives of this plan have already been assessed in the Galway City Development Plan Natura Impact Report (NIR) (RPS, 2016). This report concluded that having incorporated mitigation measures, the GCDP 2017-2023 will not have a significant adverse effect on the integrity of the European sites either individually or in combination with other plans or projects.

The following plans have been reviewed and are taken into consideration as part of this assessment:

- Galway City Development Plan 2017-2023
- Galway County Heritage and Biodiversity Plan 2017-2022
- Galway BAP 2014 – 2020
- Northern and Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032
- Galway City Transport Project 2015

The review focused on policies and objectives that relate to European Sites and natural heritage (**Error! Reference source not found.**). **No potential for cumulative impacts when considered in conjunction with the current proposed conservation works were identified**.

Table 8-1. Review and Assessment of Compliance with Plans for Galway City

Plans	Key Policies/Issues/Objectives Directly Related to European Sites, Biodiversity and Sustainable Development in The Zone of Influence	Assessment of Conservation Works Compliance with Policy
Galway City Council Development Plan 2017-2023	Policy 4.1 Green Network Support sustainable use and management of areas of ecological importance, parks and recreation amenity areas and facilities through an integrated green network policy approach in line with Galway City Recreation and Amenity Needs Study, where it can be demonstrated that there will be no adverse impacts on the integrity of European Sites. Policy 4.2 Protected Spaces: Sites of European, National and Local Ecological Importance *Protect European sites that form part of the Natura 2000 network (including Special Protection Areas and Special Areas of Conservation) in accordance with the requirements in the EU Habitats Directive (92/43/EEC), EU Birds Directive (2009/147/EC) and associated national legislation.* *Protect, conserve and promote the nationally designated sites of ecological importance, including existing and proposed Natural Heritage Areas (NHAs and pNHAs) in the city.* *Protect, conserve and support the development of an ecological network throughout the city which will improve the ecological coherence of the Natura 2000 network in accordance with Article 10 of the Habitats Directive.* *Protect Local Biodiversity Areas, wildlife corridors and stepping stones identified in the Galway City Habitat Inventory 2005 and Galway Biodiversity Action Plan 2014-2024 in supporting the biodiversity of the city and in the Council's role/responsibilities, works and operations, where appropriate.*	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites as outlined in sections 3.2.1 & 6.2 of this report. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

	Protect and conserve rare and threatened flora and fauna and their key habitats, (wherever they occur) listed on Annex I and Annex IV of the EU Habitats Directive (92/43EEC) and listed for protection under the Wildlife Acts 1976-2000 Policy 4.3 Blue Spaces: Coast, Canals and Waterways *Conserve and protect natural conservation areas within the coastal area and along waterways and ensure that the range and quality of associated habitats and the range and populations of species are maintained.* *Ensure the protection of the River Corrib as a Salmonid River, where appropriate.* *Protect and maintain, where feasible, undeveloped riparian zones and natural floodplains along the River Corrib and its tributaries. Ensure that development does not have a significant adverse impact, incapable of satisfactory mitigation, on protected species.*	
National Biodiversity Action Plan 2017-2021	Target 6.2 - Sufficiency, coherence, connectivity, and resilience of the protected areas network substantially enhanced by 2020.	The Development plan was comprehensively reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites as outlined in sections 3.2.1 & 6.2 of this report. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

Northern and Western Regional Assembly Regional Spatial and Economic Strategy 2020-2032	Regional Policy Objective 5.5 – Ensure efficient and sustainable use of all our natural resources, including inland waterways, peatlands, and forests in a manner which ensures a healthy society a clean environment and there is no net contribution to biodiversity loss arising from development supported in this strategy. Conserve and protect designated areas and natural heritage area. Conserve and protect European sites and their integrity. Regional Policy Objective 5.7 - Ensure that all plans, projects and activities requiring consent arising from the RSES are subject to the relevant environmental assessment requirements including SEA, EIA and AA as appropriate	The strategy was reviewed, with particular reference to Policies and Objectives that relate to the Natura 2000 network and other natural heritage interests. No potential for cumulative impacts when considered in conjunction with the current proposal were identified. There will be no impact on designated sites as a result of the development. Best practice preventative measures will be implemented to avoid effects on European Sites as outlined in sections 3.2.1 & 6.2 of this report. There will be no adverse effects on receptors listed as QIs/SCIs of European Sites, as a result of the development.

8.1.1 Other Projects considered in the wider area

- The proposed development was considered in-combination with other plans and projects in the area that could result in cumulative impacts on designated Sites. The online planning system for Galway City Council as well as the An Bord Pleanála Website (planning searches), was consulted on the 23/10/2020 for the relevant area surrounding the site. Additional projects identified in the area include;
- Planning reference 18292: Second E.O.D. on Pl. Ref. 08/532. (First E.O.D Pl Ref 14/9) Permission for the construction of 84 No. residential units (14 No. 1 bed apartments, 44 No. 2 bed townhouses and 26 No. 3 bed townhouses) in 8 No. two and three storey blocks, 118 No. car parking spaces (comprising 26 No. new basement spaces and 92 NO. new surface spaces) construction of flood mitigation measures and landscaping to pond area to north of site, provision of 3 No. bin storage/meter rooms and 1 No. substation and all associated site development works. In addition to the proposed 118 No. new spaces, this proposal involves the use of 36 No. existing basement car parking spaces (approved under Pl. Ref. 592/03) to accommodate the proposed residential development.
- Planning reference 1942: Permission to amend Phase II of planning approval reference 0658, with; (i) the omission of all underground parking; (ii) the omission of 13 no. 4-bedroom Type G3 and G4 houses;(iii) the omission of 15 no. 3-bedroom Type G1 and 4 no. 1-bedroom Type J apartments; (iv) the re-alignment of the internal secondary access road; (v) the re-design of the previously approved 32 no. 2 bedroom and 8 no. 1-bedroom apartments to 26 no. 2 bedroom and 14 no. 1 bed-room enhanced apartments with in-house Care Support facilities; (vi) the provision of 70 no. surface car parking spaces; 9 no. 3 bedroom houses; 18 no. 3-bedroom upper duplex apartments; 16 no. 2-bedroom ground floor apartments; a childrens crèche; a central amenity play area; and all associated site works.
- Planning reference 17342: Permission for a) the construction of an ASD Classroom & General classroom with ancillary rooms single storey rear extension, b) New parking drop off area to rear of school accessed from a new shared access road granted permission under Pl. Ref: 15/366, c) revised boundary treatments including minor revisions to those granted under adjacent permission Pl. Ref: 15/366 and all associated external works.
- Planning reference 20261: Permission for development which will consist of 1. a mixed-use scheme with an overall gross floor area (GFA) of approximately 97,936 sqm. on a site of circa 6.81 hectares. The development is arranged across 13 no. development blocks (A-M) ranging in height from 2 to 8 storeys with associated ground level and basement level car parking. 2. Demolition of an existing security kiosk, and demolition and relocation of an existing substation. 3. Construction of 4 no. blocks of commercial offices ranging in height from 4 to 5 storeys over ground floor level (GFA c. 25,527 sqm). 4. A hotel development (8 floors over ground floor level) comprising 150 no. hotel bedrooms, 72 no. apart hotel units, conference facilities and restaurant/bar areas (GFA c. 12,375 sqm.) A leisure centre and spa with indoor swimming pool and gym, changing rooms, treatment rooms, studios, ancillary spaces (GFA c. 2,479 sqm.). 5. 9 no. blocks of residential units ranging in height from 2 to 8 storeys over ground floor level totalling 309 no. apartments including 118 no. 1-bed apartments, 143 no. 2-bed apartments, 42 no. 3-bed apartments, 3 no. 4-bed apartments and 3 no. studio apartments. Provision of residential amenity facilities with Blocks B, G, H, J, K, L, M such as laundry rooms, gym, co-working space, bookable spaces and workshop/bike repair areas (GFA c. 28,960 sqm). 6. Provision of a creche facility (c. 429sqm including an outdoor secure play area (c. 275.1 sqm). 7. Provision of a cultural centre including community use facilities such as a community café, multi-functional ground floor exhibition space, workshop rooms, party rooms, meeting spaces, residents lounge area, a concierge and parcel collection point, and ancillary kitchen and toilet facilities (GFA c. 1,195 sqm.) 8. Provision of ground floor retail units (GRA c. 1,080 sqm.) 9. Provision of café and restaurant uses (GFA c. 1,234 sqm.) 10. Provision of 788 no. car parking spaces, 63 no. motorcycle spaces, and 1,116 no. bicycle parking spaces. 11. Upgrade to the existing N83 access junction to the site. 12. Provision of a footpath connectivity link to the south west of the site along the N83. 13. Provision of a

temporary access for existing businesses into Galway City North Business Park during the construction phase. Please refer to file for full development description.

- Planning reference 20148: Permission for development which will consist of (a) the construction of a new entrance and access road along with all associated site services, and improvements to existing private road. (b) the construction of 2 no. new two-storey dwelling houses with separate domestic wastewater treatment systems, 2 no. new external store/garages, and all associated site development and external works.

8.1.2 Conclusion of Cumulative Assessment

Following the detailed assessment provided in the preceding sections, it is concluded that, the proposed development will not result in any residual adverse effects on any of the European Sites, their integrity or their conservation objectives when considered on its own. There is therefore no potential for the proposed development to contribute to any cumulative adverse effects on any European Site when considered in-combination with other plans and projects.

In the review of the projects that was undertaken, no connection, that could potentially result in additional or cumulative impacts was identified. Neither was any potential for different (new) impacts resulting from the combination of the various projects and plans in association with the proposed development.

Taking into consideration the reported residual impacts from other plans and projects in the area and the predicted impacts with the current proposal, no residual cumulative impacts have been identified with regard to any European Site.

9. CONCLUDING STATEMENT

This NIS has provided an assessment of all potential direct or indirect adverse effects on European Sites.

Where the potential for any adverse effect on any European Site has been identified, the pathway by which any such effect may occur has been robustly blocked through the use of avoidance, appropriate design and mitigation measures as set out within this report and its appendices. The measures ensure that the construction, operation of the proposed development does not adversely affect the integrity of European sites.

Therefore, it can be objectively concluded that the proposed development, individually or in combination with other plans or projects, will not adversely affect the integrity of any European Site.

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APPENDIX 1

APPROPRIATE ASSESSMENT SCREENING REPORT

Planning and Environmental Consultants

Appropriate Assessment Screening Report

Proposed Strategic Housing Development, Bóthar na Chóiste, Castlegar, Co. Galway

DOCUMENT DETAILS

Client:	**Tom Broderick**
Project title:	**Proposed Strategic Housing Development, Bóthar na Chóiste, Castlegar, Co. Galway**
Project Number:	**180747**
Document Title:	**Appropriate Assessment Screening Report**
Doc. File Name:	**AASR – F – 2022.07.22 –180747**
Prepared By:	**MKO** **Tuam Road** **Galway** **Ireland** **H91 VW84**

Planning and Environmental Consultants

Rev	Status	Date	Author(s)	Approved By
01	Final	22.07.2022	JOS/CM	IR

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1. INTRODUCTION

MKO has been appointed to provide the information necessary to allow the competent authority to conduct an Article 6(3) Screening for Appropriate Assessment of a proposed strategic housing development located at Bóthar na Chóiste, Castlegar, Co. Galway.

Screening for Appropriate Assessment is required under Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive). Where it cannot be excluded that a project or plan, either alone or in combination with other projects or plans, would have a significant effect on a European Site then same shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. The current project is not directly connected with, or necessary for, the management of any European Site consequently the project has been subject to the Appropriate Assessment Screening process.

The assessment in this report is based on a desk study and field surveys undertaken throughout 2020, 2021 and 2022. It specifically assesses the potential for the proposed development to result in significant effects on European sites in the absence of any best practice, mitigation or preventative measures.

This Appropriate Assessment Screening Report has been prepared in accordance with the European Commission's *Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC* (EC, 2021) and *Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* (EC, 2018) as well as the Department of the Environment's *Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities* (DoEHLG, 2010).

In addition to the guidelines referenced above, the following relevant documents were also considered in the preparation of this report:

1. *Council of the European Commission (1992) Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. Official Journal of the European Communities. Series L 20, pp. 7-49.*
2. *EC (2000) Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC, Office for Official Publications of the European Communities, Luxembourg.*
3. *EC (2007) Guidance document on Article 6(4) of the 'Habitats Directive' 92/43/EEC – Clarification of the concepts of: alternative solutions, imperative reasons of overriding public interest, compensatory measures, overall coherence. Opinion of the commission.*
4. *EC (2013) Interpretation Manual of European Union Habitats. Version EUR 28. European Commission.*

1.1 Appropriate Assessment

1.1.1 Screening for Appropriate Assessment

Screening is the process of determining whether an Appropriate Assessment is required for a plan or project. Under Part XAB of the Planning and Development Act, 2000, as amended, screening must be carried out by the Competent Authority. As per Section 177U of the Planning and Development Act, 2000, as amended '*A screening for appropriate assessment shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site*'. The Competent Authority's determination as to whether an Appropriate Assessment is

required must be made on the basis of objective information and should be recorded. The Competent Authority may request information to be supplied to enable it to carry out screening.

Consultants or project proponents may provide for the competent authority, the information necessary for them to determine whether an Appropriate Assessment is required and provide advice to assist them in the Article 6(3) Appropriate Assessment Screening decision.

Where it cannot be excluded beyond reasonable scientific doubt at the Screening stage, that a proposed plan or project, individually or in combination with other plans and projects, would have a significant effect on the conservation objectives of a European site, an Appropriate Assessment is required.

Where an Appropriate Assessment is required, the Competent Authority may require the applicant to prepare a Natura Impact Statement.

The term Natura Impact Statement (NIS) is defined in legislation[1]. An NIS, where required, should present the data, information and analysis necessary to reach a definitive determination as to 1) the implications of the plan or project, alone or in combination with other plans and projects, for a European site in view of its conservation objectives, and 2) whether there will be significanteffects on the integrity of a European site. The NIS should be underpinned by best scientific knowledge, objective information and by the precautionary principle.

This Article 6(3) Appropriate Assessment Screening Report has been prepared in compliance with the provision of section 177U of the Planning & Development Act 2010 as amended.

1.1.2 Statement of Authority

A field assessment was undertaken by Julie O'Sullivan (B.Sc., M.Sc.) on the 5th of March 2021, with a follow up bird surveys on the 30th of March 2021, 24th of November 2021, 15th of March 2022 and the 29th of March 2022. This report has been prepared by Julie O'Sullivan (B.Sc., M.Sc.) and Colin Murphy (B.Sc., M.Sc.). Julie is an experienced ecologist with over five years professional experience in ecological consultancy. Colin is an experienced ecologist with over two years' experience. The report has been reviewed by Inga Reich (Honours degree Biology, Ph.D. Applied Ecology). Inga has over 5 years' postdoctoral experience in Ecology.

[1] As defined in Section 177T of the Planning and Development Act, 2000 as amended, an NIS means a statement, for the purposes of Article 6 of the Habitats Directive, of the implications of a proposed development, on its own and in combination with other plans and projects, for a European site in view of its conservation objectives. It is required to include a report of a scientific examination of evidence and data, carried out by competent persons to identify and classify any implications for the European site in view of its conservation objectives

2. DESCRIPTION OF THE PROPOSED DEVELOPMENT

2.1 Site Location

The proposed development site is located to the north of Bóthar na Chóiste within the townland of Castlegar, Co. Galway, approximately 2.8km north-east of Galway City (Grid reference: M 31488 28212). The subject lands extend overall to 4.286 ha in size. This includes the Bóthar Na Chóiste road for which road improvements are included in the proposed scheme.

The N84 Galway-Headford Road is situated approximately 600 metres to the west of the proposed development site. The proposed N6 Galway City Ring Road development boundary is located immediately north of the subject lands.

The site location is shown in Figure 2.1.

2.2 Characteristics of the Proposed Development

Planning permission is sought by Lock House Developments Limited (the applicant) for development on a site which extends to 4.626 ha on lands located to the north of Bóthar Na Chóiste, in the townland of Castlegar, Galway.

The development will consist of the following:

1) Demolition of an existing house (124.6 m²), a ruined outbuilding (42.8 m²), and a ruined dwelling (41.7 m²)

2) Construction of 170 no. residential units comprising:

- 84 no. two storey houses (34 no. two-beds, 42 no. three-beds, 8 no. four-beds),
- 1 no. apartment block comprising 17 no. apartments (10 no. one-beds, 7 no. two-beds),
- 1 no. apartment block comprising 21 no. apartments (12 no. one-beds, 9 no. two-beds),
- 48 no. duplex units (11 no. one-beds, 24 no. two-beds, 13 no. three-beds).

3) Development of a two-storey creche facility with 46 no. child spaces (c. 300.36 sqm), associated outdoor play areas and parking.

4) Provision of all associated surface water and foul drainage services and connections including pumping station with all associated site works and ancillary services.

5) The upgrade of the existing Bothar Na Chóiste road from the proposed development to the junction at L5041 consisting of road improvements, road widening and junction re-alignment.

6) Pedestrian, cyclist, and vehicular links throughout the development and access with Bóthar Na Chóiste, and pedestrian and cyclist link to the adjacent Greenway route.

7) Provision of shared communal and private open space, site landscaping and public lighting, resident and visitor parking including electric vehicle charging points, bicycle parking spaces, and all associated site development works.

The proposed site layout is shown in Drawing no. 2001 included in Appendix 1 of this report.

2.2.1 Drainage

2.2.1.1 Foul water drainage

Details of the Foul Sewer are shown on Drawing No. 10750-2003 & 2004 of the Civil works report accompanying this application (Tobins, 2022). The foul water from the proposed development will discharge to the existing wastewater network.

It is proposed to discharge via gravity to a pumping station that will located in the southern area of the residential section of the site and then discharge via rising main to a proposed gravity sewer along Bóthar na Chóiste with header manholes starting 250m west of the proposed site entrance. The proposed gravity element of the network will tie in the existing 225mm diameter foul network located within the unnamed road to the south-west of the residential element of the site. This ultimately discharges to the Terryland and River Valley wastewater pumping station.

The pumping station will be designed in accordance with the requirements set out in the Irish Water specification for wastewater systems IW-CDS-5030-03. The pumping station will be 15m from the boundary of the nearest dwelling.

The pumping station will be designed to cater for 24 hr storage for the total number of properties in accordance with Irish Water requirements. The pumping station storage has been designed to cater for the 170 no. properties located within the proposed site and for an additional 100 no. units in the zoned residential area directly to the west of the proposed development should this area ever be developed in the future.

All sewers have been designed so that the velocities achieved fall within the limits of 0.75 and 3m/sec as set out in Irish Water Code of Practice for Wastewater Infrastructure and "Recommendations for Site Development Works" as published by the Department of Environment.

The drainage system has been designed in accordance with the Recommendations for Site Development Works as published by the Department of the Environment and Local Government and to Irish Water Code of Practice and Standard Details and also complies with Irish Water Wastewater Infrastructure – Code of Practice and Standard Details.

A pre-connection enquiry form was submitted to Irish Water outlining the proposed loadings from this development and the proposed tie-in location. Irish Water have confirmed that connection to Terryland River Waste water Treatment plant is feasible via a letter dated 10.12.2021 *(Customer Ref No: CDS21007628)*. The confirmation feasibility letter is available in Appendix 2.

2.2.1.2 Surface Water Drainage

There is currently no existing storm drainage in the vicinity of the site which will be suitable for serving the proposed development. As a result, all surface water run-off from the site and the northern section of the upgrade road works will need to be discharged to ground water. There is an existing 400mm storm sewer on the L5041 local road. This existing storm sewer will cater for the catchment area of the southern section of the Bothar Na Choiste road upgrade works.

The storm water drainage design has been designed to cater for all surface water runoff from all hard surfaces in the proposed development including roadways, roofs etc. The proposed residential development and road upgrade works have been divided into 6 No. catchment areas. 5 of the catchment areas will discharge to soakaways and percolate to the ground. Each soakaway has been strategically located to cater best for the associated catchment area. Due to the topography of the site a

6th catchment area, catering for the southern section of the road upgrade works, will discharge via gravity to the existing storm sewer as noted.

Precast concrete gullies including lockable cast iron grating and frame connected to a piped system will be provided to collect run-off from these areas. The proposed pipe diameter will range between 100 and a maximum of 300mm and will be laid at gradients varying between 1/35 and 1/300.

The storm drainage for the entire development has been designed using the Innovyze MicroDrainage Design Software in accordance with the Recommendations for Site Development Works for Housing Areas and also the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS).

2.2.1.2.1 Sustainable Urban Drainage Measures

The existing site primarily consists of greenfield with no existing drainage or Sustainable Urban Drainage Systems (SUDS) measures in place. In order to maintain surface water runoff rates from the site to those of the current state, the surface water drainage for the proposed development will be designed in accordance with the principles of SUDS as embodied in the recommendations of the Greater Dublin Strategic Drainage Study (GDSDS). The GDSDS addresses the issue of sustainability by requiring designs to comply with a set of drainage criteria which aim to minimise the impact of urbanisation by replicating the runoff characteristics of the greenfield site. SUDS measures incorporated into the design of the project include Petrol interceptors and soakaways.

Petrol interceptors

It is proposed to install a Class 1 Bypass Petrol Interceptor upstream of the connection into each of the proposed soakaways. The reasoning for this is that the storm water entering the system will include run-off from the roadways and parking areas throughout the site and therefore may have hydrocarbons within their flow. These hydrocarbon pollutants require removal and are not to be discharged back into the environment. The separator has been sized to cater for roads, footways and driveway areas of the site.

Soakaways

Roof run-off will discharge to 5 No soakaways on the site. The soakaways are designed to hold water for the largest storage required over a 48-hour storm period with rainfall depths taken for the 100-year return period + 20% for climate change for sliding durations obtained from Met Eireann. The stormwater discharges to ground. The stone soakaway is constructed on top of clean stone base which extends to formation level or existing site levels. These stone beds allow for more capacity and an extra factor of safety.

2.2.2 Water Supply

The water supply services have been designed to take account of the requirements of the Civil Engineering Specification for the Water Industry (CESWI), subject to the particular requirements applied to it by Irish Water, as outlined in the Irish Water Code of Practice for Water Infrastructure. Other design guidelines adhered to include the Department of Environment “Recommendations for Site Development Works for Housing Areas”, 1998.

The water supply required for the proposed development shall be via a 150mm diameter watermain as per Irish Water requirements. It is proposed to connect to the existing 200mm diameter uPVC watermain located in the main junction south-west of the residential element of the development as shown on Drawing no. 10750-2002 of the civil works report accompanying this application (Tobins, 2022).

The watermain arrangement is shown on drawing No. 10750-2001 and 10750-2002. It is proposed to serve the site using a 150mm diameter 'spine' watermain down to the main junction in the proposed development. All other branch mains from the 150mm will be 100mm PE. In accordance with Local authority standards, a water meter and Logging Device (Larson Type) are proposed at the connection into the proposed site. A sluice valve, strainer and 1500mm Ø by-pass arrangement is also proposed to allow for possible disconnection of water meters by the Local Authority.

A pre-connection enquiry has been submitted to Irish Water on the feasibility of connecting to the water mains. Irish Water confirms feasibility via a letter dated 10.12.2021 *(Customer Ref No: CDS21007628)*. The confirmation feasibility letter is available in Appendix 2.

Map Legend

Site boundary

N

Drawing Title

Site Location

Project Title

Proposed Strategic Housing Development-Bothar na Choiste

Drawn By	Checked By
CM	IR
Project No.	Drawing No.
180747	Figure 2.1
Scale	Date
1:61,200	06.12.21

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2.3 Description of the Baseline Ecological Environment

A dedicated habitat survey of the area within and in the vicinity of the proposed development was undertaken on the 5th of March 2021, with a follow up bird surveys on the 30th of March 2021, 24th of November 2021, 15th of March 2022 and the 29th of March 2022. All habitats within the works area were readily identifiable during the site visits. The habitat classifications and codes correspond to those described in '*A Guide to Habitats in Ireland*' (Fossitt, 2000). The habitats recorded during the site visit are described below.

Improved Agricultural Grassland (GA1) is the dominant habitat within the development site (Plate 2-1). This habitat had a low species diversity and a low sward height, and during the survey was being grazed by cattle. Species recorded in this habitat included abundant perennial rye-grass (*Lolium perenne*), cock's-foot (*Dactylis glomerata*), frequent Yorkshire fog (*Holcus lanatus*), annual meadow grass (*Poa annua*), creeping buttercup (*Ranunculus repens*), nettle (*Urtica dioica*), clovers (*Trifolium* spp.), dandelion (*Taraxacum officinale* agg.), broad-leaved dock (*Rumex obtusifolius*), mouse-ear chickweed (*Cerastium fontanum*), germander speedwell (*Veronica chamaedrys*) and ribwort plantain (*Plantago lanceolata*).

A derelict cottage lies in the south-eastern corner of the proposed development site, surrounded by gravel and is classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 2-2). The building is constructed from 0.5m thick mortared rubble walls, with a slate roof which is partially collapsed. This building is clad in dense ivy. Two farm outbuildings occur to the rear of the cottage, used for agricultural purposes, and surrounded by ***Spoil and bare ground (ED2)***, associated with livestock poaching (Plate 2-3 & 2-4). The outbuildings are constructed from mortared rubble with corrugated metal roofs.

A poached farm track occurs from the access gate in the south-east corner and runs along the eastern boundary of the proposed development. This track is classified as ***spoil and bare ground (ED2)/Recolonising bare ground (ED3)*** mosaic (Plate 2-5). Recolonising weeds recorded in this habitat included greater plantain (*Plantago major*), pineappleweed (*Matricaria discoidea*), chickweed (*Cerastium fontanum*), annual meadow grass (*Poa annua*) and bittercress (*Cardamine spp.*).

The western and southern site boundaries are delineated by stonewalls classified as ***stonewalls and other stonework (BL1)*** and are fringed by ***Hedgerows (WL1).*** The eastern site boundary is demarcated by wire and post fence. A hedgerow also occurs outside the eastern site boundary, set back 5m. Species recorded in the hedgerows included bramble (*Rubus fructicosus*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra)*, hawthorn (*Crataegus monogyna*), willows (*Salix* spp.), holly (*Ilex aquilifolium*), ivy (*Hedera helix*), ash (*Fraxinus excelsior*) and flowering currant (*Ribes sanguineum).* Species recorded in the field margins and hedgerow understory included Yorkshire fog (*Holcus lanatus*), common bent (*Agrostis capillaris*), pointed spear-moss (*Calliergonella cuspidata*), common sorrel (*Rumex acetosa*), meadow buttercup (*Ranunculus acris*), strawberry (*Fragaria vesca*), ribwort plantain (*Plantago lanceolata*), red fescue (*Festuca rubra*), dandelion (*Taraxacum officinale* agg.), primrose (*Primula vulgaris*), vetch (*Vicia* spp.), herb Robert (*Geranium robertianum*), lesser celandine (*Ficaria verna*), lords and ladies (*Arum maculatum*), creeping cinquefoil (*Potentilla reptans*) and harts tongue fern (*Asplenium scolopendrium*).

The site contains a residential dwelling house within the south-western section of the site, that will be demolished as part of the proposed development and is classified as ***Buildings and Artificial Surfaces (BL3)***. ***Amenity Grassland (GA2), Ornamental flower beds and borders (BC4), Buildings and Artificial Surfaces (BL3)*** and a non-native conifer ***Treeline (WL2)*** habitat surrounds the dwelling house.

The site boundary extends to include the local road to the south, leading to Castlegar Village and is classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 2-6). The road is fringed with ***Scrub habitat (WS1)*** and metal fencing classified as ***Buildings and Artificial Surfaces (BL3)*** (Plate 2-7). The scrub

habitat recorded along the road was primarily dominated by bramble (*Rubus fructicosus*) and bracken (*Pteridium aquilinum*) with individual Hazel (*Corylus Avellana*), blackthorn (*Prunus spinosa*) and hawthorn (*Crataegus monogyna*) also present. Areas of ***Amenity Grassland (GA2)*** and ***Ornamental flower beds and borders (BC4)*** occurs along the road margin and in the south-west extent of the site boundary of the site near the village. Species recorded in the amenity grassland included Yorkshire fog (*Holcus lanatus*), annual meadow-grass (*Poa annua*), ribwort plantain (*Plantago lanceolata*), perennial rye-grass (*Lolium perenne*) and daisy (*Bellis perennis*). Species recorded in the flower bed included *Hebe spp.*, gorse (*Ulex europaeus)*, ash (*Fraxinus excelsior*), daffodil (*Narcissus* spp.), bramble (*Rubus fructicosus*) and lesser celandine (*Ficaria verna*).

No drainage ditches or watercourses occur within or immediately adjacent to the proposed site. Ballindooley Lough lies 400m north-west (and down gradient) of the proposed development site boundary. The wetland habitats surrounding the lake flood in winter and extend to 150m north of the site boundary (Plate 2-8). The wetland habitat to the south/south-west of the proposed development site have been identified in the Article 17 dataset as Annex I Molinia Meadows and this habitat was flooded during the initial site walkover survey on March 5th, but flood waters had receded by the survey on the 30th of March.

No botanical species protected under the Flora (protection) Order (1999, as amended 2015), listed in the EU Habitats Directive (92/43/EEC), or listed in the Irish Red Data Books were recorded on the site and no suitable habitat occurs within the site. All species recorded are common in the Irish landscape. No invasive species were observed within the proposed development site.

Plate 2-1 Improved Agricultural Grassland (GA1) within the southern section of the development site, view looking north.

Plate 2-2 A derelict cottage lies in the south-eastern corner of the proposed development site, surrounded by gravel and classified as buildings and artificial surfaces.

Plate 2-3 Sheds occur to the north of the cottage, used for agricultural purposes, and surrounded by Spoil and bare ground (ED2), associated with livestock poaching.

Plate 2-4 Spoil and bare ground (ED2), associated with livestock poaching, with Improved Agricultural Grassland (GA1) in the background. View looking south-west.

Plate 2-5 A farm track runs along/partly outside the eastern site boundary of the proposed development, classified as spoil and bare ground (ED2)/Recolonising bare ground (ED3). Hedgerows (WL2) occur set back 5m from the eastern site boundary.

Plate 2-6 The site boundary extends to include the local road to the south classified as Buildings and Artificial Surfaces (BL3).

Plate 2-7. Scrub habitat occurring along the local road

Plate 2-8 Ballindooley Lough lies 400m north-west, and downgradient, of the proposed development site boundary. The surrounding flooded wetland habitat, identified as Annex I Molinia Meadow, lies approximately 150m north of the site boundary.

Annex I habitat Assessment

A review of the NPWS Article 17 Annex I habitat revealed that a very small portion (0.018ha) of the site along the Castlegar is mapped as Annex I Limestone pavement.

An additional site visit was undertaken on the 19.07.2022 to assess the current condition of this habitat and to investigate if the area conforms to Annex I Limestone pavement. The survey was carried out in line with the guideline set out in Wilson, S. & Fernández, F. (2013) *National survey of limestone pavement and associated habitats in Ireland.*

Following the site specific survey, it can be concluded the section of mapped Limestone pavement that occurs within the site boundary does not correspond to Annex I Limestone pavement. The habitat recorded in is dominated by bramble (*Rubus fructicosus*) and bracken (*Pteridium aquilinum*) with individual Hazel (*Corylus Avellana*) and corresponds to **Scrub (WS1)** habitat (See Plate 2-9). No exposed limestone boulders or large rocks were present. The ground flora was low in species diversity and was dominated by Common ivy (*Hedera helix).*

The habitats on site are of low ecological importance. There are no Annex I habitats listed under the EU Habitats Directive present within the site boundary. There will be no impact to Annex I habitats areas within or outside of Lough Corrib SAC and Galway Bay Complex SAC.

Plate 2-9. Location of Scrub habitat along the Castlegar road previously recorded as Annex I Limestone pavement

2.3.1 Faunal Surveys

The walkover survey was designed to detect the presence, or likely presence, of a range of protected species associated with European protected sites. No drainage ditches or watercourses occur within or adjacent to the development site. No suitable habitat for otter occurs within the development site. Existing dwellings within the site were inspected for potential bat roosts.

Wintering bird surveys were carried out during the initial multidisciplinary walkover survey on the 5th of March 2021 with follow up dedicated bird surveys on the 30th of March 2021, 24th of November 2021, 15th of March 2022 and the 29th of March 2022.

The winter bird surveys followed the Irish Wetland Bird Survey (I-WeBS) methodology; the simple 'look-see' method, whereby all birds present within a predefined area are counted (Gilbert et al., 2011; Birdwatch Ireland, 2018). The proposed development site was scanned from suitable vantage points that gave unobstructed views of potentially suitable habitat and roosting locations for wintering waterfowl and waders within the study area in advance of walkover surveys.

The surveys were carried out at suitable vantage points overlooking the proposed development site and Ballindooley Lough which lies 400m north-west (and down gradient) of the proposed development site boundary and surrounding wetland habitats. The wetland habitats surrounding the lake flood in winter and extent to 150m north of the site boundary. Walked transects were then undertaken within the site boundary.

The majority of the bird species recorded within the proposed development site boundary during the site visits were an assemblage of common birds that are typical of the grassland and urban habitats in the wider area of the site. The SCI species of Lough Corrib SPA and Inner Galway Bay SPA recorded within the site are listed in Table 2-1 and those recorded on Ballindooley Lough and the surrounding flooded wetland habitats are listed in Table 2-2.

Only three SCI species of Lough Corrib SPA and Inner Galway Bay SPA were recorded utilising the habitats within the development site during the field survey; five Common Gulls (*Larus canus*) and one Black-headed Gull (*Chroicocephalus ridibundus*) were recorded feeding on improved agricultural grassland within the site. A single curlew (*Numenius arquata*) was also recorded feeding within the site during a March 2022 survey.

Cormorant, a listed SCI species of Inner Galway Bay SPA, was recorded on one occasion flying over the proposed development site.

Three SCI species of Inner Galway Bay SPA, teal, grey heron and wigeon and three SCI of Inner Lough Corrib SPA, tufted duck, shoveler and coot, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird surveys.

Table 2-1 Bird species observed within the proposed development site during the field visit, and current conservation status.

Common Name	Latin Name	Date	Notes	Conservation Status
Cormorant	*Phalacrocorax carbo*	05/03	Flying over, does not land in site.	Amber listed (breeding and wintering). Listed SCI species of Inner Galway Bay SPA.
Common Gull	*Larus canus*	05/03	5 individuals feeding on improved agricultural grassland within the site.	Amber listed (breeding and wintering). Listed SCI species of Lough Corrib

Common Name	Latin Name	Date	Notes	Conservation Status
				SPA and Inner Galway Bay SPA.
Black-headed Gull	*Chroicocephalus ridibundus*	24/11	1 individual feeding on improved agricultural grassland within the site.	Red listed (breeding and wintering). Listed SCI species of Lough Corrib SPA and Inner Galway Bay SPA.
Curlew	*Numenius arquata*	29/03/2022	Feeding on improved agricultural grassland within the site.	Red Listed (Breeding and wintering species). Listed as SCI species of Inner Galway Bay SPA.

Table 2-2 Species recorded on Ballindooley Lough and surrounding wetland habitats

Common Name	Latin Name	Date	Notes	Conservation Status
Mallard	*Anas platyrhynchos*	05/03/2021	4 individuals feeding on lake	Amber listed (breeding and wintering)
		30/03/2021	1 individual roosting on lake	
Shelduck	*Tadorna tadorna*	05/03/2021	4 individuals feeding on lough	Amber listed (breeding and wintering)
Teal	*Anas crecca*	05/03/2021	32 individuals feeding/roosting on lake	Amber listed (breeding and wintering). Listed SCI species of Inner Galway Bay SPA.
Wigeon	*Anas penelope*	05/03/2021	2 individuals feeding on lake	Amber listed (breeding and wintering). Listed SCI species of Inner Galway Bay SPA.
Coot	*Fulica atra*	05/03/2021	1 individual feeding on lake	Green listed. Listed SCI species of Lough Corrib SPA.
		30/03/2021	1 individual on middle lake	
		24/11/2021	1 individual feeding on lake	
		15/03/2022	1 individual feeding on lake	
		29/03/2022	3 individuals feeding on lake	

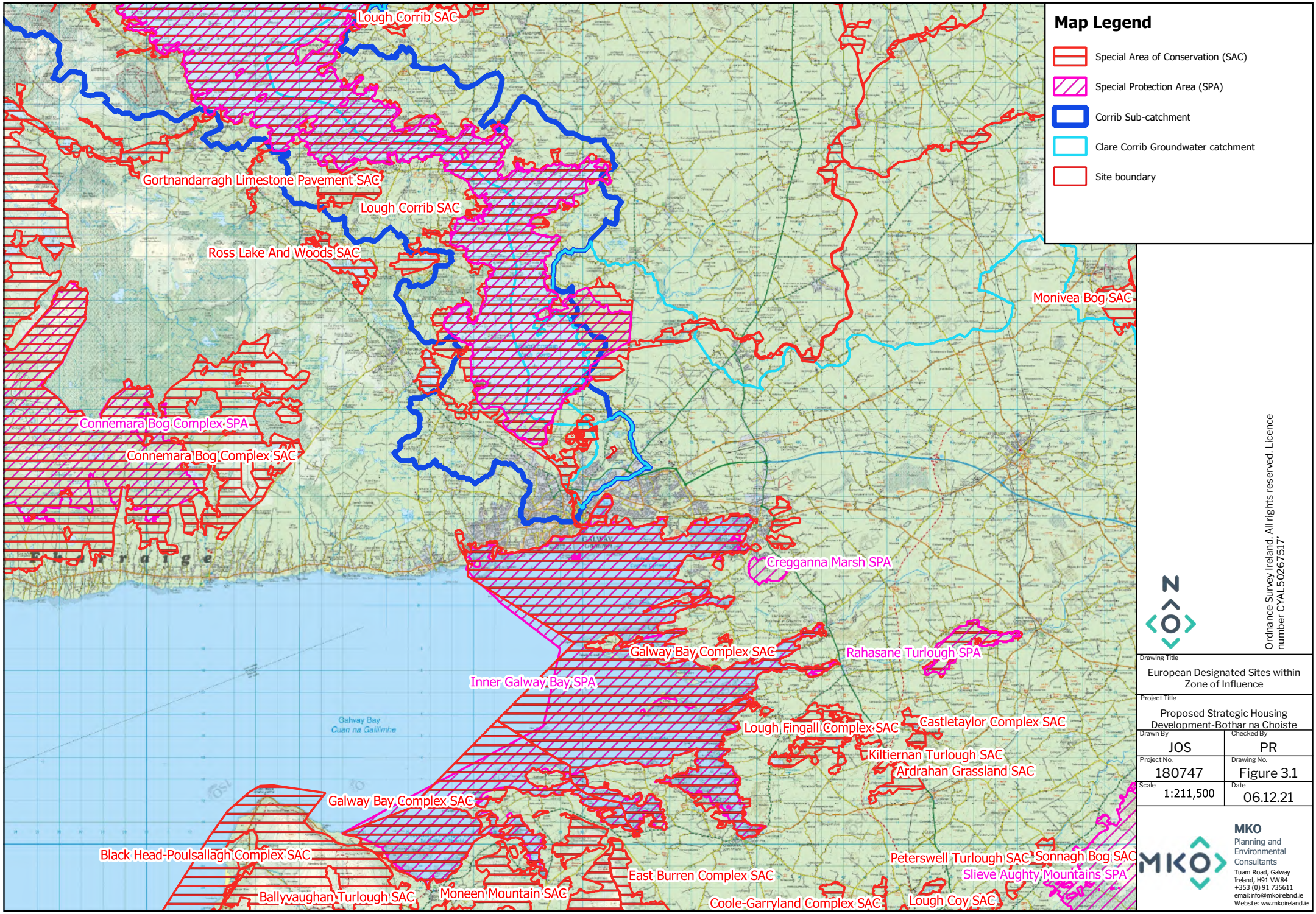
Common Name	Latin Name	Date	Notes	Conservation Status
Grey Heron	*Ardea cinerea*	05/03/2021	1 individual feeding on lake	Green listed. Listed SCI species of Inner Galway Bay SPA.
Tufted Duck	*Aythya fuligula*	30/03/2021	10 individuals feeding on lake	Amber listed (breeding and wintering). Listed SCI species of Lough Corrib SPA and Inner Galway Bay SPA.
Herring Gull	*Larus argentatus*	30/03/2021	2 individuals roosting on lake	Amber listed (breeding and wintering)
Great Crested Grebe	*Podiceps cristatus*	30/03/2021	1 individual roosting on lake	Amber listed (breeding and wintering)
Shoveler	*Anas clypeata*	24/11/2021	7 individuals on middle lake	Red listed (breeding and wintering). Listed SCI species of Lough Corrib SPA.
		15/03/2022	3 individuals on middle lake	
		29/03/2022	5 individuals on middle lake	

3. IDENTIFICATION OF RELEVANT EUROPEAN SITES

3.1 Identification of the European Sites within the Likely Zone of Impact

The following methodology was used to establish which European Sites are within the Likely Zone of Impact of the proposed development:

- Initially the most up to date GIS spatial datasets for European designated sites and water catchments were downloaded from the NPWS website (www.npws.ie) and the EPA website (www.epa.ie) on the 27/11/2021 The datasets were utilized to identify European Sites which could feasibly be affected by the proposed development.
- All European Sites within a distance of 15km surrounding the development site were identified and are shown on Figure 3.1. In addition, the potential for connectivity with European Sites at distances of greater than 15km from the proposed development was also considered in this initial assessment. In this case, no potential connectivity with sites located at a distance of over 15km from the proposed development was identified.
- The catchment mapping was used to establish or discount potential hydrological connectivity between the site of the proposed development and any European Sites. The hydrological catchments are also shown in Figure 3.1.
- In relation to Special Protection Areas, in the absence of any specific European or Irish guidance in relation to such sites, the Scottish Natural Heritage (SNH) Guidance, 'Assessing Connectivity with Special Protection Areas (SPA)' (2016) was consulted. This document provides guidance in relation to the identification of connectivity between proposed development and Special Protection Areas. The guidance takes into consideration the distances species may travel beyond the boundary of their SPAs and provides information on dispersal and foraging ranges of bird species which are frequently encountered when considering plans and projects.
- Table 3.1 provides details of all relevant European Sites as identified in the preceding steps and assesses which are within the likely Zone of Impact. The assessment considers any likely direct or indirect impacts of the proposed development, both alone and in combination with other plans and projects, on European Sites by virtue of the following criteria: size and scale, land-take, distance from the European Site or key features of the site, resource requirements, emissions, excavation requirements, transportation requirements and duration of construction, operation and decommissioning were considered in this screening assessment.
- The site synopses and conservation objectives of these sites, as per the NPWS website (www.npws.ie), were consulted and reviewed at the time of preparing this report. Figure 3.1 shows the location of the proposed development in relation to all European sites within 15km of the proposed development.
- Where potential pathways for Significant Effect are identified, the site is included within the Likely Zone of Impact and further assessment is required.



Drawing Title
European Designated Sites within Zone of Influence

Project Title
Proposed Strategic Housing Development-Bothar na Choiste

Drawn By	Checked By
JOS	PR
Project No.	Drawing No.
180747	Figure 3.1
Scale	Date
1:211,500	06.12.21

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Table 3-1 Identification of Designated sites within the Likely Zone of Impact

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
Special Area of Conservation (SAC)			
Lough Corrib SAC (000297) Distance: 703m west	› Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110] › Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130] › Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140] › Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] › Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] › *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] › Active raised bogs [7110] › Degraded raised bogs still capable of natural regeneration [7120] › Depressions on peat substrates of the *Rhynchosporion* [7150] › Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210] › Petrifying springs with tufa formation (*Cratoneurion*) [7220] › Alkaline fens [7230] › Limestone pavements [8240] › Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] › Bog woodland [91D0]	Detailed conservation objectives for this site (Version 1, April 2017) were reviewed as part of the assessment and are available at www.npws.ie	This European Site is located 703m west of the proposed development site. The proposed development site lies within the same groundwater catchment as this SAC (Clare-Corrib groundwater catchment). Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis the following groundwater dependent terrestrial ecosystems and aquatic QI habitats and species may be impacted: › Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110] › Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130] › Hard oligo-mesotrophic waters with benthic vegetation of Chara *spp.* [3140] › Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] › Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210] › Petrifying springs with tufa formation (*Cratoneurion*) [7220]

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
	› *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] › *Austropotamobius pallipes* (White-clawed Crayfish) [1092] › *Petromyzon marinus* (Sea Lamprey) [1095] › *Lampetra planeri* (Brook Lamprey) [1096] › *Salmo salar* (Salmon) [1106] › *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303] › *Lutra lutra* (Otter) [1355] › *Drepanocladus vernicosus* (Slender Green Feather-moss) [1393] › *Najas flexilis* (Slender Naiad) [1833]		› Alkaline fens [7230] › *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] › *Lutra lutra* (Otter) [1355] › *Austropotamobius pallipes* (White-clawed Crayfish) [1092] › *Lampetra planeri* (Brook Lamprey) [1096] › *Petromyzon marinus* (Sea Lamprey) [1095] › *Salmo salar* (Salmon) [1106] No complete impact source-pathway-receptor chain for impact was identified with regard to the following terrestrial habitats: › Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] › *Drepanocladus vernicosus* (Slender Green Feather-moss) [1393] › Active raised bogs [7110] › Degraded raised bogs still capable of natural regeneration [7120] › Depressions on peat substrates of the *Rhynchosporion* [7150] › Limestone pavements [8240] › Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] › Bog woodland [91D0] Given the lack of suitable habitat on site and the distance between the development site and this SAC, disturbance to Otter can be ruled out. Lough Corrib SAC has been selected for lesser horseshoe bat because of the presence of one important summer roost along the northern shoreline of Lough Corrib, near Cong. The proposed

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
			development site is outside the 2.5km core foraging range of lesser horseshoe bat (NPWS, 2018). There is no potential for the proposed development to result in any effects on this QI species in the form of disturbance, loss or deterioration of habitat quality. The conservation objective applies to the Owenriff freshwater pearl mussel (*Margaritifera margaritifera*) population in Lough Corrib SAC, located upstream of Oughterard. There is no hydrological connectivity between the proposed development and this watercourse and no potential for impact to this species. As per map 13 of the site-specific conservation objectives document the mapped known habitat and possible habitat for *Najas flexilis* (Slender Naiad) [1833] is located in the north-western section of the lake. According to the EPA maps the hydrological flow within the lake is from north-west toward the south-east. There is no pathway for impact on this species. **This site is within the zone of likely impact, and further assessment is required.**
Galway Bay Complex SAC (000268) Distance: 1.7km south	› Mudflats and sandflats not covered by seawater at low tide [1140] › Coastal lagoons [1150] › Large shallow inlets and bays [1160] › Reefs [1170] › Perennial vegetation of stony banks [1220] › *Salicornia* and other annuals colonising mud and sand [1310] › Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] › Mediterranean salt meadows (*Juncetalia maritimi*) [1410] › Turloughs [3180]	Detailed conservation objectives for this site, (Version 1, April 2013), were reviewed as part of the assessment and are available at www.npws.ie	This European Site is located 1.7km south of the proposed development site. Given the distance between the site of the proposed development and this SAC, direct effects upon the SAC can be excluded. No potential pathway for effect on any of the terrestrial QI habitats for which the SAC is designated was identified, which include the following: › Perennial vegetation of stony banks [1220] › *Juniperus communis* formations on heaths or calcareous grasslands [5130]

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
	› *Juniperus communis* formations on heaths or calcareous grasslands [5130] › Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] › Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210] › Alkaline fens [7230] › *Lutra lutra* (Otter) [1355] › *Phoca vitulina* (Harbour Seal) [1365]		› Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] Given the lack of suitable habitat on site and the distance between the development site and this EU site disturbance to Otter can also be ruled out. The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SAC. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis, the following aquatic QI habitats and supporting habitat for aquatic QI species may be impacted: › Mudflats and sandflats not covered by seawater at low tide [1140] › Coastal lagoons [1150] › Large shallow inlets and bays [1160] › Reefs [1170] › *Salicornia* and other annuals colonising mud and sand [1310] › Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330] › Mediterranean salt meadows (*Juncetalia maritimi*) [1410] › Turloughs [3180] › Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
			› Alkaline fens [7230] › *Lutra lutra* (Otter) [1355] › *Phoca vitulina* (Harbour Seal) [1365] **This site is within the zone of likely impact, and further assessment is required**
Ross Lake and Woods SAC (001312) Distance: 13.4km west	› Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. [3140] › *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]	Detailed conservation objectives for this site (Version 1, October 2018) were reviewed as part of the assessment and are available at www.npws.ie	This European Site is located 13.4km west of the proposed development site. Given the distance between the site of the proposed development and this SAC, direct effects upon the SAC can be excluded. No complete impact source-pathway-receptor chain for impact was identified. This SAC is designated for a freshwater habitat with no connection to the site. The proposed development site lies in a separate groundwater catchment to this SAC and there is no hydrological connection between the proposed development site and this SAC. The proposed development site is outside the 2.5km core foraging range of lesser horseshoe bat (NPWS, 2018). There is no potential for the proposed development to result in any effects on this QI species in the form of disturbance, loss or deterioration of habitat quality. Based on the distance and lack of connectivity between the site and this SAC, potential for indirect impact on the European Site can be excluded. **This site is not in the zone of likely impact, no further assessment is required.**
Connemara Bog Complex SAC (002034)	› Coastal lagoons [1150] › Reefs [1170]	Detailed conservation	This European Site is located 13.9km west of the proposed development site. Given the distance between the site of the proposed

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
Distance: 13.9km west	› Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110] › Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130] › Natural dystrophic lakes and ponds [3160] › Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] › Northern Atlantic wet heaths with *Erica tetralix* [4010] › European dry heaths [4030] › *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] › Blanket bogs (* if active bog) [7130] › Transition mires and quaking bogs [7140] › Depressions on peat substrates of the *Rhynchosporion* [7150] › Alkaline fens [7230] › Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0] › *Euphydryas aurinia* (Marsh Fritillary) [1065] › *Salmo salar* (Salmon) [1106] › *Lutra lutra* (Otter) [1355] › *Najas flexilis* (Slender Naiad) [1833]	objectives for this site (Version 1, October 2015) were reviewed as part of the assessment and are available at www.npws.ie	development and this SAC, direct effects upon the SAC can be excluded. No complete impact source-pathway-receptor chain for impact was identified. This SAC is designated for freshwater, marine, and terrestrial habitats with no connection to the site. The proposed development site lies in a separate groundwater catchment to this SAC and there is no hydrological connection between the proposed development site and this SAC. Given the lack of suitable habitat on site and the distance between the development site and this EU site disturbance to Otter can also be ruled out. Based on the distance and lack of connectivity between the site and this SAC, potential for indirect impact on the European Site can be excluded. **This site is not in the zone of likely impact, no further assessment is required.**
Lough Fingall Complex SAC (000606) Distance: 14.6km south-east	› Turloughs [3180] › Alpine and Boreal heaths [4060] › *Juniperus communis* formations on heaths or calcareous grasslands [5130]	Detailed conservation objectives for this site (Version 1, January 2019)	This European Site is located 14.6km south-east of the proposed development site. Given the distance between the site of proposed development and this SAC, direct effects upon the SAC can be excluded.

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
	› Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*) (* important orchid sites) [6210] › Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210] › Limestone pavements [8240] › *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303]	were reviewed as part of the assessment and are available at www.npws.ie	No complete impact source-pathway-receptor chain for impact was identified. This SAC is designated for freshwater and terrestrial habitats with no connection to the site. The proposed development site lies in a separate groundwater catchment to this SAC and there is no hydrological connection between the proposed development site and this SAC. The proposed development site is outside the 2.5km core foraging range of lesser horseshoe bat (NPWS, 2018). There is no potential for the proposed development to result in any effects on this QI species in the form of disturbance, loss or deterioration of habitat quality. Based on the distance and lack of connectivity between the site and this SAC, potential for indirect impact on the European Site can be excluded. **This site is not in the zone of likely impact, no further assessment is required.**
Special Protection Area (SPA)			
Inner Galway Bay SPA (004031) Distance: 1.7km south	› Great Northern Diver (*Gavia immer*) [A003] › Cormorant (*Phalacrocorax carbo*) [A017] › Grey Heron (*Ardea cinerea*) [A028] › Light-bellied Brent Goose (*Branta bernicla hrota*) [A046] › Wigeon (*Anas penelope*) [A050] › Teal (*Anas crecca*) [A052] › Shoveler (*Anas clypeata*) [A056] › Red-breasted Merganser (*Mergus serrator*) [A069] › Ringed Plover (*Charadrius hiaticula*) [A137] › Golden Plover (*Pluvialis apricaria*) [A140]	Detailed conservation objectives for this site (Version 1, May 2013) were reviewed as part of the assessment and are available at www.npws.ie	This site is 1.7km south of the proposed development, therefore direct impacts upon this SPA can be excluded. The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SPA. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
	› Lapwing (*Vanellus vanellus*) [A142] › Dunlin (*Calidris alpina*) [A149] › Bar-tailed Godwit (*Limosa lapponica*) [A157] › Curlew (*Numenius arquata*) [A160] › Redshank (*Tringa totanus*) [A162] › Turnstone (*Arenaria interpres*) [A169] › Black-headed Gull (*Chroicocephalus ridibundus*) [A179] › Common Gull (*Larus canus*) [A182] › Sandwich Tern (*Sterna sandvicensis*) [A191] › Common Tern (*Sterna hirundo*) [A193] › Wetland and Waterbirds [A999]		areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis, the SCI Wetland and waterbirds [A999] may be impacted. Potential effects on all SCI species are considered under this SCI. The potential for habitat loss was considered. The site does not offer significant habitat for SCI species of Inner Galway Bay SPA - only one SCI species of Inner Galway Bay SPA was recorded utilising the habitats within the development site during the field survey; five Common Gulls (*Larus canus*) recorded on one occasion. Impacts in terms of loss of habitat to the following SCI species can be ruled out, due to the species ecology and their reliance on intertidal mud and sand flats/ sheltered and shallow subtidal habitats within the SPA and the lack of suitable habitat within the proposed development site: › Red-breasted Merganser › Great Northern Diver › Ringed Plover › Turnstone › Dunlin › Shoveler The following species are species of intertidal mud, sand flats and subtidal habitats but are also likely to utilise alternative habitats at certain times (e.g. high tide): › Redshank › Bar-tailed Godwit

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
			• Lapwing • Curlew • Common Gull • Light-bellied Brent Goose • Black headed gull • Golden Plover These species may potentially use agricultural grassland (as found in the proposed development site) for foraging during the winter. However, this habitat is common and widespread in the locality and the loss of this habitat within the site would not have a significant effect on the conservation status of these species due to the abundance of suitable alternative habitat available elsewhere. Sandwich Tern and Common Tern are designated for their breeding populations within the SPA. The proposed development site does not offer suitable breeding or foraging habitat for these species. These species have highly specialised foraging requirements, being piscivorous (fish-eating) birds that forage in shallow water. There is no suitable breeding habitat for cormorants within the proposed development site. Cormorant colonies within the SPA are usually sited on flat or rocky islets or sea stack tops, less often on cliffs (Walsh et al., 1995). Ballindooley Lough lies 400m north-east of the proposed development site and this lake and its surrounding wetland habitats may support some wintering bird species listed as Special Conservation Interests (SCIs) of Inner Galway Bay SPA (which may be linked to the SPA populations).

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
			Three SCI species of Inner Galway Bay SPA, teal, grey heron and wigeon, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. On an extremely precautionary basis, the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species, which could potentially use Ballindooley Lough: › Grey Heron › Wigeon › Teal › Redshank › Bar-tailed Godwit › Lapwing › Curlew › Common Gull › Light-bellied Brent Goose › Black headed gull › Golden Plover **This site is within the zone of likely impact, and further assessment is required.**
Lough Corrib SPA (004042) Distance: 2.8km west	› Gadwall (*Anas strepera*) › Shoveler (*Anas clypeata*) › Pochard (*Aythya ferina*) › Tufted Duck (*Aythya fuligula*) › Common Scoter (*Melanitta nigra*) › Hen Harrier (*Circus cyaneus*) › Coot (*Fulica atra*) › Golden Plover (*Pluvialis apricaria*) › Black-headed Gull (*Chroicocephalus ridibundus*) › Common Gull (*Larus canus*) › Common Tern (*Sterna hirundo*)	This site has the generic conservation objective: '*To maintain or restore the favourable conservation condition of the*	This European Site is located 2.8km west of the proposed development site, therefore direct impacts upon this SPA can be excluded. The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SPA. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
	› Arctic Tern (*Sterna paradisaea*) › Greenland White-fronted Goose (*Anser albifrons flavirostris*) › Wetland and Waterbirds	*bird species listed as Special Conservation Interests for this SPA'* This site has a second conservation objective: '*To maintain or restore the favourable conservation condition of the wetland habitat at Lough Corrib SPA as a resource for the regularly-occurring migratory waterbirds that utilise it.'* (NPWS Generic version 8.0, 2021)	areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis, the SCI Wetland and waterbirds [A999] may be impacted. Potential effects on all SCI species are considered under this SCI. The potential for habitat loss was considered. The site is dominated by improved agricultural grassland and does not offer significant habitat for SCI species of Lough Corrib SPA - only one SCI species of Lough Corrib SPA was recorded utilising the habitats within the development site during the field survey; five Common Gulls (*Larus canus*) recorded on one occasion. There is no supporting habitat for any of the listed wetland or waterfowl SCI bird species of the nearby Lough Corrib SPA within the proposed development site. The proposed development site is located within the core foraging range of Greenland White-fronted Goose (*Anser albifrons flavirostris*) and Golden Plover (*Pluvialis apricaria*), both species which may potentially use agricultural grassland for foraging during the winter. However, this habitat is common and widespread in the locality and the loss of this habitat within the site would not have a significant effect on the conservation status of these species due to the abundance of suitable alternative habitat available elsewhere. The site is of no ecological significance to foraging or roosting hen harrier. as this species has a preference for open heath, scrub and farmland habitats for foraging and reedbed, heath/bog, rank grassland, fen and bracken for roosting (O'Donoghue, 2010). Arctic Tern and Common Tern are designated for their breeding populations within the SPA. Lough Corrib is also a traditional

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
			breeding site for terns, with various islands being used for nesting each year. The proposed development site does not offer suitable breeding or foraging habitat for these species. These species have highly specialised foraging requirements, being piscivorous (fish-eating) birds that forage in shallow water. There is no suitable breeding habitat for tern species or cormorants within the proposed development site. Lough Corrib is designated for its breeding population of common scoter and the population remains concentrated within the upper lough, with greatest breeding numbers in the areas of Doorus and Oughterard Bay (NPWS, 2012). There is no suitable breeding habitat for this species within the proposed development site. Ballindooley Lough lies 400m north-east of the proposed development site and this lake and its surrounding wetland habitats may support some wintering bird species listed as Special Conservation Interests (SCIs) of Lough Corrib SPA (which may be linked to the SPA populations). Three SCI species of Lough Corrib SPA, tufted duck, shoveler and coot, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. On an extremely precautionary basis the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species, which could potentially use Ballindooley Lough: › Tufted Duck › Coot › Black-headed Gull › Common Gull › Gadwall

European Sites and distance from proposed development	Qualify Interests/Special Conservation Interests for which the European site has been designated (Sourced from NPWS online Conservation Objectives, www.npws.ie on the 2711/2021	Conservation Objectives	Likely Zone of Impact Determination
			› Shoveler › Pochard › Golden Plover › Greenland White-fronted Goose **This site is within the zone of likely impact, and further assessment is required.**
Cregganna Marsh SPA (004142) Distance: 8km south-east	› Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395	This site has the generic conservation objective: '*To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA*' (NPWS Generic version 8.0, 2021)	This European Site is located 8km south-east of the proposed development site, therefore direct impacts upon this SPA can be excluded. No complete impact source-pathway-receptor chain for impact was identified. The proposed development site lies in a separate groundwater catchment to this SPA and there is no hydrological connection between the proposed development site and this SAC, therefore there is no potential for deterioration in habitat. Disturbance to the listed SCI species can be ruled out due to the distance between the development site and this SPA. Based on the distance and lack of connectivity between the site and this SAC, potential for indirect impact on the European Site can be excluded. No complete impact source-pathway-receptor chain for impact was identified. **This site is not in the zone of likely impact, no further assessment required.**

3.2 European Sites with the Potential to be Significantly Affected by the Proposed Development

Galway Bay Complex SAC (000268), Lough Corrib SAC (000297), Inner Galway Bay SPA (004031), and Lough Corrib SPA (004042) are the only European Sites which were identified as occurring within the likely zone of impact of the proposed development.

3.2.1 Galway Bay Complex SAC (000268)

The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SAC. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary, basis the following aquatic QI habitats and supporting habitat for aquatic QI species may be impacted:

- Mudflats and sandflats not covered by seawater at low tide [1140]
- Coastal lagoons [1150]
- Large shallow inlets and bays [1160]
- Reefs [1170]
- *Salicornia* and other annuals colonising mud and sand [1310]
- Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [1330]
- Mediterranean salt meadows (*Juncetalia maritimi*) [1410]
- Turloughs [3180]
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]
- Alkaline fens [7230]
- *Lutra lutra* (Otter) [1355]
- *Phoca vitulina* (Harbour Seal) [1365]

3.2.2 Lough Corrib SAC (000297)

The proposed development site lies within the same groundwater catchment as this SAC (Clare-Corrib groundwater catchment). Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis the following groundwater dependent terrestrial ecosystems and aquatic QI habitats and species may be impacted:

- Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110]
- Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130]
- Hard oligo-mesotrophic waters with benthic vegetation of Chara *spp.* [3140]
- Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260]
- Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* [7210]
- Petrifying springs with tufa formation (*Cratoneurion*) [7220]

- Alkaline fens [7230]
- *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410]
- *Lutra lutra* (Otter) [1355]
- *Austropotamobius pallipes* (White-clawed Crayfish) [1092]
- *Lampetra planeri* (Brook Lamprey) [1096]
- *Petromyzon marinus* (Sea Lamprey) [1095]
- *Salmo salar* (Salmon) [1106]

3.2.3 Inner Galway Bay SPA (004031)

The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SPA. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary basis, the SCI Wetland and waterbirds [A999] may be impacted. Potential effects on all SCI species are considered under this SCI.

Ballindooley Lough lies 400m north-east of the proposed development site and this lake and its surrounding wetland habitats may support some wintering bird species listed as Special Conservation Interests (SCIs) of Inner Galway Bay SPA (which may be linked to the SPA populations).

Three SCI species of Inner Galway Bay SPA, teal, grey heron and wigeon, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. On an extremely precautionary basis the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species, which could potentially use Ballindooley Lough:

- Grey Heron (*Ardea cinerea*) [A028]
- Wigeon (*Anas penelope*) [A050]
- Teal (*Anas crecca*) [A052]
- Redshank (*Tringa totanus*) [A162]
- Bar-tailed Godwit (*Limosa lapponica*) [A157]
- Lapwing (*Vanellus vanellus*) [A142]
- Curlew (*Numenius arquata*) [A160]
- Common Gull (*Larus canus*) [A182]
- Light-bellied Brent Goose (*Branta bernicla hrota*) [A046]
- Black headed gull (*Chroicocephalus ridibundus*) [A179]
- Golden Plover (*Pluvialis apricaria*) [A140]

3.2.4 Lough Corrib SPA (004042)

The proposed development site lies within the Clare-Corrib groundwater catchment, which contributes to this SPA. Although no watercourses were identified on-site, the construction phase of the proposed development may result in pollution to groundwaters via the percolation of polluting materials through the limestone bedrock underlying the site. The operational phase will lead to the production of foul sewage, grey water and surface water run off from hard stand areas. Taking a precautionary approach, the works have the potential, in the absence of mitigation, to impact on groundwater quality through pollutants including hydrocarbons, fuel, cement and sedimentation. On a precautionary, basis the SCI Wetland and waterbirds [A999] may be impacted. Potential effects on all SCI species are considered under this SCI.

Ballindooley Lough lies 400m north-east of the proposed development site and this lake and its surrounding wetland habitats may support some wintering bird species listed as Special Conservation Interests (SCIs) of Lough Corrib SPA (which may be linked to the SPA populations).

Three SCI species of Lough Corrib SPA, tufted duck, shoveler and coot, were recorded on Ballindooley Lough and the surrounding flooded wetland habitats during the bird survey. On an extremely precautionary basis the potential for the proposed development to cause disturbance effects was identified with regard to the following SCI species, which could potentially use Ballindooley Lough:

- Tufted Duck (*Aythya fuligula*)
- Coot (*Fulica atra*)
- Black-headed Gull (*Chroicocephalus ridibundus*) [A179]
- Common Gull (*Larus canus*) [A182]
- Gadwall (*Anas strepera*)
- Shoveler (*Anas clypeata*)
- Pochard (*Aythya ferina*)
- Golden Plover (*Pluvialis apricaria*)
- Greenland White-fronted Goose (*Anser albifrons flavirostris*)

3.3 Likely Cumulative Impact of the Proposed Works on European Sites, in-combination with other plans and projects

Where potential pathways for effect have been identified in Table 3-1**Error! Reference source not found.**, the potential for cumulative effects resulting from the proposed development when considered in combination with other plans and projects, cannot be discounted at this stage and further assessment is required. Cumulative effects are assessed in the NIS.

4. ARTICLE 6(3) APPROPRIATE ASSESSMENT SCREENING STATEMENT AND CONCLUSIONS

The findings of this Screening Assessment are presented following the European Commission's Assessment of Plans and Projects Significantly affecting Natura 2000 Sites: Methodological Guidance on the provisions of Article 6(3) and 6(4) of the Habitats Directive 92/43/EEC (EC, 2001) and Managing Natura 2000 Sites: the provisions of Article 6 of the 'Habitats' Directive 92/43/EEC (EC, 2018) as well as the Department of the Environment's Appropriate Assessment of Plans and Projects in Ireland - Guidance for Planning Authorities (DoEHLG, 2010).

4.1 Data Collected to Carry Out Assessment

In preparation of the report, the following sources were used to gather information:

- Review of NPWS Site Synopses, Conservation Objectives for the European Sites
- Review of 2019, 2013 and 2007 EU Habitats Directive (Article 17) Reports.
- Review of online web-mappers: National Parks and Wildlife Service (NPWS), EPA, Water Framework Directive (WFD),
- Review of OS maps and aerial photographs of the site of the proposed project.
- Site visits carried out on in March 2021 by Julie O'Sullivan and 24th November by Colin Murphy.

4.2 Concluding Statement

It cannot be concluded beyond reasonable scientific doubt, in view of best scientific knowledge, on the basis of objective information and in light of the conservation objectives of the relevant European sites, that the proposed development, individually or in combination with other plans and projects, would not be likely to have a significant effect on Galway Bay Complex SAC, Inner Galway Bay SPA, Lough Corrib SAC and Lough Corrib SPA.

As a result, it is recommended to the competent authority that an Appropriate Assessment is required, and a Natura Impact Statement will be prepared in respect of the proposed development.

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APPENDIX 1

SITE LAYOUT DRAWINGS

BOUNDARY TO GALWAY N6 ROAD RESERVATION

CELL 03
24 units

CELL 04
20 units

CELL 02
19 units

CELL 01
21 units

TERRACE 07
TERRACE 10
TERRACE 11
TERRACE 06
TERRACE 08
TERRACE 09
TERRACE 05
TERRACE 04
TERRACE 03
TERRACE 01
TERRACE 02

Public open space 01
Area 884.2 sqm (2.3%)

Public open space 02
Area 496.5 sqm (1.3%)

Public open space 03
Area 4224 sqm (11.2%)

Public open space 04
Area 236 sqm (0.6%)

Proposed Green way link as per Galway City development plan

Outdoor Space
Area 189 m2

Creche
Floor Area: 288.7m2

Duplex Block 01
08 Duplex units

Duplex Block 02
14 units

Duplex Block 03
16 units

Duplex Block 04
10 units

Apartment Building 01
17 units
4 Floors with set back
Unit No. 01 -17
Lwr Grd F.F.L: +16.450
Upr Grd F.F.L: +19.600

Apartment Building 02
21 units
4 Floors with set back
Unit No. 150 - 170
Lwr Grd F.F.L: +17.00
Upr Grd F.F.L: +20.130

LOCATION OF SITE NOTICE

LOCATION OF SITE NOTICE

Part 01

Part 02

02 Location key
Scale: n.t.s

01 Site Layout Plan
Scale: 1 : 500

TOTAL NO. OF UNITS = 170

OVERALL SITE AREA : **46,262sqm**
4.626 HA :- 11.431 acre

DEVELOPABLE SITE AREA : **37,622.2sqm**
3.762 HA :- 9.296 acre

84 no. Houses (49%)
86 no. Duplex/Apartment Units (51%)
TOTAL UNITS ON SITE: 170

Density
45.19 Units per Ha - Residential Density
(170 units on 3.762ha)
18.28 Units per Acre - Residential Density
(170 units on 9.296 acre)

Public open space (approx. areas)

Total open space : 5,840.7 sqm - 15.5%

Total open space required : 5,643.3 sqm
(15% of Developable residential area 3.762 ha)

N
MID-NIGHT
1 a.m. 2 a.m. 3 a.m. 4 a.m. 5 a.m. 6 a.m. 7 a.m. 8 a.m. 9 a.m. 10 a.m. 11 a.m.
W E
1 p.m. 2 p.m. 3 p.m. 4 p.m. 5 p.m. 6 p.m. 7 p.m. 8 p.m. 9 p.m. 10 p.m. 11 p.m.
NOON
S

LEGEND	
	DEVELOPABLE AREA *
	PUBLIC GREEN OPEN SPACE
	PRIVATE GARDEN SPACE
	SHARED SURFACE

SCHEDULE OF ACCOMMODATION - HOUSE TYPES

	HOUSE TYPE A1		**HOUSE TYPE B3**
	SEMI-DETACHED 4 BED		END-TERRACE 3 BED
	2 STOREY		2 STOREY
	Gross Floor Area: 121.4 m²		Gross Floor Area: 107.6 m²
	TOTAL amount of units: 08		TOTAL amount of units: 08
	HOUSE TYPE B1		**HOUSE TYPE C1**
	END OF TERRACE 3 BED		MID TERRACE 2 BED
	2 STOREY		2 STOREY
	Gross Floor Area: 102.2 m²		Gross Floor Area: 84.8 m²
	TOTAL amount of units: 17		TOTAL amount of units: 18
	HOUSE TYPE B2		**HOUSE TYPE C2**
	MID-TERRACE 3 BED		MID-TERRACE 2 BED
	2 STOREY		2 STOREY
	Gross Floor Area: 102.2 m²		Gross Floor Area: 84.8 m²
	TOTAL amount of units: 17		TOTAL amount of units: 16
COMBINED TOTAL AMOUNT OF HOUSE TYPES:			84

SCHEDULE OF ACCOMMODATION - DUPLEX UNITS

	DUPLEX TYPE A1/A2, C1/C2, D1/D2		**DUPLEX TYPE B1/B2, E1/E2**
	3 BED OVER 2 BED		2 BED OVER 1 BED
	2.5 STOREY		2.5 STOREY
	Area: 84.1 m² & 100.1 m²		Area: 60.4 m² & 70.6 m²
COMBINED TOTAL AMOUNT OF DUPLEX TYPES:			48

SCHEDULE OF ACCOMMODATION - APARTMENT UNITS

APARTMENT BUILDING 01	
1 Bed 2 person Apartment	10
2 Bed 4 person Apartment	07
APARTMENT BUILDING 02	
1 Bed 2 person Apartment	12
2 Bed 4 person Apartment	09
COMBINED TOTAL AMOUNT OF APARTMENTS:	38

No.	Date	Comments	By

REVISIONS

Scale: 1:500
Drawing Purpose: SHD Application
Project: Reisdential Development at Bothar an Choiste, Castlegar, Galway
Client: Lock House Developments LTD
Date: JULY 2022 Drawn by: IF Checked by: JON
Paper size: A1 CTB file: 3.09 LTScale:

File Ref. 3.09 | Subject: Site Layout Plan (Part 01)

Project No. 18151 | Drawing No. 3004 | Rev.

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SITE LAYOUT PLAN - PART 01

APPENDIX 2

IRISH WATER CORRESPONDENCE

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H91AXK8

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Bosca OP 448
Oifig Sheachadta na
Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448,
South City
Delivery Office,
Cork City.

www.water.ie

10 December 2021

Re: CDS21007628 pre-connection enquiry - Subject to contract | Contract denied

Connection for Multi/Mixed Use Development of 180 unit(s) at Castlegar, Galway, Co Galway

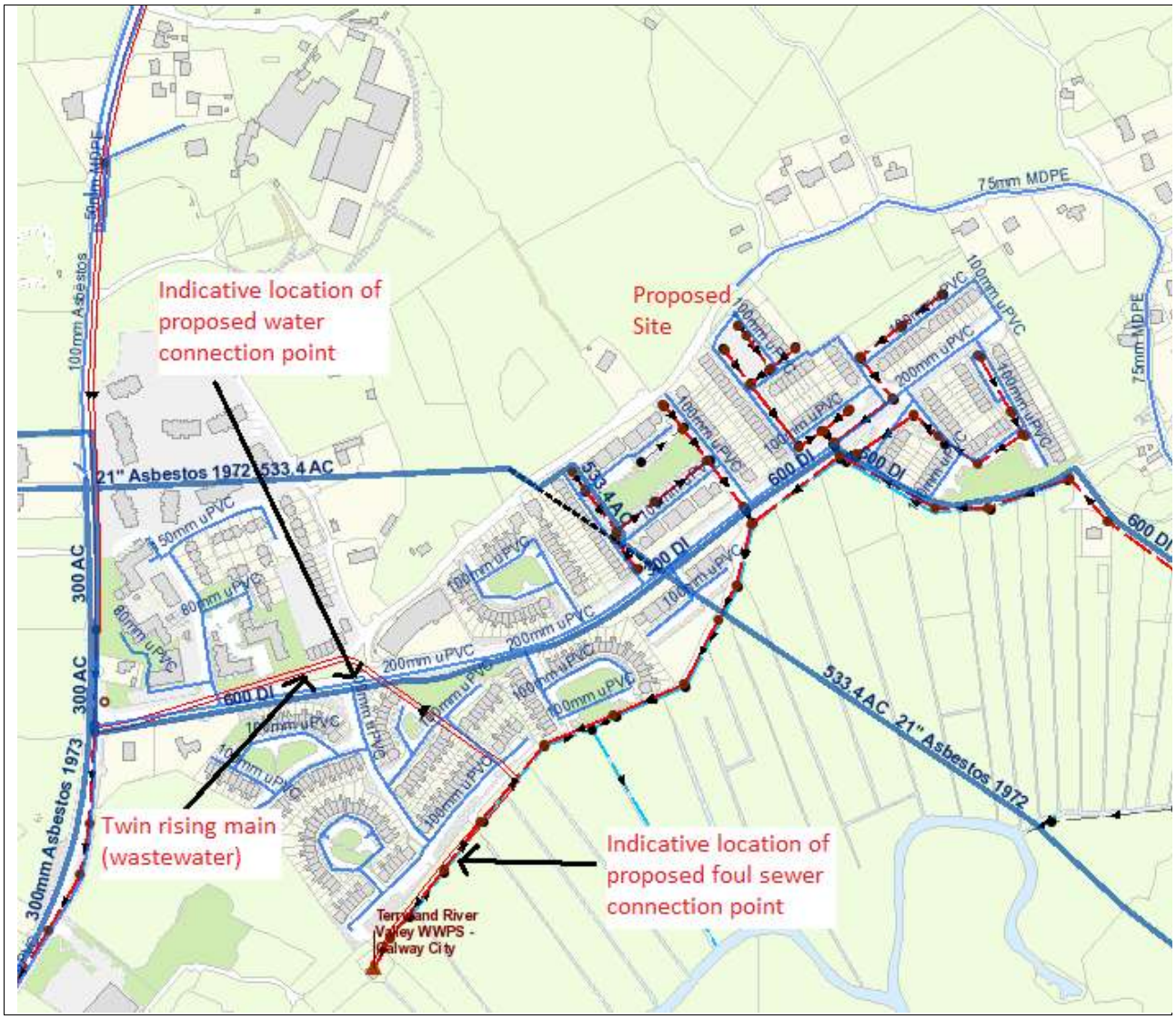
Dear Sir/Madam,

Irish Water has reviewed your pre-connection enquiry in relation to a Water & Wastewater connection at Castlegar, Galway, Co Galway (the **Premises**). Based upon the details you have provided with your pre-connection enquiry and on our desk top analysis of the capacity currently available in the Irish Water network(s) as assessed by Irish Water, we wish to advise you that your proposed connection to the Irish Water network(s) can be facilitated at this moment in time.

SERVICE	**OUTCOME OF PRE-CONNECTION ENQUIRY** **THIS IS NOT A CONNECTION OFFER. YOU MUST APPLY FOR A CONNECTION(S) TO THE IRISH WATER NETWORK(S) IF YOU WISH TO PROCEED.**
Water Connection	Feasible Subject to upgrades
Wastewater Connection	Feasible Subject to upgrades
SITE SPECIFIC COMMENTS	
Water Connection	There is sufficient capacity in the existing Water Treatment Plant to facilitate the proposed development. The Developer has proposed the installation of a 450m (approx.) long water network extension to the south west towards the junction between Bothar an Choiste and the main road. Irish Water have no objection to this proposal. Please note while flows in excess of your required demand may be achieved in the Irish Water network and could be utilised, Irish Water cannot guarantee a flow rate to meet your requirement. To guarantee a flow to meet your requirements, you should provide adequate storage capacity within your development.
Wastewater Connection	There is sufficient capacity in the existing Terryland River Wastewater Treatment Plant to facilitate the proposed development.

	The Developer has proposed the installation of a foul sewer network extension consisting of 230m of a pumped sewer and 215m of Gravity Sewer to the southwest towards the junction between Bothar an Choiste and the main road. Irish water records indicate that this proposed connection point is in fact a privately own sewer main and has not yet been taken in charge by Irish Water. This is 3rd party owned infrastructure is connected to the Irish Water network. The Irish Water Regional contractor can facilitate a connection. It will be the customer's responsibility to ensure that permission is in place from the private owner to allow the physical connection works to be undertaken. The customer will also be responsible to assess and confirm that the private infrastructure has capacity and is structurally adequate to cater for their development demands. The private infrastructure will remain classified as private infrastructure and is not assumed by any party to be adopted/taken in charge by Irish Water following the new connection being made. If the above option is not acceptable by the private infrastructure owner, the nearest viable connection point is to the existing 450mm dia. concrete pipe located approx. 625m from the proposed site, to the south west, on the Baile an Choiste Rd, near the Terryland River Valley WWPS.
The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this development shall comply with the Irish Water Connections and Developer Services Standard Details and Codes of Practice that are available on the Irish Water website. Irish Water reserves the right to supplement these requirements with Codes of Practice and these will be issued with the connection agreement.	

The map included below outlines the current Irish Water infrastructure adjacent to your site:



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Whilst every care has been taken in its compilation Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions. This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

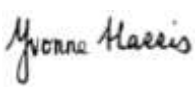
General Notes:

1) The initial assessment referred to above is carried out taking into account water demand and wastewater discharge volumes and infrastructure details on the date of the assessment. **The availability of capacity may change at any date after this assessment.**
2) This feedback does not constitute a contract in whole or in part to provide a connection to any Irish Water infrastructure. All feasibility assessments are subject to the constraints of the Irish Water Capital Investment Plan.

3) The feedback provided is subject to a Connection Agreement/contract being signed at a later date.
4) A Connection Agreement will be required to commencing the connection works associated with the enquiry this can be applied for at https://www.water.ie/connections/get-connected/
5) A Connection Agreement cannot be issued until all statutory approvals are successfully in place.
6) Irish Water Connection Policy/ Charges can be found at https://www.water.ie/connections/information/connection-charges/
7) Please note the Confirmation of Feasibility does not extend to your fire flow requirements.
8) Irish Water is not responsible for the management or disposal of storm water or ground waters. You are advised to contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges
9) To access Irish Water Maps email datarequests@water.ie
10) All works to the Irish Water infrastructure, including works in the Public Space, shall have to be carried out by Irish Water.

If you have any further questions, please contact Barry Butler from the design team by email barry.butler@water.ie For further information, visit **www.water.ie/connections.**

Yours sincerely,



Yvonne Harris

Head of Customer Operations

APPENDIX 2

LANDSCAPING PLAN

CAD REFERENCE: S:\CSR GALWAY\Landscape\PROJECT FOLDERS\2020\20442_Bothar An Choiste Headford Rd\CSR\20442-3-100.dwg

LEGEND

- Large Native Tree Species
- Small - Medium Native Tree Species
- Street Tree Species
- Amenity grass
- Wildflower meadow grass
- Perennials & Seasonal Bulbs
- Low Height Ornamental Shrub Mix
- Medium Height Buffer Planting Ornamental Shrub Mix
- Native Hedgerow
- Feature bench
- Imprinted tarmac
- Coloured Concrete paving setts
- Reinforced grass paving system
- Coloured bitmac paths
- Tarmac Road
- Brushed concrete paths
- Site Boundary

INDICATIVE PLANTING SCHEDULE

Proposed Street Trees
Planted in same species groups or lines on individual streets.

Large Trees	No:
Acer campestre 'Streetwise' 16-18 cm gth, 4-6m ht	*8*
Acer campestre 'Elsr.jk' 16-18cm gth, 4-6m ht	*7*
Corylus colurna 14-16cm gth, 5-6m ht	*8*
Tilia cordata 'Greenspire' 16-18cm, 5-6m ht	*8*
Small - Medium Trees	**No:**
Betula pendula 8-10cm, 3-4m ht	*6*
Sorbus aria 'Lutescens' 14-16cm, 3-4m ht	*7*
Pyrus 'Chanticleer', 14-16cm, 3-4m ht	*8*
Sorbus aucuparia 12-14cm, 2.5-3.5m ht	*8*

Proposed Parkland, Open Spaces and Feature Trees

Large Native Trees	No:
Acer Pseudoplatanus 14-16cm, 3-4m ht	*12*
Alnus glutinosa 14-16cm, 3-4m ht	*9*
Quercus petrea 14-16cm, 4.25-6m ht	*12*
Fagus sylvatica 14-16cm, 4.25-6m ht	*10*
Pinus sylvestris 120-150cm, RB	*11*
Larix decidua 120-150cm, RB	*9*
Small - Medium Native Trees	**No:**
Betula pendula 8-10cm, 3-4m ht	*11*
Sorbus aria 'Lutescens' 14-16cm, 3-4m ht	*13*
Prunus 'avium', 14-16cm, 3-4m ht	*9*
Sorbus aucuparia 12-14cm, 2.5-3.5m ht	*10*

Shrub planting
Indicative species list (Plant Species to be at least 75% pollinator friendly in line with 'All Ireland Pollinator Plan')

Low height ornamental shrubs/plants -max. ht. 40-150cm, 2L min. pot size and planted at 4/m2

Ajuga reptans va	*Centaurea montana*	Miscanthus spp.	Rudbeckia 'Goldstrum'
Aster novi-beigii	*Erica spp.*	Picea abies procumbens	Spirea japonica 'Firelight
Berberis 'Amstelveen'	*Geranium m. 'Czakor'*	Pinus mugo 'Mops'	Santolina cham. 'Nana
Carex sp.	*Hedera helix 'Hibernica'*	Potentilla spp.	Sarcococca spp.
Ceanothus 'Blue Mound'	*Lavandula angustifolia*	Rosa 'Rhapsody Blue'	Stipa spp
Ceanothus 'Glorie de Versailles'	*'Blue Cushion'*	Rosa 'Tananaistrua'	
		Rosa 'Noaschnee'	

Medium height ornamental shrub mix at 1-3/m2
(Plant Species to be at least 75% pollinator friendly in line with 'All Ireland Pollinator Plan')

Choisya ternata 45-60cm, 3L pot	*Viburnum davidii 30-45, 2L pot*
Cornus sanguinea 60-90cm,br.	*Rosa 'Rhapsody Blue/Tananaistrua', 2L pot*
Corylus avellana 60-90cm, br.	*Amelancier Canadendis 90-120cm*
Cytissus 'All Gold' 45-60cm, 3L pot	*Cotinus coggygria (90-120cm)*
Fuchsia 'Riccartonii 45-60cm, 3L pot	*Cordyline australis (90 cm)*
Hypericum 'Hidcote 45-60cm, 3L pot	
Lavandula ang. 45-60cm, 3L pot	
Lonicera pileata 45-60cm, 3L pot	

Native Shrubs/Hedgerow planting
Planted as whips 60-90cm ht., at 4/m2, in random mixes of 5-7. Species to include:

Prunus spinosa	*Sorbus aria*	*Ligustrium vulgare*
Crataegus monogyna	*Rosa canina*	*Rosa rugosa*
Euonymous europaes	*Sambuscus nigra*	*Vivurnum opulus*

NOTE: 1.Proposed Street Trees to be planted in same species groups or lines of individual trees on streets to aid in creating character areas.
2. Weed control membrane and min.60mm thick of Medium Grade Bark Mulch to all planted beds.
3. All Trees to be double staked and tied with biodegradable hessian tree tie's

REV	DATE	AMENDMENT

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PROJECT: **BOTHÁR AN CHOISTE GALWAY.**	DATE: JULY 2022
	SCALE: 1:500 @ A1
DRAWING: **LANDSCAPE MASTER PLAN**	DRAWN: RH CHECKED: KM
	DRAWING NO: **20442-3-100**